Refugio Road Undercrossing Bridges Replacement Project

Santa Barbara County, California
District 5-SB-101 (PM R36.0–R37.0)
EA 05-1C9500/Project ID 05-1300-0018

Draft Environmental Impact Report/ Environmental Assessment

Prepared by the
State of California Department of Transportation

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

February 2020

Caltrans

General Information About This Document

What's in this document:

The California Department of Transportation (known as Caltrans), as assigned by the Federal Highway Administration, has prepared this Environmental Impact Report/Environmental Assessment, which examines the potential environmental impacts of the alternatives being considered for the project in Santa Barbara County, California. Caltrans is the lead agency under the National Environmental Policy Act. Caltrans is the lead agency under the California Environmental Quality Act. This 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, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read the document. Additional copies of the document and related technical studies are available for review at the following locations: 1) Caltrans District 5 Midway Office at 4885 South Higuera Street, San Luis Obispo, CA 93401; 2) Refugio Beach Store at 10 Refugio Beach Road, Goleta, CA 93117; 3) Goleta Valley Library at 500 North Fairview Avenue, Goleta, CA 93117; 4.) Buellton Library at 140 CA-246, Buellton, CA 93427.
- This document can also be downloaded at the following website: https://dot.ca.gov/caltrans-near-me/district-5
- Attend the public hearing on April 2, 2020.
- We'd like to hear what you think. If you have any comments regarding the project, please attend the public hearing and/or send your written comments to Caltrans by the deadline.
- Submit comments via U.S. mail to: Lara Bertaina, Environmental Branch Chief, Environmental Planning Division, California Department of Transportation, District 5, 50 Higuera Street, San Luis Obispo, CA 93401.
- Submit comments via email to: lara.bertaina@dot.ca.gov.
- Submit comments by the deadline: April 22, 2020.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the Federal Highway Administration, may 1) give environmental approval to the 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.

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, Attention: Lara Bertaina, Environmental Branch Chief, Environmental Planning Division, California Department of Transportation, District 5, 50 Higuera Street, San Luis Obispo, CA 93401; phone 805-542-4610 (Voice), or use the California Relay Service 1-800-735-2929 (TTY), 1-800-735-2929 (Voice), or 711.

SCH Number 2019011050
05-SB-101-PM R36.0/R37.0
05-1C9500/05-1300-0018

Replace the existing Refugio Road Bridges on U.S. Highway 101
at post mile R36.6 in Santa Barbara County

DRAFT ENVIRONMENTAL IMPACT REPORT/ ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 U.S. Code 4332(2)(C) and 49 U.S. Code 303

THE STATE OF CALIFORNIA
Department of Transportation

Timothy M. Gubbins
District 5 Director
California Department of Transportation
CEQA and NEPA Lead Agency

02/14/2020
Date

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

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Summary

The California Department of Transportation (Caltrans) proposes to replace the Refugio Road undercrossing bridges along U.S. Highway 101 (known as U.S. 101) near Refugio State Beach in Santa Barbara County.

NEPA Assignment

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

Overview of Project Area

The Refugio Road undercrossing bridges (Bridge Numbers 51-0215R and 51-0215L), called the Refugio Road Bridges in this document, sit at post mile R36.6 on U.S. 101 along the Gaviota Coast of Santa Barbara County, next to Refugio State Beach. The project extends from post miles R36.0 to R37.0. Near the project, U.S. 101 is a rural, rolling, divided five-lane freeway with a posted speed limit of 65 miles per hour.

The Refugio Road Bridges, which were built in 1974, feature continuous reinforced-concrete box girders on single-column bents with driven concrete piles and open-end diaphragm abutments. The roadway and bridges are on a curved alignment with five 12-foot-wide lanes. The northbound and southbound left shoulder widths are 5 feet and 17 feet, respectively; the right shoulder width is 10 feet. Refugio Road runs perpendicular to U.S. 101 beneath the undercrossing bridges and provides access to Refugio State Beach.

Purpose

The purpose of the project is to ensure the safety and reliability of the U.S. 101 corridor by addressing the presence of alkali-silica reactivity in the left and right Refugio Road undercrossing bridges. Another objective of the project is to improve anadromous fish migration within the project limits at Cañada del Refugio Creek while maintaining the bank stability needed to protect the bridges from scour.

Need

The project is needed due to the presence of alkali-silica reactivity in the concrete of both Refugio Road undercrossing bridges. This was found through concrete core testing and several inspections by Caltrans' Structure Maintenance and Investigations Team. The presence of reactive aggregate in the bridge structure concrete has caused the deterioration of the bridge decks and the formation of cracks in the bridge abutments.

Alkali-silica reactivity is a widespread problem affecting Portland cement concrete. It occurs when silica in the aggregate and alkali in the cement paste react when exposed to water or moisture. The reaction causes swelling and cracking in the concrete, which can lead to concrete failure and corrosion of the embedded steel reinforcement bars. It is not possible to permanently repair a concrete bridge structure with alkali-silica reactive aggregate.

Both Refugio Road Bridges have a long history of cracking and spalling due to alkali-silica reactivity. According to a Structure Replacement and Improvement Needs Report, deck cracking was first noted in October 1974 on the northbound bridge and in July 1979 on the southbound bridge. Cracking on one of the southbound bridge abutments was first noted in 1995. The bridge decks have continued to deteriorate, and cracking has developed on the other bridge abutments. Repairs have been completed on each bridge to temporarily extend their service life, but the reaction in the concrete continues.

Fish passage improvements are needed because the portion of Cañada del Refugio Creek that was lined with concrete-grouted rock slope protection during construction of the Refugio Road Bridges in 1974 is a partial barrier to the upstream migration of southern California steelhead trout and other anadromous fish. This portion of the creek is passable by adult fish during high flow conditions, but water depths are too shallow for adult fish during low flow conditions. Fish passage criteria for juvenile fish were not met for either low flow or high flow conditions. California Fish and Game Code Section 15901 and 15931 make it unlawful to impede fish passage and Article 3.5 of the California Streets and Highways Code Section 156 requires that Caltrans remediate fish passage barriers for any project using state or federal transportation funds that affects a stream crossing on a stream where anadromous fish are currently, or were historically, found.

Proposed Action

The project would remove the two existing two-span bridges at post mile R36.6 and construct new bridges that comply with current design standards, including California ST-75 or other approved Manual for Assessing Safety Hardware-compliant bridge railings. The concrete-grouted rock slope protection along the bed of Cañada del Refugio Creek would also be removed to eliminate the partial barrier to fish passage and enhance habitat conditions.

Additional project elements include upgrading the nonstandard bridge railings on the Cañada Del Refugio northbound onramp bridge to Manual for Assessing Safety Hardware-compliant railings and rehabilitating a pedestrian pathway beneath the bridge to make it compliant with the standards of the Americans with Disabilities Act. Other improvements to the interchange during project construction include replacing the degraded lighting system within the project limits, bringing metal beam guard railings affected by the project up to current standards, and applying contrasting surface treatment beyond the gore pavement to the southbound U.S. 101 off-ramp.

The project would take about two and a half years (three construction seasons) to complete, with the bridges reconstructed one at a time. The bridges would be replaced during the first two construction seasons. Demolition of each bridge would occur during the dry season of each year, when the creek is low or not flowing. Fish passage improvements would occur throughout the duration of the project and would require a third construction season to complete.

During construction, two lanes of traffic in both the northbound and southbound directions will be located on one bridge, separated by a barrier while the other bridge is being constructed. Intermittent closures of Refugio Road beneath the bridges would be required during certain construction activities. During these closure periods, detour routes for motorists and cyclists will be provided to maintain access to Refugio State Beach.

There are two design options currently proposed for the project: two-span bridges (Alternative 1) and clear-span bridges (Alternative 3). A three-span bridge design (Alternative 2) was previously removed from consideration because it was anticipated to have greater environmental impacts, higher overall cost, and no added benefit in comparison to the other build alternatives. Under the No-Build Alternative, no action would be taken. The viable alternatives are discussed in greater detail, below.

Alternative 1—Two-span replacement bridges. This alternative would construct two bridges with two-span, cast-in-place, prestressed concrete box girder structures that would be almost identical replacements of the current bridges. Each new bridge would be supported by two slender columns in comparison to the larger and wider column of the existing bridges. Each bridge would be about 352 feet long.

Alternative 3—Clear-span replacement bridges. This alternative would construct two bridges with single-span prestressed box girder structures without the need for support columns. Due to the lack of columns, the clear-span bridges would be thicker (deeper) than the existing bridges and would be supported by larger abutments and retaining walls that are about 18 feet longer than the existing abutments. The bridges would be about 300 feet long.

No-Build Alternative. The existing bridges would remain in place with no modifications.

Joint California Environmental Quality Act/National Environmental Policy Act Documentation

The project is a joint project by Caltrans and the Federal Highway Administration 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 (known as CEQA) and the National Environmental Policy Act (known as NEPA). Caltrans is the lead agency under NEPA. Caltrans is the lead agency under CEQA. In addition, 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 U.S. Code Section 327 and the Memorandum of Understanding dated December 23, 2016 and executed by Federal Highway Administration and Caltrans.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project, often a "lower level" document is prepared for NEPA. One of the most common joint document types is an Environmental Impact Report/Environmental Assessment.

After receiving comments from the public and reviewing agencies, a Final Environmental Impact Report/Environmental Assessment will be prepared. Caltrans may prepare additional environmental and/or engineering studies to address comments. The Final Environmental Impact Report/Environmental Assessment will include responses to comments received on the Draft Environmental Impact Report/Environmental Assessment and will identify the preferred alternative. If the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact or require an Environmental Impact Statement for compliance with NEPA. A Notice of Availability of the Finding of No Significant Impact will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

Project Impacts

Table S-1 summarizes potential impacts that would result from each alternative. Detailed discussion and an analysis of project impacts are provided in Chapter 2 of this draft document. Avoidance, minimization, and mitigation measures are included in Appendix D.

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Table S-1 Summary of Potential Impacts from Alternatives

Potential Impact	Alternative 1: Two-Span Bridges	Alternative 3: Clear-Span Bridges	No-Build Alternative
Land Use—Consistency with the County of Santa Barbara General Plan	No impact—The project footprint is within the U.S. 101 transportation corridor. Under Alternative 1, the land use would not change, and is consistent with the County of Santa Barbara General Plan and Gaviota Coast Plan.	Same as Alternative 1.	No change in land use.
Coastal Zone	The project limits are entirely within the coastal zone and would require a Coastal Development Permit per the recently adopted Gaviota Coast Plan. The project limits are under the jurisdiction of the County of Santa Barbara but also contain a portion in an area of original jurisdiction.	Same as Alternative 1.	No Coastal Development Permit required.
Wild and Scenic Rivers	No impact—there are no wild and scenic rivers near the project.	Same as Alternative 1.	No impact.
Parks and Recreational Facilities	Intermittent closures of Refugio Road would require Refugio State Beach visitors accessing the park from northbound U.S. 101 to use detours. Expected closures would occur intermittently for about 10 months (five months per bridge). Daytime construction noise and construction dust may temporarily disturb state beach visitors.	Like Alternative 1, except that intermittent closures of Refugio Road would be much less extensive, lasting only about six weeks (three weeks per bridge).	Further degradation of the Refugio Road Bridges would disrupt the U.S. 101 corridor and access to Refugio State Beach.
Farmland and Timberland	No impact—there are no prime agricultural lands or timberlands near the project. A small parcel of grazing lands may be temporarily used for access during project construction, but there would be no long-term changes to the use of this parcel and the temporary use would not affect agricultural activities.	Same as Alternative 1.	No impact.
Growth	No impact—the alternative would not add capacity to the roadway.	Same as Alternative 1.	Further degradation of the Refugio Road Bridges would disrupt the U.S. 101 corridor.
Community Character and Cohesion	No impact—the replacement bridges would function in the same manner and at the same location as the existing bridges.	Same as Alternative 1.	Further degradation of the Refugio Road Bridges would disrupt the U.S. 101 corridor, limiting movement between the surrounding communities.
Relocations and Real Property Acquisition: Housing and Business Displacements	No impact—the alternative would not displace any houses or businesses.	Same as Alternative 1.	No impact.
Relocations and Real Property Acquisition: Utility Service Relocation	Several above ground and buried utility lines occur within the project limits and would need to be relocated or protected in place in cooperation with the utility owners.	Same as Alternative 1.	No Impact.
Environmental Justice	No impact—residents would not be displaced and there would not be a disproportionate impact on underserved communities.	Same as Alternative 1.	No impact.
Utilities and Emergency Services	Emergency vehicles traveling to Refugio State Beach and northbound Refugio Road would be temporarily affected by closure of Refugio Road beneath U.S. 101. Detours would provide consistent access to the state beach and Refugio Road but would create delays. The estimated closure period of Refugio Road is about 10 months (five months per bridge) for Alternative 1.	Like Alternative 1, except that intermittent closures of Refugio Road requiring detours would be much less extensive, only about six weeks (three weeks per bridge).	Further degradation of the Refugio Road Bridges would disrupt travel on the U.S. 101 corridor, which would negatively impact the movement of emergency services.
Traffic and Transportation/ Pedestrian and Bicycle Facilities	The alternative would improve pedestrian and bicycle facilities. The replacement bridges would include rails that conform to bicycle heights, which would increase bicyclist safety on U.S. 101. An existing pedestrian pathway beneath the bridges would be reconstructed to meet ADA standards and would maintain coastal access to Refugio State Beach. Refugio Road would be closed intermittently for 10 months (five months per bridge) during project construction. Implementation of a traffic management plan involving detours would ensure consistent access to Refugio State Beach for vehicles and cyclists.	Like Alternative 1, except that intermittent closures of Refugio Road would be much less extensive, only about six weeks (three weeks per bridge).	Further degradation of the Refugio Road Bridges would disrupt movement through the U.S. 101 corridor. Refugio Road would not be temporarily closed because no construction would occur.

Potential Impact	Alternative 1: Two-Span Bridges	Alternative 3: Clear-Span Bridges	No-Build Alternative
Visual/Aesthetics	Although short-term visual impacts would occur during construction, long-term impacts aren't expected. The replacement bridges would generally follow the same profile as the existing bridges and include open-style railings approved for use in the coastal zone. The new bridges would be longer (17-feet) with a thinner profile and a greater distance between the abutments. The columns would remain in the same general area.	Like Alternative 1. The clear span bridges would have a bulkier appearance than Alternative 1 due to a thicker bridge deck and larger abutments that would be closer together. The support columns would be removed, opening up views along the creek.	No impact.
Cultural Resources	Adverse effects cannot be avoided to one historic site in the project area of potential effects. CA-SBA-87 contains intact archaeological deposits that would be impacted by earthwork needed for the project. An archaeological treatment plan was developed in consultation with the State Historic Resources Preservation Officer and local tribes. The plan includes data recovery prior to construction (Mitigation Measure CUL-1), implementation of an archaeological monitoring program during project-related earthwork Minimization Measures CUL-2), analysis and interpretation of cultural materials excavated by archaeologist G. James West in 1969 prior to the construction of the existing Refugio Road Bridges (Mitigation Measure CUL-3), and public outreach (Mitigation Measure CUL-4).	Same as Alternative 1.	CA-SBA-87 would not be further degraded. The collection excavated by West in 1969 would not be analyzed and curated, and no education and outreach would occur.
Hydrology and Floodplain	The project includes fish-passage improvements within a 100-year Zone "A" floodplain. The work would minimally raise water surface elevation in Cañada del Refugio Creek by 0.3 foot but would not alter the flood source or flood risk for people, structures or crops. The existing barrier to fish passage in Cañada del Refugio Creek created by concrete-grouted rock slope protection would be removed.	Same as Alternative 1.	No impact.
Water Quality and Storm Water Runoff	The project would reduce impervious surface area due to removal of concrete-grouted rock slope protection from the creek bottom. Temporary impacts to surface water quality are expected during construction. These would be minimized through implementation of best management practices and measures.	Same as Alternative 1.	Impervious surface area would remain the same; the bed of Cañada del Refugio Creek would not be naturalized.
Geology, Soils, Seismicity and Topography	The project would be designed to meet current seismic standards and resist erosion and scour. Temporary construction impacts include the potential for increased soil erosion, which would be minimized by implementing standard best management practices.	Same as Alternative 1.	No impact.
Paleontology	No impact—earthwork would not disturb sediments of high paleontological potential.	Same as Alternative 1.	No impact.
Hazardous Waste and Materials	Aerially deposited lead, asbestos-containing materials, and lead-containing paint may be encountered during project construction, which are standard hazardous waste issues encountered in roadway construction projects. Hazardous materials would be appropriately handled and disposed of through implementation of standard avoidance and minimization measures.	Same as Alternative 1.	No impact.
Air Quality	Alternative 1 would create short-term air quality impacts associated with fugitive dust generated during construction and emissions from construction equipment, but implementation of a debris containment and collection plan and standard specifications would reduce impacts. No long-term air quality impacts are expected.	Same as Alternative 1.	No impact.
Noise and Vibration	Construction noise would be short term and intermittent during the construction period. Implementation of minimization measures and Caltrans' Standard Specifications during construction would minimize impacts. No long-term noise impacts are expected.	Same as Alternative 1.	No impact.
Energy	No impact—the project is not capacity-increasing and therefore would not increase long-term energy usage. Construction-period energy usage would be minimized through recycling of materials and implementation of greenhouse gas reduction strategies.	Same as Alternative 1.	Energy would continue to be used during maintenance of the deteriorating bridges.

Potential Impact	Alternative 1: Two-Span Bridges	Alternative 3: Clear-Span Bridges	No-Build Alternative
Natural Communities	The project would have a limited footprint (about 305 square feet) of permanent impacts to coastal scrub communities. Temporary impacts would total about 2 acres across six natural communities, mostly coastal scrub. Impacts would be offset by on-site and in-kind replacement planting (Mitigation Measure WET-3) and other avoidance and minimization measures. Wildlife corridors would be temporarily affected by project construction, but it is expected that wildlife passage would benefit from eliminating the fish passage barrier through the project limits and naturalizing the bed of Cañada del Refugio creek.	Like Alternative 1. Permanent impacts to coastal scrub communities would be greater than Alternative 1 by 0.019 acre (about 825 square feet). Temporary impacts would be less by 0.159 acre (about 6,925 square feet).	Cañada del Refugio creek through the project area would remain a partial barrier for fish passage.
Wetlands and Other Waters	No Clean Water Act wetlands would be affected. Temporary impacts to Clean Water Act Other Waters of the U.S. (0.411 acre) and temporary and permanent impacts to Other Waters of the State (1.329 acres and 0.016 acre, respectively) and California Coastal Commission wetlands (0.567 acre and 0.001 acre, respectively) are expected. Impacts would be reduced through compensatory on-site and in-kind replacement planting (mitigation measure WET-3) and related avoidance and minimization measures. Cañada del Refugio Creek would be temporarily diverted around construction activities for three dry seasons. The excavation footprint for replacement of the center column foundations would extend into the creek, requiring removal of portions of the eastern creek banks and possible dewatering. Removal of the concrete-grouted rock slope protection from the bed of Cañada del Refugio Creek would naturalize the creek and improve riparian habitat and jurisdictional areas.	Like Alternative 1. Permanent impacts to Other Waters of the State would be greater by 0.052 acre (about 2,260 square feet), but there would be no permanent impacts to California Coastal Commission wetlands. Excavation next to the creek would be less extensive.	No changes would be made to Cañada del Refugio Creek. Riparian resources would not be improved due to naturalization of the creek bed, removal of invasive giant reed, and replanting with native arroyo willow and other native plants would not occur.
Plant Species	No federal or state protected plant species would be affected by the project. Two plant species considered rare by the California Native Plant Society would be affected. Impacts would be reduced through collection of topsoil surrounding these plants prior to construction and spreading of the soil in suitable habitat following construction.	Same as Alternative 1.	No impact.
Animal Species	Twenty special-status animal species occur within the project vicinity and may be temporarily affected by project construction. Avoidance and minimization measures would reduce impacts. Naturalization of the Cañada del Refugio Creek bottom would improve habitat conditions for special status animal species.	Same as Alternative 1.	No impact.
Threatened and Endangered Species	The project may temporarily affect tidewater goby, southern California steelhead and their critical habitat, and California red-legged frog and their critical habitat during construction. Avoidance and minimization measures and Mitigation Measure TES-15 would reduce impacts. The removal a fish passage barrier would improve aquatic conditions for these protected species.	Same as Alternative 1.	Cañada del Refugio creek through the project area would remain a partial barrier for fish passage.
Invasive Species	Construction activities have the potential to spread existing invasive species within the project site or introduce new invasive species. Implementation of avoidance and minimization measures would reduce impacts, and habitat restoration would reduce the occurrence of invasive species.	Same as Alternative 1.	Invasive species currently present within Cañada del Refugio Creek would continue to spread.
Cumulative Impacts	Adverse effects to archaeological site CA-SBA-87 would result in a cumulative impact to cultural resources in the northern Santa Barbara Channel region. Current and reasonably foreseeable future projects would adversely affect two of eight identified pre-contact era ethnographic village sites, and three other sites may be affected by future projects. Minimization and mitigation strategies would include themes of conservation, education, research, and analysis.	Same as Alternative 1	Additional adverse effects at CA-SBA-87 would not occur. The collection excavated by West in 1969 would not be analyzed and curated, and no education and outreach would occur.
Wildfire	No impact—replacement of wood guardrail posts with steel guardrail posts and vegetation control beneath guardrails could make the bridge less susceptible to fire. Replacement of the bridges would ensure the reliability of U.S. 101 as an evacuation route in the event of a fire along the Gaviota Coast.	Same as Alternative 1.	Improvements that would make the existing bridges less susceptible to wildfire and improve the reliability of U.S. 101 would not be completed.
Climate Change	Construction of the project is not expected to locally worsen the effects of climate change. The replacement bridges are not expected to be inundated by sea level rise under high emissions scenarios projected through year 2100. The projected range of temperature change is within the temperature tolerances of pavement materials to be used on the replacement bridges. The project would be constructed to withstand a projected 100-year storm.	Same as Alternative 1.	No impact.

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Consultation and Coordination with Other Agencies

Permits, licenses, agreements, and certifications that would be required for project construction are listed below in Table S-2, and a full summary of coordination with the public and other agencies is provided in Chapter 4 of this document.

Table S-2 Summary of Permits, Licenses, Agreements, and Certifications Required for Project Construction

Agency	Permits, Licenses, Agreements, and Certifications	Status
U.S. Fish and Wildlife Service	Formal Section 7 Consultation for tidewater goby, California red-legged frog, and California red-legged frog critical habitat	To be obtained prior to approval of the final environmental document
National Marine Fisheries Service	Formal Section 7 Consultation for southern California steelhead trout and associated steelhead critical habitat	To be obtained prior to approval of the final environmental document
Central Coast Regional Water Quality Control Board	Section 401 Certification for impacts to waters of the United States	To be obtained before construction
U.S. Army Corps of Engineers	Section 404 Nationwide Permit for impacts to waters of the United States	To be obtained before construction
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement for impacts to Cañada del Refugio Creek	To be obtained before construction
County of Santa Barbara/California Coastal Commission	Coastal Development Permit	To be obtained before construction

Caltrans coordinated with appropriate public agencies and the public early in the project development phase, and throughout the environmental process. Coordination with public agencies has included email exchanges, field meetings, request for species lists, and consultation on wetland parameters.

A Public Information Meeting was held on March 11, 2019, in conjunction with the circulation of the Notice of Preparation. The Notice of Preparation for this project was circulated for 30 days beginning on January 22, 2019, and mailed directly to the State Clearinghouse, responsible agencies, and local residents.

Caltrans has coordinated extensively with the State Historic Preservation Officer per Section 106 of the National Historic Preservation Act. There has also been substantial Native American consultation during all aspects of the project including monitoring during survey and excavation, reviewing and commenting on all draft and final technical reports, and participating in two field meetings. Native American consultation was initiated with local Chumash individuals and groups, and interested Native American representatives, individuals, and groups that were identified by the Native American Heritage Commission.

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (known as Caltrans) proposes to replace the existing Refugio Road undercrossing bridges (Bridge Numbers 51-0215R and 51-0215L), herein referred to as the Refugio Road Bridges, along United States Highway 101 (known as U.S. 101) near Refugio State Beach in Santa Barbara County between post miles R36.0 and R37.0. The project is being proposed due to the presence of alkali-silica reactivity in the bridge concrete that is causing the bridges to deteriorate. In addition to bridge replacements, the project would involve upgrading nonstandard bridge rails on the Cañada del Refugio northbound onramp bridge, replacement of the degraded lighting system within the project limits, rehabilitation of a pedestrian pathway beneath the bridges, and modifications to the Cañada del Refugio Creek streambed to improve fish passage and habitat conditions. Figures 1-1 and 1-2 provide project location and vicinity maps.

The project is programmed under the 2016 State Highway Operation and Protection Program, with funding from the Bridge Rehabilitation Program (program code 201.110). The project would begin construction in the 2023/2024 fiscal year and is expected to take about two and a half years to complete. Two build alternatives and a No-Build Alternative are being evaluated. The build alternatives include two-span replacement bridges (Alternative 1) and clear-span replacement bridges (Alternative 3). A three-span bridge design (Alternative 2) was removed from consideration, as detailed in Section 1.6. The current year estimated capital outlay project cost is $37,240,000 for Alternative 1 and $32,560,000 for Alternative 3.

The Santa Barbara County Association of Governments (SBCAG) is a regional planning agency that distributes local, state, and federal transportation funds and acts as a forum for addressing regional and multi-jurisdictional issues. “SBCAG and Caltrans work together to identify deficiencies of the system, establish priorities, and work to secure funding to meet the greatest needs.” Fast Forward 2040 is Santa Barbara County Association of Governments’ approved 2040 Regional Transportation Plan and Sustainable Communities Strategy. The proposed project is included in the list of projects under Appendix 2, Programmed-others: CT-24, as a Long Lead project. Bridge replacement is required to maintain safety and mobility of the existing transportation system.

Caltrans is the lead agency under the National Environmental Policy Act (known as NEPA), as assigned by the Federal Highway Administration. Caltrans is also the lead agency under the California Environmental Quality Act (known as CEQA).

Figure 1-1 Project Vicinity Map

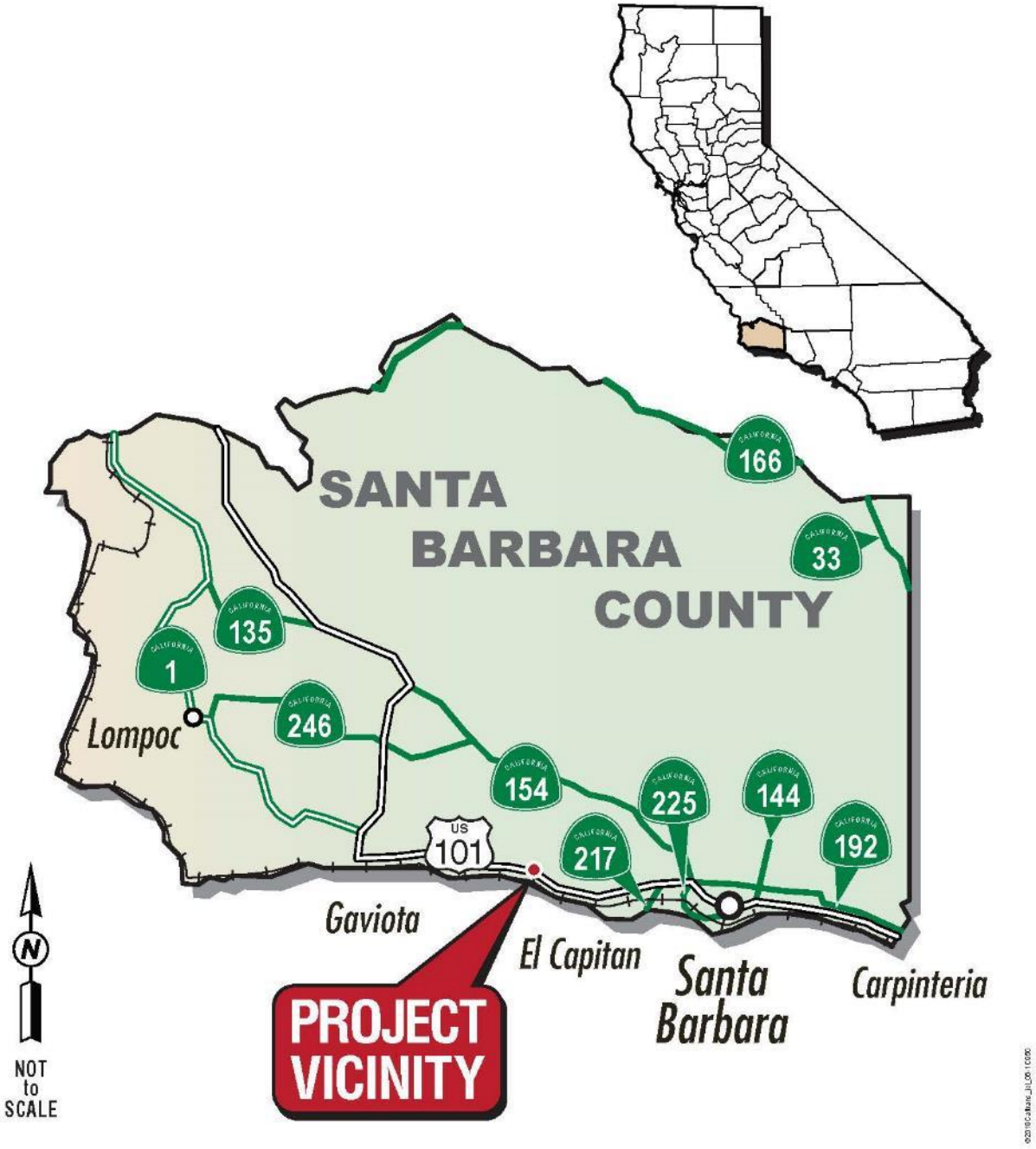
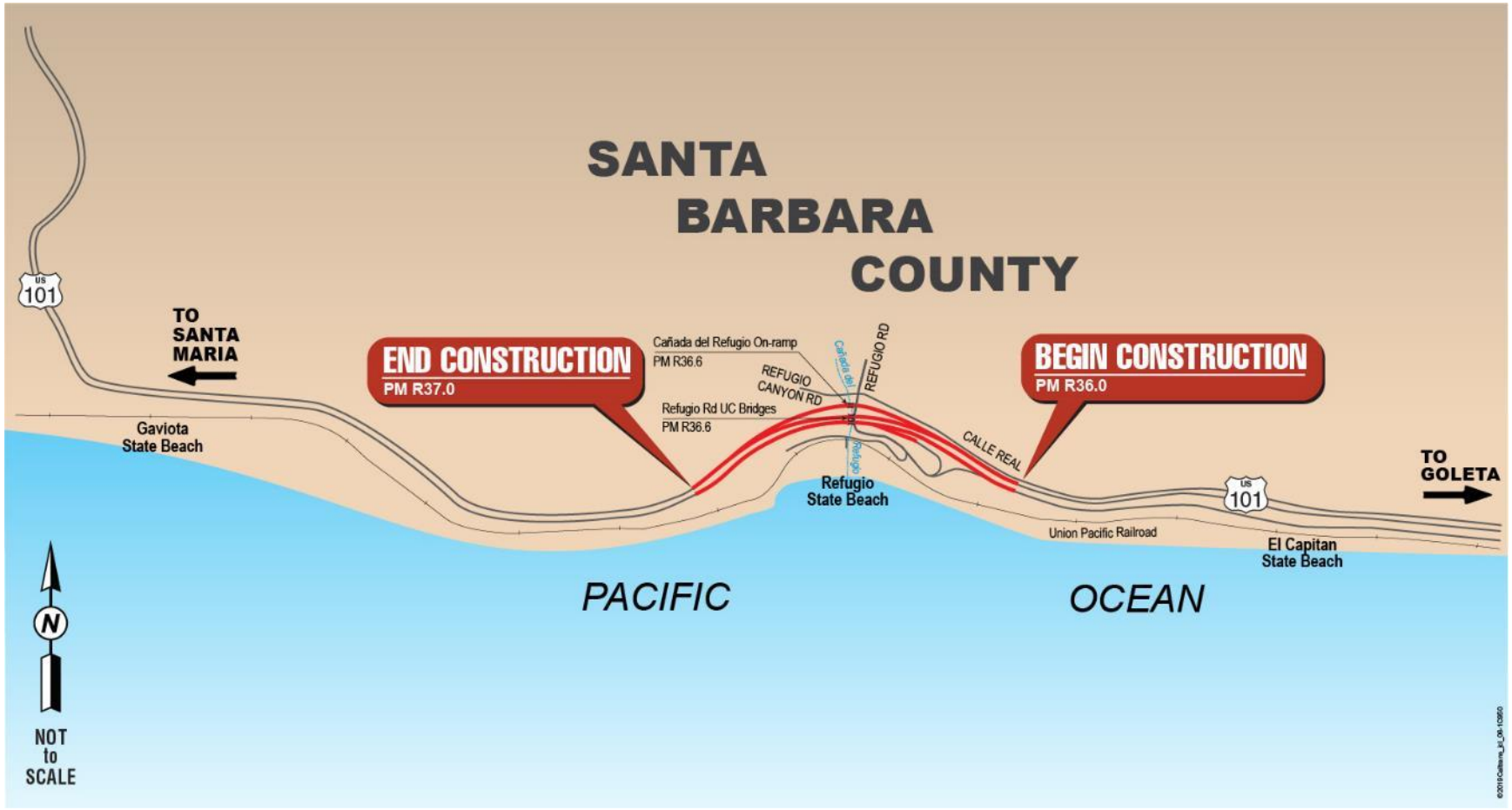


Figure 1-2 Project Location Map



1.2 Purpose and Need

1.2.1 Purpose

The purpose of the project is to ensure the safety and reliability of the U.S. 101 corridor by addressing the presence of alkali-silica reactivity in the left and right Refugio Road undercrossing bridges. An associated objective of the project is to improve anadromous fish migration within the project limits at Refugio Creek while maintaining the bank stability needed to protect the bridges from scour.

1.2.2 Need

The project is needed due to the presence of alkali-silica reactivity in the concrete of both Refugio Road undercrossing bridges which was documented through concrete core testing and several inspections by Caltrans' Structure Maintenance and Investigations Team. The presence of reactive aggregate in the bridge structure concrete has caused the deterioration of the bridge decks and the formation of cracks in the bridge abutments.

Alkali-silica reactivity is a widespread problem affecting Portland cement concrete that occurs when silica in the aggregate and alkali in the cement paste react when exposed to water or ambient moisture. The reaction causes swelling and cracking in the concrete, which can lead to concrete failure and corrosion of the embedded steel reinforcement bars. It is not possible to permanently repair a concrete bridge structure with alkali-silica reactive aggregate.

Both Refugio Road Bridges have a long history of cracking and spalling due to alkali-silica reactivity. According to a Structure Replacement and Improvement Needs Report, deck cracking was first noted in October 1974 on the northbound bridge and in July 1979 on the southbound bridge. Cracking on one of the southbound bridge abutments was first noted in 1995. The bridge decks have continued to deteriorate, and cracking has developed on the other bridge abutments. Repairs have been completed on each bridge to temporarily extend their service life, but the reaction in the concrete continues.

Fish passage improvements are needed because the portion of Cañada del Refugio Creek that was lined with concrete-grouted rock slope protection during construction of the Refugio Road Bridges in 1974 is a partial barrier to the upstream migration of southern California steelhead trout and other anadromous fish. This portion of the creek is passable by adult fish during high flow conditions, but water depths are too shallow for adult fish during low flow conditions. Fish passage criteria for juvenile fish were not met for either

low flow or high flow conditions. Under California Streets and Highways Code Sections 156 through156.4, Caltrans is required to address fish passage barriers for any project using state or federal transportation funds that affects a stream crossing on a stream where anadromous fish are currently, or were historically, found.

1.3 Project Description

The project would remove the two existing two-span bridges at post mile R36.6, and construct new bridges that comply with current seismic, hydraulic, and structural standards, including California ST-75 or other approved Manual for Assessing Safety Hardware-compliant bridge railings. The existing bridge structures would be removed, along with the existing concrete-grouted rock slope protection along the bottom of Cañada del Refugio Creek. There are two design options proposed for the project: two-span bridges (Alternative 1) and clear-span bridges (Alternative 3). The project has independent utility because it is replacing a deteriorating bridge. The project has logical end points because the project limits were determined based on the length of highway that would be needed to implement the traffic management plan during project construction.

Additional project elements include upgrading the nonstandard bridge railings on the Cañada Del Refugio northbound on-ramp bridge to Manual for Assessing Safety Hardware-compliant railings, replacing the degraded lighting system within the project limits, rehabilitating a pedestrian pathway beneath the bridge, and removing fish passage barriers and improving habitat conditions in Cañada del Refugio Creek.

The project is expected to take about two and a half years to construct (three construction seasons), with the bridges reconstructed one at a time. The bridges would be replaced during the first two construction seasons, with demolition of each bridge occurring during the dry season when the creek is low or not flowing. A third construction season would be required to complete the fish passage improvements.

1.3.1 Existing Facility

United States Highway 101 along the Gaviota Coast and near the project is a rural, rolling, divided freeway with a posted speed limit of 65 miles per hour. Though U.S. 101 is a north-south highway, near the project area, the highway follows the coastline and is oriented in an east-west direction. The Refugio Road Undercrossing Bridges span Refugio Road (Forest Route 5N12) and Cañada del Refugio Creek. The roadway and bridges are on a curved alignment with five lanes, three in the northbound direction and two in the southbound direction, divided by a 58-foot median. The existing Refugio Road Bridges are concrete structures that were built in 1974. Each bridge features

a center column next to Cañada del Refugio Creek, resulting in two spans. The bridges are about 336 feet long and 51 feet wide to accommodate three 12-foot lanes with a 10-foot right shoulder and a 5-foot left shoulder. The northbound bridge is currently operating with three lanes, while the southbound bridge is operating with two lanes and a wide left shoulder.

The Refugio Road–U.S. 101 interchange services Refugio Road, a two-lane arterial that extends inland (north) from the bridges into the coastal mountain range. Numerous single-family homes, lodging establishments, and ranches are located along this road. The interchange serves as the entrance to Refugio State Beach and Campground on the coastal side of the bridges. Calle Real, a frontage road, runs parallel to U.S. 101 from Refugio Road east to El Capitán State Beach. The northbound on-ramp and off-ramp follow a typical diamond configuration, while the southbound on-ramp and off-ramp follow a trumpet style, with both southbound ramps on the southbound (east) side of the bridge.

Beneath the Refugio Road Bridges and next to Refugio Road is Cañada del Refugio Creek. The creek was realigned as part of the freeway realignment and bridge construction in 1974 and was lined with concrete-grouted rock slope protection to protect the bridges and nearby infrastructure from scour. The rock slope protection extends from a double-box culvert immediately south of the Refugio Road Bridges (owned by the California Department of Parks and Recreation) to about 1,000 feet upstream of the culvert. An asphalt pedestrian pathway was constructed between the creek and Refugio Road, extending from about the northbound U.S. 101 on-ramp to the Refugio State Beach entrance.

1.4 Project Alternatives

Two build alternatives and a No-Build Alternative are being evaluated for this project. The build alternatives include two-span bridges (Alternative 1) and clear-span bridges (Alternative 3). A three-span bridge alternative (Alternative 2) has been removed from consideration, as detailed in Section 1.6. Under the No-Build Alternative (Alternative 4), no action would be taken. The alternatives are discussed in greater detail, below.

The alternatives under consideration for the project were developed by an interdisciplinary project development team with the goal of adequately addressing the project purpose and need while avoiding and minimizing environmental impacts and reducing project costs.

1.4.1 Build Alternatives

Two alternatives for replacing the Refugio Road Bridges are presented below: two-span structures that would be like the existing bridges (Alternative 1), and

clear-span structures that would not require support columns next to the creek (Alternative 3).

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

Common Design Features of the Build Alternatives

The existing Refugio Road Bridges each measure 51 feet wide by 336 feet long and feature continuous reinforced concrete box girders on single column bents with concrete piles and open-end diaphragm abutments. The abutments are protected from scour by concrete-grouted rock slope protection lining. The existing bridges were designed to accommodate three lanes of traffic, but only the northbound bridge operates with three lanes. The southbound bridge currently operates with two lanes.

Both build alternatives would replace the existing bridges with bridges that are similar in alignment and profile to the existing bridges. The project would not change the geometry of the U.S. 101–Refugio Road interchange and the replacement bridges would have the same lane configuration as the existing bridges, with only two lanes of traffic operating on the southbound bridge. Best management practices and Caltrans' Standard Specifications would be employed during construction.

The following project elements are common to both build alternatives:

- **Construct new bridges:** the new bridges would be 7 feet wider than the existing structures to meet current design standards for six-lane freeways. The bridges would accommodate three 12-foot-wide travel lanes and 10-foot-wide inside and outside shoulders, however only two lanes would operate in the southbound direction, as is currently the case. The wider bridge would accommodate stage construction traffic handling and is consistent with the concept goals of the most recent Transportation Corridor Report, dated December 2014.
- **Bridge railings:** The two new undercrossing bridges would be outfitted with bridge railings that meet current standards and are open-style and approved for use within the Coastal Zone. Additionally, the railings on the Cañada del Refugio on-ramp bridge (Bridge Number 51-0030S) would be upgraded. On all three bridges, the railing on the right side of each bridge would conform to bicycle railing heights.
- **Fish Passage:** Modifications to the creek bed of Cañada del Refugio Creek would include removal of the partial barrier to fish passage caused by the existing concrete-grouted rock slope protection lining. The rock slope protection along the creek bottom within the Caltrans right-of-way

and drainage easement would be removed, while the rock slope protection along the creek banks would remain to prevent scour (see Section 2.2.1). The new creek bottom would be naturalized to improve habitat for fish, including using stone and gravel to create weirs that would provide resting pools for fish. Riparian trees would be planted along the creek to help provide canopy for shade that is important to fish habitat. The improvements would restore fish passage for all life stages of steelhead within the project limits.

- **Water management plan for Cañada del Refugio Creek:** To isolate the construction site from flowing water, a temporary clear-water stream diversion system would need to be installed to pass upstream flows around the active construction zone. The precise water management strategy would be proposed by the construction contractor upon approval of the construction contract, and in accordance with Caltrans best management practices and regulatory permit conditions. It is expected that the stream diversion system would include installation of a diversion pipe beneath the Refugio Road bridges during demolition. The diversion pipe and creek bed would be covered by clean washed gravel fill wrapped in thick plastic sheeting. This strategy would protect the diversion pipe and existing rock slope protection from falling debris while isolating the gravel from spilling into the creek or washing downstream in the event of a storm. Temporary diversion methods may also include pump-arounds and cofferdams depending on the location and nature of the work being performed.
- **Pedestrian Path:** An existing asphalt pedestrian path running parallel to Refugio Road below the bridges was constructed along with the U.S. 101 freeway in 1974. This pathway is anticipated to be damaged by falling debris during bridge demolition. The portions of the pathway within Caltrans right-of-way would be reconstructed to meet the standards of the Americans with Disabilities Act, including the addition of outside railings for safety, as needed.
- **Utilities:** Several public and private utilities occur within the project limits and would be relocated or protected in place during project construction in cooperation with the owner of each utility line.
- **Lighting System Replacement:** The lighting system throughout the project limits would be replaced due to degradation of the existing conduits. Lighting work would consist of replacement of the service enclosure, luminaires, conduits, conductors, and pull boxes. The new luminaires would be fitted with energy-efficient LED (light-emitting diode) bulbs. Glare blockers would be installed on all luminaires to reduce light pollution within the state park and for surrounding homes and habitat areas.
- **Traffic Management Plan:** The bridges would be replaced one at a time so that one bridge would always remain open to traffic. Two lanes of traffic

in both the northbound and southbound directions would be located on one bridge separated by a barrier while the other bridge is being constructed. Refugio Road under the bridges would remain open to traffic except during demolition and during certain construction activities. During these closure periods, southbound U.S. 101 traffic would be able to access the state beach using the existing off-ramp. Northbound U.S. 101 traffic would be detoured north to Mariposa Reina Overcrossing where they would switch directions and travel southbound and use the southbound off-ramp. All traffic leaving the park would use the southbound on-ramp with northbound traffic using the El Capitán State Park Undercrossing to switch directions. Bicyclists would be accommodated within the traffic handling plan but would be subject to the same detours during the Refugio Road closures. Traffic using Refugio Road on the north (inland) side of the bridges would also be subject to the detours when the roadway is closed.

- **Permanent planting easement:** an approximate 2-acre permanent planting easement would be acquired for mitigation planting in Cañada del Refugio Creek. The permanent easement would coincide with the limits of the existing 140-foot wide Caltrans drainage easement.
- **Geotechnical drilling:** three geotechnical borings between the existing left and right Refugio Road Bridges are proposed to gather subsurface data on the soil and bedrock underlying the existing bridges, which is needed for designing the foundations of the replacement bridges. Borings A and B would be drilled next to the existing abutments, and boring C would be drilled next to the center columns. The diameter of each boring would be about 6 inches and the borings would extend up to about 120 feet below the ground surface. The borings would be backfilled with a grout and water mixture and sealed.
- Any metal beam guard railing and bridge approach railing affected by the project would be brought up to current standards.
- Contrasting surface treatment beyond the gore pavement would be added to the southbound U.S. 101 off-ramp. This treatment has already been applied to all other ramps at this interchange.

Unique Features of the Build Alternatives

Two different bridge designs are proposed for replacement of the Refugio Road Bridges: two-span bridges and clear-span bridges.

Alternative 1: Two-Span Replacement Bridge

The proposed replacement bridges for Alternative 1 would be two-span, cast-in-place, prestressed concrete box girder structures that would be like the current bridges. The bridges would be about 353 feet in length which is 17 feet longer than the existing bridges. With this alternative, the single existing bent column for each bridge would be removed and replaced with two narrower columns in the same location between the pedestrian path and

Cañada del Refugio Creek. The footings of the new bridges are expected to be larger than the existing footings to support the wider replacement bridges.

The current year cost estimate for Alternative 1 is about $41,568,000.

The estimated construction duration for Alternative 1 is about 650 working days (three construction seasons).

Alternative 1 would require closure of Refugio Road during bridge demolition, construction of falsework, and during construction of the center columns. In total, Alternative 1 would require intermittent closure of Refugio Road for about 40 weeks (10 months).

Alternative 3: Clear-Span Replacement Bridges

The proposed replacement bridges for Alternative 3 would be clear-span, cast-in-place prestressed concrete box girder structures along the same alignment and profile grade of the existing bridges. The bridges would be about 300 feet in length which is 36 feet shorter than the existing bridges. The clear-span bridges would not require intermediate support columns; however, they would require larger abutments to support the longer and heavier bridge span. The abutments would have a footprint about 15 feet larger in a longitudinal direction and 7 feet wider than the existing. The superstructure depth would increase to 13.5 feet.

The current year cost estimate for Alternative 3 is about $34,491,000.

The estimated construction duration for Alternative 3 is about 650 working days (three construction seasons).

Alternative 3 would require closure of Refugio Road during bridge demolition and during construction of falsework. In total, Alternative 3 would require intermittent closure of Refugio Road for about six weeks.

1.4.2 No-Build (No-Action) Alternative

Under the No-Build Alternative, the Refugio Road Bridges would not be replaced, and would continue to deteriorate due to the presence of reactive aggregate in the bridge structure concrete. Routine maintenance would continue. Railing upgrades, fish passage improvements, and rehabilitation of the pedestrian pathway beneath the bridge would not be made. Under the No-Build Alternative the bridges would not meet current shoulder width standards, and the bridge rails would remain nonstandard.

1.5 Comparison of Alternatives

The sections below describe how the alternatives would meet the project purpose and need and affect environmental resources in the study area. Chapter 2 of this document provides further discussion regarding the project's potential environmental impacts for each build alternative.

1.5.1 Purpose and Need

Both build alternatives would meet the purpose and need of the project—to address the presence of reactive aggregate in the concrete of the Refugio Road Bridges and ensure the reliability of the U.S. 101 corridor—by replacing the bridges. The No-Build Alternative does not meet the purpose and need for this project because it offers no change to the existing condition and would therefore allow the existing bridges to further deteriorate and eventually fail.

1.5.2 Excavation footprint

The excavation footprint would vary between the two build alternatives. More extensive excavation work is expected at the center columns of a two-span bridge under Alternative 1, and a greater excavation footprint would be required at the abutments for a single-span bridge under Alternative 3.

Center Columns

Under Alternative 1, portions of the foundation system for the center columns would need to be removed and reconstructed. A pile-cap is a rectangular foundation structure that sits on top of piles that extend deep into the ground, supporting the bridges. The bottoms of the existing pile-caps are up to 20 feet below the ground surface and are about 18 feet wide by 37 feet long, parallel to the creek. The existing pile-caps require removal because they would conflict with the new piles and pile-caps.

The pile-caps for the new two-span bridges under Alternative 1 are expected to be about 30 feet by 57 feet, or about 12 feet wider and 20 feet longer than the existing pile-caps to support the wider replacement bridges. The excavation footprint required for removal and reconstruction of the pile-caps would be larger than the existing footprint of the pile caps. Excavation would extend up to 20 feet below the existing ground surface. The large excavation footprint would encroach into Refugio Road, making this work the primary contributor to the lengthy roadway closures that are discussed further in Section 1.5.3. The excavation footprint would also extend towards the creek, requiring removal of the existing concrete-grouted rock slope protection and portions of the eastern creek banks. Because the pile caps extend about four feet deeper than the base of the creek bed, the temporary installation of shoring walls and a dewatering system would need to be constructed to avoid collapse of the sidewalls and to keep the excavation pit from filling with water.

Under Alternative 3, the piles and pile-cap for the center columns would be abandoned in place. During demolition of the bridges the center columns would be removed to about 3 feet below the ultimate finished grade of the pedestrian path and then capped with fill materials. The excavation footprint would thus approximate the area at the base of each center column, which is about 5 feet wide by 18 feet long, parallel to the creek. It is expected that the excavations for Alternative 3 would result in minor disturbance to the creek banks and existing concrete-grouted rock slope protection lining.

Abutments

Under both build alternatives, the existing bridge abutments would need to be removed and reconstructed in new locations, depending on which alternative is selected. The excavation footprint required for removal would consequently be similar for both build alternatives. The footprint would approximate the dimensions of the existing abutments and extend 15 to 20 feet below the existing ground surface. The existing abutment piles extend roughly 100 feet into the ground and would be abandoned in place.

For both build alternatives the new abutments would be about 7 feet wider than the existing abutments to accommodate the wider replacement bridges and would require driving new concrete piles that extend through the existing fill structures into competent bedrock. However, the abutments for Alternative 3 would be longer and require more piles to provide additional support in the absence of center columns. It is expected that each abutment for the Alternative 3 clear-span bridges would be about 18 feet longer than the abutments required for the Alternative 1 two-span bridges.

1.5.3 Closure of Refugio Road

The closure period of Refugio Road beneath the Refugio Road Bridges would differ substantially between the two build alternatives, with Alternative 1 (two-span bridges) requiring more extensive closure periods than Alternative 3 (clear-span bridges). For both build alternatives, intermittent closures would be required for about six weeks; three weeks for each bridge. Demolition of each existing bridge and construction of falsework is expected to take about two weeks, with an additional week needed for removal of the falsework. An additional eight and a half months (34 weeks) of intermittent closures are expected for Alternative 1 due to work related to the removal and reconstruction of the center columns, including driving new piles and constructing new pile caps.

As discussed above, construction of Alternative 1 would require more extensive excavations to replace the existing center column pile caps and construct the new columns. The center columns are between Refugio Road and Cañada del Refugio Creek, therefore working space is limited. The excavation pit is expected to be at least 35 feet wide by 60 feet long, which

would extend across the existing pedestrian pathway and into Refugio Road. Heavy equipment vehicles required for demolition and reconstruction would need to occupy portions of Refugio Road.

While a traffic management plan involving detours would ensure continuous access to Refugio State Beach during closures (see Section 2.1.4), the detours would be a minor inconvenience for park visitors and would result in minor delays for emergency vehicles traveling to Refugio State Beach or northbound Refugio Road (see Section 2.1.3). Closure of Refugio Road would also affect pedestrians who would be unable to walk beneath U.S. 101 during the closures.

1.6 Alternatives Considered but Eliminated from Further Discussion

Three build alternatives were originally proposed during the project initiation phase, a two-span bridge alternative (Alternative 1), a clear-span bridge alternative (Alternative 3), and a three-span bridge (Alternative 2) that was ultimately removed from consideration. The three-span alternative was removed because it was expected to have greater temporary and permanent environmental impacts and a greater project cost than build Alternatives 1 and 3, while not providing any additional benefits.

Alternative 2 would have involved construction of three-span, cast-in-place, prestressed concrete box girder structures along the existing alignment and profile grade of the existing bridges. The bridges would have been about 353 feet in length which is 17 feet longer than the existing bridges. Under this alternative, the existing columns between Refugio Road and Cañada del Refugio Creek would be removed, and two new sets of columns per bridge would be constructed in new locations: one set on the western banks of the creek and one set on the eastern side of Refugio Road.

The three-span bridge alternative was rejected primarily because of the potential for greater impacts to the environment and a greater project cost in comparison to Alternatives 1 and 3. Although this alternative was added to avoid certain impacts to the creek, the construction of two new sets of columns would require a larger excavation footprint, which may have created greater permanent impacts to sensitive biological and cultural resources. Most critically, the placement of new columns on the western side of Cañada del Refugio Creek would have created a larger disturbance of the historic site (CA-SBA-87) that is described in greater detail in Section 2.1.6, in comparison to the other build alternatives. Construction of the three-span bridges would have required extensive closures of Refugio Road to construct two new sets of columns, which would extend temporary impacts to visitors of Refugio State Beach and northbound traffic on Refugio Road, as well as emergency vehicles accessing these locations (see Sections 2.1.3 and 2.1.4).

1.7 Permits and Approvals Needed

Permits, licenses, agreements, and certifications that are required for project construction are listed in Table 1-1.

Table 1-1 Summary of Permits, Licenses, Agreements, and Certifications Required for Project Construction

Agency	Permits, Licenses, Agreements, and Certifications	Status
U.S. Fish and Wildlife Service	Formal Section 7 Consultation for tidewater goby, California red-legged frog, and California red-legged frog critical habitat	To be obtained prior to approval of the final environmental document
National Marine Fisheries Service	Formal Section 7 Consultation for southern California steelhead trout and associated steelhead critical habitat	To be obtained prior to approval of the final environmental document
Central Coast Regional Water Quality Control Board	Section 401 Certification for impacts to waters of the United States	To be obtained before construction
U.S. Army Corps of Engineers	Section 404 Nationwide Permit for impacts to waters of the United States	To be obtained before construction
California Department of Fish and Wildlife	1602 Streambed Alteration Agreement for impacts to Cañada del Refugio Creek	To be obtained before construction
County of Santa Barbara/California Coastal Commission	Coastal Development Permit	To be obtained before construction

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 potential adverse impacts were identified. So, there is no further discussion of these issues in this document.

Agriculture and Forest Resources: The County of Santa Barbara zoning map indicates that the project site is within a transportation corridor that is bordered to the north by agricultural lands and to the south by recreation lands. The agricultural lands are primarily designated as grazing lands, with a small parcel of unique farmland near the northwestern boundary of the project. While a small parcel of grazing lands next to Refugio Road may be used temporarily for project access during construction, project activities are not expected to affect agricultural activities, conflict with the zoning of these lands, or convert the use of these lands in the long term. Therefore, impacts to agricultural lands are not expected. No timberlands are within or next to the project limits. (County of Santa Barbara Planning Department [http://sbcountyplanning.org/permitting/zoning/findmyzone/index.cfm], Project Description)

Land Use and Planning: The project would not conflict with existing or proposed land use designations because the replacement bridges would function in the same manner and at the same location as the existing bridges. (Santa Barbara Land Use Plan 2014; Project Description)

Environmental Justice: No minority or low-income populations that would be adversely affected by the project have been identified within or next to the project limits. Therefore, this project is not subject to the provisions of Executive Order 12898.

Population and Housing: The project would not add capacity to the roadway. It would be limited to replacing the existing Refugio Road Bridges. The project would not change accessibility or influence growth. Therefore, no direct or indirect impacts related to growth would occur (Project Description).

Paleontology: There is a low probability of encountering or impacting paleontological resources during project construction because project-related earthwork would take place in areas that have been previously disturbed or are too young to contain scientifically important fossils (Paleontology Assessment, July 2018).

Wild and Scenic Rivers: Cañada del Refugio Creek is not designated as a wild or scenic river. No wild or scenic rivers are located within the project area. (National Wild and Scenic Rivers System [www.rivers.gov/California.php]; Project Description)

Energy: Caltrans incorporates energy efficiency, conservation, and climate change measures into transportation planning, project development, design, operations, and maintenance of transportation facilities, fleets, buildings, and equipment to minimize use of fuel supplies and energy sources and reduce greenhouse gas emissions (see Sections 2.2.5 and 3.5). The project is not capacity-increasing and therefore the operation would not increase energy usage. Energy usage would be required during construction but would be minimized whenever possible through recycling of materials and implementation of greenhouse gas reduction strategies. It is expected that the reduction in maintenance activities required to repair the failing bridge concrete would help offset energy usage during construction, and therefore the project would not have substantial energy impacts.

2.1 Human Environment

2.1.1 Coastal Zone

Regulatory Setting

This project has the potential to affect resources protected by the Coastal Zone Management Act of 1972. The Coastal Zone Management Act is the primary federal law enacted to preserve and protect coastal resources. The Coastal Zone Management Act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan can review federal permits and activities to determine if they are consistent with the state's management plan.

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

Just as the federal Coastal Zone Management Act delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments to enact their own local coastal programs. This project would be subject to the Gaviota Coast Plan of the Santa Barbara County's local coastal program. Local coastal programs

contain the ground rules for development and protection of coastal resources in their jurisdiction consistent with the California Coastal Act goals. A Federal Consistency Certification would be needed as well. The Federal Consistency Certification process would be initiated prior to completion of the Final Environmental Document and would be completed to the maximum extent possible during the NEPA process.

Local Coastal Program

The California Coastal Act requires each community in the coastal zone to prepare a local coastal program, including a coastal land use plan to protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural resources. A local coastal program consists of land use plans, zoning ordinances, and zoning district maps. Local coastal programs must contain a specific public access component to ensure maximum public access to the coast and ensure that public recreation areas are provided.

Affected Environment

The project is in an area under original jurisdiction by the California Coastal Commission as well as the jurisdiction of the Santa Barbara County local coastal program. The Santa Barbara County local coastal program's Coastal Land Use Plan was first adopted in 1982 and republished in 2014. More recently, the Santa Barbara County Board of Supervisors directed the development of a long-term land use plan specifically for the Gaviota Coast. The approved Gaviota Coast Plan was adopted by the Board of Supervisors on November 8, 2016 and certified by the California Coastal Commission on November 7, 2018. The Gaviota Coast Plan is meant to supplement the existing Santa Barbara County Comprehensive Plan and Coastal Land Use Plan, and these countywide policies would remain in effect. The area closest to the bridges consists of vegetated areas with a low population density. Refugio State Beach to the south of the project is zoned for recreation, while the land to the north of the project is zoned for agriculture.

The Gaviota Coast Plan covers the rural, 38-mile-long portion of the Santa Barbara County Coastal Zone that stretches from Goleta Valley in the east to Vandenberg Air Force Base in the west, and from the Pacific Ocean in the south to the ridgeline of the Santa Ynez Mountains and the Gaviota Creek watershed in the north. The Gaviota Coast represents the largest continuous stretch of rural, undeveloped coastline in southern California and as such preserves rich biological and cultural resources, striking natural beauty, and an abundance of working agricultural lands. Given the importance and unique nature of resources in the region, the Gaviota Coastal Plan focuses on policies, programs, and planning tools that would balance future development potential with protecting environmentally sensitive areas, coastal access and recreation, continuation and enhancement of agricultural productivity, and the rights and needs of property owners and the community.

The Refugio Road Bridges cross over Cañada del Refugio Creek, which flows south to Refugio State Beach. The area closest to the bridges consists of vegetated areas with a low population density. Refugio State Beach to the south of the project is zoned for recreation, while the land to the north of the project is zoned for agriculture. Due to its closeness to the creek, the project limits are within an area of dual jurisdiction. Coastal Commission has maintained original jurisdiction in the creek, next to the highway bridges.

The Gaviota Coast Plan and the Santa Barbara County Coastal Land Use Plan were prepared to achieve the following larger goals of the Coastal Act:

- Protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and human-made resources.
- Ensure orderly, balanced use and conservation of coastal zone resources, considering the social and economic needs of the people of the state.
- Maximize public access to and along the coast and public recreational opportunities in the coastal zone, consistent with sound resources conservation principles and constitutionally protected rights of private property owners.
- Ensure priority for coastal-dependent development over other development on the coast.
- Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Environmental Consequences

An analysis of the consistency of the project with policies of Chapter 3 of the California Coastal Act and the Gaviota Coast Plan that pertain to this project are summarized in Table 2-1.

Overall, the project would maintain and enhance coastal access for vehicles, cyclists, and pedestrians. Therefore, the goals of the project are consistent with the goals of the Coastal Act, as achieved through the policies of the Gaviota Coast Plan and the Santa Barbara County Coastal Land Use Plan. The project would replace deteriorating bridges on U.S. 101 which is a vital travel corridor along the Gaviota Coast, therefore maintaining coastal access for vehicles and cyclists. The project would maintain the Class 3 bicycle route through the project limits and install rails that conform to bicycle railing heights which would increase cyclist safety and enhance the Pacific Coast Bike Route. The project would reconstruct and rehabilitate a pedestrian path beneath the Refugio Road Bridges which would enhance coastal access to Refugio State Beach. This path is designated as a trailhead for the future California Coastal Trail which is closed due to bluff erosion, therefore its rehabilitation would be consistent with the policies of the Gaviota Coast Plan.

Avoidance, Minimization, and/or Mitigation Measures

Though the goals of the Refugio Road Undercrossing Bridges Replacement Project are consistent with Coastal Act policies, project construction would create temporary and permanent impacts to protected resources in the coastal zone. Implementation of avoidance, minimization, and mitigation measures would reduce impacts to coastal resources to the maximum extent feasible to ensure that the project would remain consistent with coastal resource protection goals. A description of the measures that would avoid, minimize, or mitigate impacts for each coastal resource are outlined in Table 2-1 and Table 2-2. The measures are described in further detail for each resource in Chapter 2 of this document.

Table 2-1 California Coastal Act Chapter 3 and Gaviota Coast Plan Policy Consistency Summary Table

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Agricultural Resources ***Coastal Act Section 30241 (in relevant part):*** The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas' agricultural economy, and conflicts shall be minimized between agricultural and urban land uses. ***Coastal Act Section 30242 (in relevant part):*** All other lands suitable for agricultural use shall not be converted to nonagricultural uses. ***Coastal Act Section 30243:*** The long-term productivity of soils and timberlands shall be protected, and conversions of coastal commercial timberlands in units of commercial size to other uses or their division into units of noncommercial size shall be limited to providing for necessary timber processing and related facilities. ***Gaviota Coast Plan Policy AG-I.A:*** Protect and Support Agricultural Land Use. Land designated for agriculture shall be preserved and protected for agricultural use; the integrity of agricultural operations shall not be violated by non-compatible uses.	No prime agricultural lands or timberlands are located within or next to the project. Agricultural grazing lands are north of the project footprint, and a small parcel of these lands may be temporarily used for access during project construction. There would be no long-term changes to the use of this parcel and the project would not affect any agricultural activities. Therefore, no conflicts with California Coastal Act or Gaviota Coast Plan policies related to agricultural resources would result.
Public Trail Alignments ***Gaviota Coast Plan Policy REC-4*:** Protect and Preserve Trail Alignments. All opportunities for public trails within the general alignments and locations identified on the Parks, Recreation and Trails (PRT) map shall be protected, preserved, provided for, and sited and designed using the considerations in Policy REC-5 and Policy REC- 6 during review and approval of development and/or permits requiring discretionary approval.	The existing pedestrian path beneath the Refugio Road Bridges has been identified as an existing trail on the Parks, Recreation, and Trails map of the Gaviota Coast Plan. This path would be reconstructed and rehabilitated as part of the project to serve as a safe, Americans with Disabilities Act-compliant, below-grade crossing of U.S. 101, and would serve as an access point to the future California Coastal Trail (currently closed near Refugio State Beach due to bluff erosion). The project is therefore in compliance with Policy REC-4.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Public Access and Recreation ***Coastal Act Section 30210:*** In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse. ***Coastal Act Section 30211:*** Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation. ***Coastal Act Section 30313:*** Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. ***Gaviota Coast Plan Policy REC-8:*** Protection of Existing Coastal Access. Ensure that development does not interfere with the Public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation. ***Gaviota Coast Plan Policy REC-14:*** Transportation Improvements and Public Access. All improvements to the U.S. Highway 101, County roads, and the Union Pacific Railroad or its successor agency shall be designed to protect and expand public access to and along the coast.	The project would improve public access to the coast and Refugio State Beach in the long-term. Bridge reconstruction and associated project elements would ensure the safety and reliability of the U.S. 101 corridor, increase bicyclist safety, and rehabilitate an existing pedestrian path that provides coastal access to Refugio State Beach. Project construction would temporarily shut down Refugio Road during bridge demolition and construction of falsework. Implementation of a construction-period traffic management plan (measure TRA-1) would ensure consistent public access to Refugio State Beach. The project would not conflict with Coastal Act or Gaviota Coast Plan policies relating to public access and recreation.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Public Parking ***Gaviota Coast Plan Policy REC-13:*** Roadside Parking. Existing free roadside parking on county roads and U.S. Highway 101 are key to public use and enjoyment of the Gaviota Coast and shall be protected. ***Gaviota Coast Plan Policy REC-13a:*** Public Parking. (COASTAL) Provide adequate parking to serve recreation uses. Existing parking areas serving recreational uses shall not be displaced unless a comparable replacement area is provided. New parking areas and associated facilities shall be distributed throughout the Plan area to minimize the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.	Parking along Refugio Road within 300 feet of the Refugio Road Bridges would temporarily be restricted to increase public and worker safety during the construction period. Existing public parking outside of the 300-foot radius in currently unrestricted areas would remain available during construction.
Pacific Coast Bike Route ***Gaviota Coast Plan Policy TEI-3:*** Enhance the Pacific Coast Bike Route. Encourage safety improvements for bike routes that achieve the following (1) Establish paths, completely separated from roadways, for the exclusive use of bicycles with cross flow by motorists minimized; (2) Connect existing bikeways, including linkages to and between communities and recreation areas; and (3) Allow for flexible, site specific design and routing to minimize impacts on adjacent development and fragile habitat.	The project would enhance the Pacific Coast Bike Route by ensuring the safety and reliability of the U.S. 101 corridor, which is a Class 3 bike route along the Gaviota Coast. The replacement bridges would include rails that conform to current bicycle height standards which would increase bicyclist safety on U.S. 101. During construction implementation of a traffic management plan (measure TRA-1) would include detours for cyclists to ensure that the Pacific Coast Bike Route is not disrupted.
Lighting ***Gaviota Coast Plan Policy VIS-5:*** Lighting. The night sky and surrounding land uses shall be protected from excessive and unnecessary light associated with development.	Upgrades to the lighting system would be limited to replacement of existing, degraded light structures. Replacement lights would be fitted with shields to reduce light pollution to the night sky and to the surrounding local residences. Additionally, guardrails and bridge end treatments would be darkened to reduce reflectivity following avoidance and minimization measure AES-4.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Visual Resources and Community Character ***Coastal Act Section 30251:*** The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting. ***Gaviota Coast Plan Policy VIS-1:*** Visual Compatibility. The height, scale, and design of structures shall be compatible with the character of the surrounding natural and agricultural environment. ***Gaviota Coast Plan Policy VIS-6:*** Design Review. All permit applications for structures, additions to structures, or signage within the Gaviota Coast Plan Area shall be reviewed and considered for approval by the County Board of Architectural Review unless exempt pursuant to the County Zoning Ordinances. Project Development and the Board of Architectural Review shall apply the Gaviota Coast Plan Design Guidelines in approving future development. ***Gaviota Coast Plan Policy TEI-1:*** U.S. Highway 101 Improvements. (COASTAL) Ensure that improvements to U.S. Highway 101 shall not, either individually or cumulatively, significantly detract from the rural scenic characteristics of the highway and shall be limited to improvements necessary for the continued use of the highways: slope stabilization, grading, drainage control, and minor safety improvements such as guardrail placement, signing, etc.; expansion of shoulder paving to accommodate bicycle or pedestrian traffic; and creation of slow traffic, vista turn-outs, and coastal access points, as a safety and convenience improvement. These improvements shall limit site alterations to the minimum amount necessary to carry out the project and minimize environmental impact.	The project would be limited to replacement of the existing bridges with bridges of similar length and profile and therefore would not change scenic views from the U.S. 101 corridor. The design of the replacement bridges would be consistent with the character of the existing bridges and complement the visual character of the rural coastal and riparian setting, following measures AES-1 through AES-3. Final design of the new bridge structures would be determined with input from the local community, including the Santa Barbara County Board of Architectural Review. The project would therefore not conflict with visual resources and community character policies in the Coastal Act or Gaviota Coast Plan.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Archaeological and Paleontological Resources ***Coastal Act Section 30244:*** Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required. ***Gaviota Coast Plan Policy CS-1:*** Cultural Resources Preservation and Protection. Preserve and protect significant cultural, archaeological and historical resources to the maximum extent feasible. ***Gaviota Coast Plan Policy CS-2:*** Properties of Concern. Significant cultural resources including historic structures, Rural Historic Landscapes, archaeological sites, Traditional Cultural Properties, and Tribal Cultural Resources shall be protected and preserved to the maximum extent feasible.	Project-related earthwork would disturb a known historic site (CA-SBA-87) that is eligible for listing in the California Register of Historic Resources and National Register of Historic Places. This disturbance is unavoidable. Impacts would be minimized and mitigated to the maximum extent feasible through implementation of the archaeological treatment plan prepared for the project and measures CUL-1 through CUL-4. However, it is expected that the project would alter the qualities for which the site is eligible. The archaeological treatment plan for the project was developed in consultation with the State Historic Preservation officer and local tribes. It includes pre-construction data recovery (CUL-1), implementation of a data recovery and archaeological monitoring program during earthwork for the proposed project (CUL-2), the analysis and interpretation of the artifact collection excavated in association with the construction of the existing Refugio Road Bridges (CUL-3), and education and outreach with local tribes, the scientific community, and the public (CUL-4). There would be no impacts on paleontological resources because project-related earthwork would not disturb sediments of high paleontological potential. The project would not conflict with Coastal Act or Gaviota Coast Plan policies relevant to archaeological and paleontological resources.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Wetlands and Water Quality ***Coastal Act Section 30231:***The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams. ***Coastal Act Section 30233 (in relevant part):*** (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative and where feasible mitigation measures have been provided to minimize adverse environmental effects and shall be limited to the following: (4) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines. (6) Restoration purposes. ***Gaviota Coast Plan Policy NS-7:*** Riparian Vegetation. (COASTAL) New development … will be sited and designed to protect riparian Environmentally Sensitive Habitat (ESH), consistent with Policy NS-2 and all other applicable policies and provisions of this Plan and the LCP.	Temporary impacts to 0.567 acre of jurisdictional waters of the California Coastal Commission are expected for both build alternatives. Avoidance, and minimization measures, including NC-1, WET-1, and WET-2, would be implemented to reduce impacts. Mitigation Measure WET-3 would reduce impacts to riparian vegetation through compensatory on-site planting and restoration. A permanent planting easement along Cañada del Refugio Creek would be acquired and maintained by Caltrans for on-site mitigation planting to compensate for impacts to riparian habitat. There would also be a decrease in impervious surface area due to removal of the concrete-grouted rock slope protection along the creek bed of Cañada del Refugio Creek. Overall, fish passage improvements would naturalize and enhance the bottom of Cañada del Refugio Creek and enhance habitat, which complies with coastal policies. However, temporary impacts to California Coastal Commission jurisdictional areas may temporarily conflict with Coastal Act Section 30231 during the construction period of the habitat improvements.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Surface and Groundwater Pollution ***Coastal Act Section 30232:*** Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur. ***Gaviota Coast Plan Policy TEI-14:*** Surface and Groundwater Pollution. Pollution of surface and groundwater will be avoided. Where contribution of potential pollutants of any kind is not prohibited and cannot be avoided, such contribution will be minimized to the maximum extent practical.	The project would avoid surface and groundwater pollution through the implementation of best management practices and implementation of avoidance and minimization measures WQ-1 through WQ-4.
Sea Level Rise ***Gaviota Coast Plan Policy TEI-9:*** Sea Level Rise Transportation Impacts. Consult with Caltrans and Union Pacific Railroad, or its successor agency, to protect access to the coast and to minimize impacts of sea level rise on the rail corridor, U.S. Highway 101 and County roads. Identify areas that may be susceptible to bluff erosion or are at risk of periodic inundation from storm surge and sea level rise via a vulnerability analysis. A combination of structural and non-structural measures should be considered with a preference towards non-structural solutions, including relocating the rail corridor, U.S. Highway 101, or County roads unless the structural solutions are less environmentally damaging.	The project is not at risk to the effects of sea level rise because within the project limits U.S. 101 is on elevated bluffs 80 to 100 feet above mean sea level and about 1,000 feet from the shoreline. The foundations for both build alternatives would be designed to withstand expected conditions from a 100-year storm under a scenario with 6.6 feet of sea level rise. The project would therefore not conflict with Gaviota Coast Plan Policy TEI-9.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Channelization and Stream Alterations ***Coastal Act Section 30236:*** Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat. ***Gaviota Coast Plan Policy NS-9:*** Natural Stream Channels. (COASTAL) Channelizations or other substantial alterations of streams shall be prohibited except for: 1) necessary water supply projects where no feasible alternative exists; 2) flood control projects for existing development where necessary for public safety and there is no other feasible alternative, or 3) development with the primary purpose of improving fish and wildlife habitat. Any channelization or stream alteration permitted for one of these three purposes shall minimize impacts to coastal resources, including ESH and the depletion of groundwater, and shall include maximum feasible mitigation measures to mitigate unavoidable impacts. Bioengineering alternatives shall be preferred for flood protection over "hard" solutions such as concrete or riprap channels.	During original construction of the Refugio Road Bridges in 1974, concrete-grouted rock slope protection was placed in Cañada del Refugio Creek to protect the bridge foundations. As part of the Refugio Road Bridges replacement project, Caltrans proposes to remediate this partial fish passage barrier and naturalize the bottom of Cañada del Refugio Creek. The project would therefore not conflict with Coastal Act Section 30236 or Gaviota Coast Plan Policy NS-9.
Coastal Development Siting ***Gaviota Coast Plan Policy LU-10:*** Development Siting. (COASTAL) Development shall be scaled, sited and designed to 1) avoid environmentally sensitive habitat consistent with Policy NS-2, 2) avoid visually prominent areas to the maximum extent feasible, 3) minimize infrastructure requirements and/or redundancy, 4) minimize fragmentation of the landscape, and 5) protect agricultural land and agricultural viability. Measures to avoid and minimize impacts to coastal resources shall at a minimum include consideration of the following: color; reflectivity and height of structures; length of roads and driveways; number and size of accessory structures; configuration and size of development envelopes, including concentrating and clustering development in existing development areas close to existing roads; amount and location of grading; vegetation removal; and night lighting.	The project would involve replacement of existing bridges with new bridges that are similar in length and profile, in about the same location as the existing bridges, therefore the project would not change the existing land use, substantially alter the visual environment, nor fragment the landscape. Numerous avoidance and minimization measures would aid in compliance with Gaviota Coast Plan Policy LU-10, as discussed under the policies related to environmentally sensitive habitat areas, visual resources, and agricultural resources.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Environmentally Sensitive Habitat Areas: Definitions ***Coastal Act Section 30107.5:*** "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. ***Gaviota Coast Plan Policy NS-4:*** ESH Criteria and Habitat Types. (COASTAL) Environmentally sensitive habitat (ESH) means any area in which plant or animal life or their habitats are either (A) rare or (B) especially valuable because of their special nature or role in an ecosystem. The presence and extent of ESH shall be identified on a case-by-case basis based upon site-specific evidence provided by a biological report prepared by a qualified biologist. Although a site-specific analysis will form the basis for ESH determinations, the following types of habitat are considered rare or especially valuable, and therefore ESH, unless a particular habitat area is so small and isolated or degraded that it is no longer sustainable. A. Rare Species or Habitats. Areas with plant or animal life or their habitats included in the following lists and categories are considered "rare" for the purposes of this policy: • Federal and State listed Rare, Threatened, and Endangered Species. • Plants, Animals, and Natural Communities ranked as Global or State G1 or S1 (critically imperiled), G2 or S2 (imperiled), or G3 or S3 (vulnerable to extirpation or extinction). • California Fully Protected Species, California Species of Special Concern, and their habitats. • California Rare Plant Ranking System plant species designated 1B (rare, threatened, or endangered in California and elsewhere) and 2B (rare, threatened, or endangered in California but more common elsewhere). • Federal and State Plants, Animals, and Natural Communities that are candidates for listing.	A Natural Environmental Study was completed by a team of qualified biologists as part of the environmental review process. The study included habitat mapping and identification of rare species and habitats within the biological study area. Table 2-2 outlines temporary and permanent impacts to coastal scrub habitat under both build alternatives. Discussion for the avoidance, minimization, and mitigation of potential effects to environmentally sensitive habitat areas is provided in the following row.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Environmentally Sensitive Habitat Areas: Protection ***Coastal Act Section 30240:*** (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas next to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas. ***Gaviota Coast Plan Policy NS-2:*** Environmentally Sensitive Habitat Protection. (COASTAL) Environmentally Sensitive Habitat (ESH) areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. A resource dependent use is a use that is dependent on the ESH resource to function (e.g., nature study, habitat restoration, public trails, and low-impact campgrounds). Resource-dependent uses shall be sited and designed to avoid significant disruption of habitat values to ESH through measures including but not limited to: utilizing established disturbed areas where feasible, limiting grading by following natural contours, and minimizing removal of native vegetation to the maximum extent feasible. Non-resource dependent development, including fuel modification and agricultural uses, shall be sited and designed to avoid ESH and ESH buffer areas. If avoidance is infeasible and would preclude reasonable use of a parcel or is a public works project necessary to repair and maintain an existing public road or existing public utility, then the alternative that would result in the fewest or least significant impacts shall be selected, and impacts shall be mitigated. Development in areas next to ESH areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas.	The project is expected to improve habitat through the removal of fish passage barriers and creek bottom naturalization. While there would be minor permanent impacts to coastal scrub habitat (*Artemisia californica Baccharis pilularis,* and *Salix lasiolepis* shrubland alliances) under both build alternatives as outlined in Table 2-2, the project would not substantially degrade sensitive habitats or disrupt habitat values, and therefore is consistent with Coastal Act Section 30240 and Gaviota Coast Plan Policy NS-2. Numerous avoidance and minimization measures would be implemented to reduce impacts to coastal scrub habitat and riparian habitat as much as feasible. Mitigation Measure WET-3 would mitigate for unavoidable impacts through compensatory replacement planting. Taken together, measures implemented for the project will include riparian habitat restoration, creek bed restoration, improved California red-legged frog habitat, and removal of fish passage barriers. The project is evaluating two build alternatives, and the potential impacts to Environmentally Sensitive Habitat areas from each alternative would be one of the deciding factors for selecting a preferred alternative, in accordance with Gaviota Coast Plan Policy NS-2.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Wildlife Corridors ***Gaviota Coast Plan Policy NS-6: Wildlife Corridors.*** Development shall avoid to the maximum extent feasible and otherwise minimize disruption of identified wildlife travel corridors.	It is assumed that native terrestrial wildlife uses Cañada del Refugio Creek, the pedestrian path, and Refugio Road as a travel corridor beneath U.S. 101. Passage for wildlife could be temporarily affected during project construction. However, the project includes remediating a fish passage barrier in Cañada del Refugio Creek, naturalizing the creek bottom and planting native riparian vegetation within and along the edges of the creek, and reconstruction of a pedestrian path. Such work would result in improvements to the Refugio wildlife corridor and would therefore not conflict with Gaviota Coast Plan Policy NS-6.
Biological Restoration ***Gaviota Coast Plan Policy NS-11: Restoration.*** *(COASTAL)* In cases where adverse impacts to biological resources as a result of new development cannot be avoided and impacts have been minimized, restoration shall be required. A minimum replacement ratio of 3:1 shall be required to compensate for adverse impacts to native habitat areas or biological resources, except that mitigation for impacts to wetlands shall be a minimum 4:1 ratio. Where onsite restoration is infeasible, the most proximal and in-kind offsite restoration shall be required. Preservation in perpetuity for conservation and/or open space purposes of areas subject to restoration shall be required as a condition of the CDP and notice of such restriction shall be provided to property owners through a recorded deed restriction or Notice to Property Owner.	Temporary and permanent impacts to the biological environment are expected under both build alternatives. Where impacts cannot be avoided, implementation of Mitigation Measure WET-3 would offset impacts to biological resources through on-site compensatory replacement planting at a 3:1 ratio (permanent impacts) and 1:1 ratio (temporary impacts), except from permanent impacts to California Coastal Commission wetlands, which would be mitigated at a 4:1 ratio (acreage). On-site and in-kind replacement planting would occur on a planting easement that Caltrans plans to acquire as part of the project and would include planting specifications to ensure survival of planted vegetation and re-establishment of the natural habitats impacted. The project would therefore not conflict with Gaviota Coast Plan Policy NS-11.

California Coastal Act Chapter Three and Gaviota Coast Plan Policy Area	Policy Consistency Analysis
Protected Trees ***Gaviota Coast Plan Policy NS-12: Protected Trees.*** *(COASTAL)* Existing trees shall be preserved to the maximum extent feasible, prioritizing "protected trees." Protected trees are defined for the purpose of this policy as mature native or roosting/nesting trees that do not pose a threat to health and safety. Such trees include, but are not limited to: • Oak (*Quercus agrifolia*) • Sycamore (*Platanus racemosa*) • Willow (*Salix* spp.) • Maple (*Acer macrophyllum*) • California Bay Laurel (*Umbellularia californica*) • Cottonwood (*Populus* spp.) • White Alder (*Alnus rhombifolia*) • California Walnut (*Juglans californica*) • Any tree serving as known or discovered raptor nesting and/or raptor roosting sites. • Any trees serving as Monarch butterfly habitat, including aggregation sites. All existing "protected trees" shall be protected from damage or removal to the maximum extent feasible. Where the removal of protected trees cannot be avoided through the implementation of project alternatives, or where development encroachments into the protected zone of protected trees result in the loss or worsened health of the trees, mitigation measures shall include, at a minimum, the planting of replacement trees on-site, if suitable area exists on the project site, at a ratio of 10 replacement trees for every one tree removed. Where on-site mitigation is not feasible, the most proximal off-site mitigation shall be required.	Trees would be protected to the extent feasible within the project limits. When tree damage or removal cannot be avoided, implementation of Mitigation Measure WET-3 would offset impacts through on-site replacement planting at a 3:1 ratio (acreage or number of trees). If "protected trees" need to be removed, they would be replanted at a 10:1 ratio (number of trees). The project would therefore not conflict with Gaviota Coast Plan Policy NS-12.

2.1.2 Parks and Recreational Facilities

Regulatory Setting

In accordance with the CEQA Guidelines, Environmental Checklist Form, Appendix G, Item XIV, Recreation, the effects of a project are evaluated to determine if they would result in a substantial adverse impact on the environment. A substantial impact would occur if the project were to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. Impacts would also occur if the project were to include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect of the environment.

Affected Environment

The project would be located on U.S. 101 between post miles R36.0 and R37.0 in Santa Barbara County, about 350 feet north of the entrance to Refugio State Beach (see Figure 1-2) and directly over Cañada del Refugio Creek. The park contains campground facilities for trailers and tents, restroom and shower facilities, a camp store, and a picnic area. The beach offers recreational opportunities such as boating, kayaking, fishing, swimming, and surfing and is patrolled by lifeguards during the day. The lifeguard towers are staffed during the summer months. A pedestrian path runs parallel to Refugio Road below the bridges, connecting Refugio Road to the north of the U.S. 101 interchange with Refugio State Beach. There are no other recreational facilities within a half mile radius of the project.

Refugio State Beach is a Section 4(f) eligible property. Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 which required transportation agencies to consider park and recreation lands, wildlife and waterfowl refuges, and historic sites during project development. The law is now codified in 49 U.S. Code Section 303 and 23 U.S. Code Section 138. See Appendix A for the Section 4(f) evaluation completed for this project. It was determined that there would be no use of the state beach.

Environmental Consequences

Permanent Impacts

Long-term impacts to Refugio State Beach are not expected for the project. The project does not increase capacity of the bridges nor of U.S. 101. The project could improve access to recreational facilities due to improvements proposed to the pedestrian path beneath the bridges, which would serve as an access point to the future California Coastal Trail. Additionally, the bridges would include rails that conform to bicycle height standards, which would improve safety for cyclists on the Pacific Coast Bike Route of U.S. 101.

Temporary (Construction) Impacts

Construction-period temporary impacts to Refugio State Beach are expected for the project and would be greater under Alternative 1 than Alternative 3 due to more extensive closure periods of Refugio Road. It is expected that construction of Alternative 1 would require intermittent closures of Refugio Road for 40 weeks (10 months), while construction of Alternative 3 would only require intermittent closures for six weeks (one and a half months). Implementation of a traffic management plan (see Section 2.1.4) would maintain consistent vehicle and bicyclist access to Refugio State Beach for the duration of the project; however, when Refugio Road is closed, visitors entering and exiting the state beach from northbound U.S. 101 would need to use detours. The detour for visitors coming to the state beach from northbound U.S. 101 would involve driving about 8 miles farther north to the Mariposa Reina interchange and turning around to access Refugio State Beach from the southbound U.S. 101 off-ramp. Visitors leaving the state beach to travel northbound on U.S. 101 would use the southbound U.S. 101 on-ramp and be advised to turn around at the El Capitán State Beach interchange about 3 miles to the south. Bicyclists and traffic using Refugio Road on the north (inland) side of the bridges would be subject to the same detours. Emergency vehicles accessing Refugio State Beach would also be subject to the detours (see Section 2.1.3).

Construction would temporarily affect pedestrian access from north of U.S. 101 into Refugio State Beach due to closure of the pedestrian path beneath the bridges. It is expected that the path would be damaged during bridge demolition and would remain fully or partially closed for the duration of the construction period. Pedestrians would be able to cross beneath U.S. 101 by walking along the shoulder of Refugio Road, except during closures of Refugio Road. Due to the rural location of Refugio State Beach, most pedestrian traffic represents individuals who have driven to the state beach area and parked along Refugio Road so that they can walk into the park. During project construction, parking within about 250 feet of the Refugio Road Bridges would be temporarily restricted for safety.

It is expected that noise and dust generated by project construction could create temporary impacts to Refugio State Beach, which would be similar under both build alternatives. A discussion of air-related and noise-related impacts and avoidance and minimization measures to address these impacts are discussed in Sections 2.2.5 and 2.2.6, respectively.

Avoidance, Minimization, and/or Mitigation Measures

Measures to address temporary construction-period impacts to Refugio State Beach are outlined in Sections 2.1.4, 2.2.5, and 2.2.6.

2.1.3 Utilities and Emergency Services

Affected Environment

Utilities

Subsurface and above ground public and private utilities occur within the project limits and would be relocated, protected in place, or avoided during project construction. A water line that services Refugio State Beach and is owned by the California Department of Parks and Recreation crosses the project limits beneath the Refugio Road Bridges. The water line is buried 4 to 10 feet beneath the ground surface and is generally located between Cañada del Refugio Creek and Refugio Road. An abandoned well that previously supplied the water line is beneath the Refugio Road Bridges. Though the well casing has been capped with concrete, an above ground chain link enclosure containing the water main and related features (e.g., electric panels, piping, valves) remains at the well location.

Two active and one abandoned subsurface natural gas lines owned by Southern California Gas Company cross the project limits in an east-west direction. The abandoned gas line crosses the project site immediately south of the Refugio Road Bridges, and the two active lines are north of the bridges where fish passage improvements are planned.

Segment 901 of the Plains All American Pipeline is buried beneath Cañada del Refugio Creek in the upper limits of the project area where fish passage improvements are planned. The pipeline was installed in 1994 to transport crude oil along the Gaviota Coast but was shut down in May 2015 following an oil spill to the west of Refugio State Beach. The pipeline owner, Plains Pipeline, L.P., has applied to install a new steel pipeline that would replace the All American Pipeline. The precise location and plans for the proposed replacement pipeline are not yet publicly available, so it is uncertain whether the replacement pipeline would occur within the limits of the Refugio Road Undercrossing Bridges Replacement Project.

Upgrades to the lighting system through the Refugio Road interchange are planned and would involve the replacement of the existing service enclosure, luminaires, conduits, conductors, and pull boxes, as discussed in Section 1.3. It is expected that creation of a temporary southbound off-ramp from U.S. 101 would require installation of a temporary lighting system to illuminate the off-ramp. The temporary lighting system would include temporary wood poles, conduits, conductors, pull boxes, and luminaires.

The AT&T Mobility communication lines cross Cañada del Refugio Creek in the northern portion of the project area where fish passage improvements are planned. The conduit containing the communication lines is suspended by a wooden pole about 9 feet above the creek banks. Near the AT&T Mobility communication lines, a private water line is suspended across the creek by a steel cable and hangers.

Several other utilities occur near the project but are not expected to be disturbed by construction. Overhead Southern California Edison powerlines and AT&T fiber optic cables run roughly parallel to the Union Pacific Railroad tracks and therefore are outside of the work area. Southern California Edison overhead power lines cross the northern limits of the project area but are located on tall transmission towers that can be avoided by heavy equipment.

Emergency Services

The Santa Barbara County Fire Department and California Department of Forestry and Fire Protection provide fire protection and emergency services within Santa Barbara County, including the project area. The station closest to the project site is Santa Barbara Fire Station 18 at 17200 Calle Mariposa Reina in Gaviota, about 8.4 miles west of the project site.

The Santa Barbara County Sheriff's Office provides police enforcement for the unincorporated areas of Santa Barbara County, including the project site. The station closest to the project site is at 4434 Calle Real in Santa Barbara, about 17 miles east of the project site. The nearest California Highway Patrol offices are in Goleta to the east and Buellton to the north, and are 13 and 21 miles away, respectively.

Environmental Consequences

Utilities

The project is not capacity-increasing or growth inducing; therefore, it would not result in the need for additional water supply, sewer services, or other utilities.

Temporary (Construction) Impacts

Several utility lines within the project area that may be affected by construction would be relocated or protected in place, in cooperation with the utility owners, to minimize or avoid utility service disruption. Precise treatment of these utilities would be determined during the project design phase once the utilities have been positively identified, an alternative has been chosen, and more detailed project plans are available. It is expected that treatment of the California Department of Parks and Recreation water line would differ between Alternatives 1 and 3 but that treatment of other utilities would be the same under both build alternatives.

The California Department of Parks and Recreation water line would need to be positively identified through potholing or another means. Under Alternative 1, it is expected that the water line would need to be relocated under the paved shoulder on the west side of Refugio Road due to the extensive excavations required for replacement of the bridge foundations at the center columns. Under Alternative 3, it is possible that the water line may be protected in place. An existing abandoned well facility associated with the water line is also beneath the bridges and would be removed or protected in

place prior to construction of either build alternative. For both build alternatives, water service would be maintained during the project except for a short period (likely several hours) to connect with a new water line if relocation is required.

For the active natural gas lines and the Plains All American Pipeline, potholing or another means of positive identification would be required prior to construction to identify the position of the utility lines and determine whether the planned fish passage improvement work would disturb the lines. Coordination with the Southern California Gas Company, Plains Pipeline, L.P., and Santa Barbara County would be needed to determine the appropriate treatment for the utilities.

The AT&T Mobility communication lines and private water line that are suspended above Cañada del Refugio Creek may need to be raised so that there is enough clearance for construction equipment to drive beneath the lines and access the northern portion of the site.

Upgrades to the lighting system would be completed in cooperation with Pacific Gas and Electric company. If temporary disruptions in service are required, Refugio State Beach and affected residents would be notified in advance.

Solid waste would be generated during demolition of the existing concrete bridges and removal of concrete-grouted rock slope protection. If possible, the concrete generated from bridge demolition would be recycled as base materials for the new bridges. All solid waste generated during construction that cannot be recycled would be disposed of at a local landfill with enough capacity.

Construction of the project would generate wastewater that would be minimized through the implementation of standard best management practices such as sediment and erosion control measures. The main source of wastewater would be sanitary waste generated by construction workers. Therefore, portable waste facilities would be provided for use by all workers. Sanitary waste generated from the use of these facilities would be disposed of by an approved contractor at an approved disposal site.

Emergency Services

The project is expected to improve emergency access on U.S. 101 near the project because it would increase shoulder widths across the Refugio Road Bridges and would ensure consistent access across U.S. 101 due to the replacement of deteriorating bridge structures. The project is not capacity-increasing and therefore would not increase the demand for emergency services.

Temporary (Construction) Impacts

For most of the construction period, impacts to emergency services would be minimal because U.S. 101 would remain open in both directions. However, the project would require closure of Refugio Road beneath the Refugio Road Bridges during which time localized increases in the response times for emergency services to the greater Refugio State Beach area are expected. Closures to Refugio Road would require implementation of detours to maintain access to Refugio State Beach and northbound Refugio Road, as outlined in the traffic management plan described in Section 2.1.4. Emergency vehicles using the Refugio Road interchange would be subject to the implemented detours. Emergency service providers would be notified prior to the start of construction, and prior to closures of Refugio Road. Coordination between the Caltrans Resident Engineer who oversees construction of a project, and local emergency service providers is a standard practice on Caltrans construction sites. This coordination would aid in minimizing emergency response delay times in the event an emergency vehicle needs to gain access through the construction site. Additionally, the falsework required for bridge construction would accommodate the size of emergency vehicles that may need to travel through the construction site.

Estimated timeframes for intermittent closures of Refugio Road are 10 months (40 weeks) total under Alternative 1 and six weeks for Alternative 3. Therefore, temporary impacts to emergency services would be greater for Alternative 1.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of a traffic management plan, (measure TRA-1) would minimize impacts to emergency services during the construction period. See Section 2.1.4 for a detailed description of the traffic management plan. In addition, implementation of the following avoidance and minimization measure would reduce impacts related to utility relocations:

UTL-1: If temporary or permanent utility relocation is required, Caltrans or the utility owner would notify Refugio State Beach and/or any affected residents in advance of any disruption in service during utility relocation.

2.1.4 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

Caltrans, as assigned by the Federal Highway Administration, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 Code of Federal Regulations 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or expected pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every

effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the U.S. Department of Transportation regulations (49 Code of Federal Regulations 27) implementing Section 504 of the Rehabilitation Act (29 U.S. Code 794). The Federal Highway Administration has enacted regulations for the implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the Americans with Disabilities Act requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

The project is on U.S. 101, a divided five-lane freeway in Santa Barbara County. The roadway and bridges are on a curved alignment with five 12-foot-wide lanes, two in the southbound direction and three in the northbound direction. Across the bridges, outside shoulder widths are 10 feet and frequently used by cyclists. Along the Gaviota Coast, U.S. 101 is designated as a Class 3 bicycle route referred to as the Pacific Coast Bike Route. Beneath the Refugio Road Bridges, a pedestrian walkway parallels Refugio Road leading from the northbound U.S. 101 on-ramp to the state beach. The walkway was constructed in 1974 at the same time as the existing bridges. Currently, the deteriorating asphalt pathway does not meet the requirements of the Americans with Disabilities Act and has been encroached on by side-slopes and vegetation.

The main arterial in the project area is Refugio Road (Forest Route 5N12), which runs beneath the Refugio Road Bridges. Refugio Road runs from Refugio State Beach north through the Santa Ynez Mountains where it ends at Calle Bonita outside of the Santa Ynez community. It is primarily used by residents of Refugio Canyon. Calle Real, a frontage road, runs parallel to U.S. 101 from Refugio Road east to El Capitán State Beach.

Environmental Consequences

The project is expected to improve traffic operations on U.S. 101 in the long term because it would replace deteriorating bridges and provide standard shoulder widths. The project would improve bicycle facilities by upgrading bridge rails on the right side of the new Refugio Road Bridges and the northbound U.S. 101 on-ramp bridge with new rails that conform to bicycle railing heights. The project is expected to improve pedestrian facilities because it would reconstruct a pedestrian path in Caltrans right-of-way beneath the bridges to conform with the current standards of the Americans with Disabilities Act. Reconstruction of the pedestrian path would improve

coastal access to Refugio State Beach and would serve as a north-south access point for the future California Coastal Trail. Therefore, the project would not conflict with any applicable plan, ordinance, or policy relating to circulation, or bus, bicycle, and pedestrian facilities.

The project is not near an airport and would not cause a change in air traffic patterns since the project involves replacement of existing roadway infrastructure. The project would not substantially increase hazards because of a design feature or incompatible use.

Temporary (Construction) Impacts: U.S. 101

It is expected that both build alternatives for the project would result in minor short-term traffic delays on U.S. 101 during the construction period, but the highway would remain open throughout the duration of the project. Construction of the replacement bridges under both build alternatives would take place in stages, with the bridges being replaced one at a time. While work is being completed on one bridge, two lanes of traffic in both the northbound and southbound directions would be routed across the median to the other bridge, separated by a barrier. A shoulder to accommodate southbound cyclists would be included on the bridge, and northbound cyclists would use a detour that follows the northbound on-ramps and off-ramps. The speed limit through the construction limits would be reduced to 55 miles per hour.

Temporary (Construction) Impacts: Refugio Road and Refugio State Beach

Intermittent closures of Refugio Road and the adjacent pedestrian path would be required during project construction for both build alternatives. It is expected that Alternative 1 would require intermittent closures for a total of 40 weeks (20 weeks for each bridge replacement), while Alternative 3 would require intermittent closures for six weeks (three weeks for each bridge replacement). Therefore, Alternative 1 is expected to have a greater temporary impact on traffic, transportation and pedestrian and bicycle facilities than Alternative 3.

Under Alternatives 1 and 3, closures of Refugio Road would generally be required during demolition of the existing bridges, construction of falsework to support the new bridges, and removal of falsework. Intermittent lane closures may also be needed for general construction work such as pumping concrete. The extended closure periods required for Alternative 1 relate to the removal and reconstruction of the piles and pile caps to support the center columns, as discussed in Section 1.5.1.

During closures of Refugio Road, detours would be developed to provide continuous access to and from Refugio State Beach from northbound U.S. 101 for vehicles and bicycles. State beach access to and from southbound U.S. 101 would not be affected. Northbound vehicle and bicycle traffic accessing the state beach would be detoured north to the Mariposa Reina

Overcrossing where traffic would switch directions and travel southbound and use the southbound off-ramp. All vehicle and bicycle traffic leaving the park would use the southbound on-ramp with northbound traffic using the El Capitán State Park Undercrossing to switch directions. Vehicle and bicycle traffic using Refugio Road on the north side of the bridges would also be subject to the detours when the roadway is closed.

A school bus serving the rural Vista Del Mar Union School District maintains a pick up/drop off at Refugio Road and U.S. 101. The bus stops at a turnout just north of the Refugio on-ramp. Other stops include Gaviota and Tajiguas. Delays could impact the schedule or change the bus stop location if the Refugio Road closure required for bridge demolition and falsework construction occurs during the school year.

The pedestrian pathway beneath Refugio Road would be intermittently closed for the duration of the construction period. Pedestrians would be able to cross beneath U.S. 101 by walking on the shoulder of Refugio Road, except during closure periods (see Section 1.5.1).

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measure would be implemented during the construction period:

TRA-1: Caltrans will implement a traffic management plan during the construction period to reduce transportation/traffic and pedestrian/bicycle impacts associated with construction activities. This plan will include alerting emergency services, the Vista Del Mar Union School District, and the public.

2.1.5 Visual/Aesthetics

Regulatory Setting

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

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

Affected Environment

A visual impact assessment was prepared for the project in August 2018 (with an update in July 2019). The project is located along the Gaviota Coast, where visual quality is high because of the panoramic views of the Pacific Ocean and the varied topography that includes coastline cliffs and beaches, distant inland mountains, and rolling hills as they transition to the sea. Little development is found near the project, except for Refugio State Beach to the south. The developed nature of the state beach does not markedly detract from the visual setting due to the abundance of trees and other vegetation in the park.

Near the project, U.S. 101 is an officially designated State Scenic Highway that falls within the California Coastal Zone. Because of the varied topography and vegetation surrounding the project area, the availability of views differs according to the specific viewpoint. For example, views from one location might include distant hillsides but not the ocean; from another location, the coastline and ocean might be seen but not the hillsides. In general, the scenic vistas surrounding the project are most expansive from U.S. 101 because of its elevated vantage points relative to other viewpoints (see Figure 2-1).

Figure 2-1 View of the Pacific Ocean and Refugio State Beach from the Southbound Refugio Road Bridge

Cañada del Refugio Creek flows beneath the bridges, and a pedestrian path parallels the creek, leading from Refugio State Beach to the north side of U.S. 101. Within the project limits, the creek is lined with concrete-grouted rock slope protection. Sycamore and willow trees are established in the creek beds and within cracks of the rock slope protection. From a vantage point along the pathway, or from other low-elevation vantage points near the project site, such as within Refugio State Beach, the existing U.S. 101 bridges are visually dominant (see Figure 2-2).

The existing U.S. 101 concrete bridges are relatively contemporary in architectural style and scale, with slightly hunched profiles at the bents and minimal orientation, a typical style of the 1970s (see Figure 2-2). This design is not architecturally unique and does not establish a particularly memorable style in support of the rural, coastal character of the setting. The existing U.S. 101 bridges stand in contrast to the nearby railroad bridge at the entrance to Refugio State Beach which features ashlar sandstone abutments and iron beams.

There are standard lighting facilities throughout the project limits, including street light luminaires along U.S. 101 to the north and south of the interchange, as well as along the on-ramps and off-ramps.

Figure 2-2 View of the Refugio Road Bridges, as Seen from Refugio Road to the North of the Bridges

Environmental Consequences

Permanent Impacts

It is expected that the project will not substantially alter the visual environment. The net effect on overall scenic vistas would be generally equivalent for both build alternatives, despite the differences in their visual profiles. The most notable changes to the visual environment would be noticed from low-elevation vantage points within Refugio State Beach and along Cañada del Refugio Creek, where the existing bridges are visually dominant.

For Build Alternative 1, the new two-span bridges would include columns at about the same locations as the existing columns. The length of the bridges would increase by 17 feet and the abutments would be constructed about 8 feet farther away from the creek. The bridge depth (thickness) would be reduced 1 foot. From a vantage point beneath the bridges, the columns would be a partial visual barrier to distant views, but the bridges would otherwise provide an open appearance due to the thin profile of the bridges and greater distance between abutments, in comparison to Alternative 3.

For Build Alternative 3, the clear-span bridges would remove the support columns and would shorten the structures about 36 feet compared to the existing bridges, while the abutments would have a footprint about 15 feet larger in a longitudinal direction and 7 feet wider than the existing. The bridge depth would also increase. From a vantage point beneath the bridges, the removal of the columns would benefit distant views by opening the space beneath the bridges. However, the bridges themselves would appear bulkier due to the increased depth (thickness) and the larger abutments that would be placed closer together.

For all other project elements, the effects on the visual environment would be the same. The project would include installation of open-style bridge railings that are approved for use in the coastal zone and would maintain outward views of the surrounding scenic vistas, as seen from U.S. 101, like the existing condition.

For both build alternatives, the default design for the replacement bridges would specify a simple, efficient style that is consistent with the character of the existing bridges and therefore would not result in an adverse effect on the visual character of the site and its surroundings. The project is within the coastal zone and the existing bridges are visible from within Refugio State Beach. The California Coastal Act requires sensitivity to coastal visual resources so the final design of the new bridges would be determined with input from the local community and approval by the County of Santa Barbara. It is expected that the aesthetic design may incorporate design elements from nearby features, such as the nearby rock walls, the creek corridor, or the beach. Implementation of context-sensitive features would result in no adverse effect on the existing visual character of the site and its surroundings and may improve the visual quality of the area.

The project would include improvements to the pedestrian path under the bridges and would require fish passage restoration along Cañada del Refugio Creek. Both project features would require removal of vegetation during construction that would be fully replanted and established, and therefore would have little to no long-term adverse effect on existing scenic vistas. Fish passage work would additionally include removal of the grouted rock slope protection from the creek bottom and the creation of naturally functioning pools and creek bed features using rock and other natural materials. The fish passage, together with the establishment of replacement planting would, over time, result in a more natural, improved visual condition beneath the bridges.

However, bringing the existing walking pathway into compliance with the Americans with Disabilities Act would substantially alter the visual scale and appearance of the path. Currently, the paved pathway is only noticeable from the entrance to the state beach due to the topography of the site and abundance of vegetation. Improvements to the path may include installation

of fencing, signage, and other features that could reduce the scenic character of the site.

The project proposes to upgrade the lighting system throughout the project limits due to degradation of the existing conduits. The replacement luminaires would use LED (light-emitting diode) bulbs with glare blockers to minimize light pollution and avoid light spillover into Cañada del Refugio Creek. Due to the installation of glare blockers, it is expected that light pollution for visitors to Refugio State Beach and for surrounding residents would decrease in comparison to the existing conditions.

Temporary (Construction) Impacts

For both build alternatives, there would be temporary impacts during the construction period due to views of construction activity.

Avoidance, Minimization, and/or Mitigation Measures

With implementation of the following avoidance and minimization measures, the project would be consistent with aesthetic and coastal resource protection goals for U.S. 101, and potential visual impacts would be minimized:

Permanent Impacts

AES-1: The replacement bridge rail on all affected structures would be an open style, as determined in consultation with the County of Santa Barbara.

AES-2: The new U.S. 101 bridge structures would include aesthetic design and treatment as developed in collaboration with the County of Santa Barbara. Aesthetic decisions and final design would include consideration of fundamental bridge type and form, such as faux arch and haunched forms, and not be simply limited to surface treatments and facades.

AES-3: The new or improved pedestrian path under the Refugio Road Bridges would be designed and built to complement the rural coastal and riparian setting. The path design would minimize any industrial or utilitarian appearance through use of the alignment and grade as well as scale, colors, materials, vegetation, and other methods. Standard galvanized chain link fencing would not be used along the pathway.

AES-4: All guardrail (including posts) and bridge end treatments would be darkened to reduce reflectivity and be visually compatible with the rural setting.

AES-5: Impacts on vegetation, other than those required for fish passage restoration, would be minimized to the greatest extent possible. Creek restoration planting would include aesthetic considerations along with inherent biological goals, consistent with agency permit requirements.

AES-6: Vegetation control, if used, would be a natural material such as shale. If concrete is required, concrete would be colored to visually blend with the surrounding natural ground.

AES-7: Gore paving, if required, would match the existing aesthetic gore treatment along U.S. 101 in the area.

2.1.6 Cultural Resources

Regulatory Setting

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

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

The Archaeological Resources Protection Act applies when a project may involve archaeological resources located on federal or tribal land. The Archaeological Resources Protection Act requires that a permit be obtained before survey work or excavation of an archaeological resource on such land can take place.

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties (in Section 4(f) terminology—historic sites). Historic Properties within the Refugio Road Undercrossing Bridges Replacement Project were evaluated relative to the requirements of Section 4(f), but it was

determined there would be no use of any properties. For further information see Appendix A.

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

Public Resources Code Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the National Register of Historic Places listing criteria. It further requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register of Historic Places or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with Public Resources Code Section 5024 are outlined in a Memorandum of Understanding between Caltrans and the California State Historic Preservation Officer, effective January 1, 2015. For most Federal-aid projects on the state highway system, compliance with the Section 106 Programmatic Agreement would satisfy the requirements of Public Resources Code Section 5024.

Affected Environment

This section summarizes the information collected during the studies and documented in the Historic Property Survey Report prepared in April 2018, a Supplemental Property Survey Report prepared in January 2019, and the Finding of Adverse Effect prepared in May 2019. As part of the preparation for the Historic Property Survey Report, Caltrans' consultants conducted a record search at the Central Coast Information Center followed by a Phase 1 archaeological survey. The survey was conducted with the assistance of a Native American monitor and the results were documented in an Archaeological Survey Report (Enright et al. 2017).

The Supplemental Historic Property Survey Report was prepared to address revisions to the Area of Potential Effects to include anticipated trenching, usage of an easement parcel, and additional staging areas.

Definition of the Area of Potential Effects

The Area of Potential Effects is the area within which the proposed project has the potential to affect, either directly or indirectly, significant prehistoric or historic archaeological resources or historic-period (pre-1970) built-environment resources.

The Area of Potential Effects for the project was established to include the entire extent needed to construct the project, including all foreseeable ground-disturbing project construction activities, as well as equipment storage and staging areas, geotechnical boring locations, and temporary easements for all proposed alternatives. The Area of Potential Effects therefore includes the entire Caltrans right-of-way from post mile R36.1 to post mile R37.2. The vertical extent of the Area of Potential Effects extends down through the abutment fill soils into original ground, extending as much as 90 to 120 feet or more below the current roadway surface, and as much as 30 feet into the original ground.

Archaeological Context

One archaeological site lies within the Area of Potential Effects: CA-SBA-87 (Enright et al. 2017). Site CA-SBA-87 is the Chumash village site of *Qasil*, which was identified during the ethnohistoric period, possibly as early as 1542 during the Cabrillo expedition (see below), when European travelers passed through the area making notes and writing descriptions of what they saw. Previous studies of the site date it to the Middle to Late Period, from about 2,000 to 400 years before present. The site contains evidence of the Chumash people from the pre-contact period and possibly into the historic period including the Mission Period and beyond.

The pre-contact period refers to the time before the arrival of Europeans or people of European descent. During the pre-contact period the Chumash inhabited villages and towns in coastal and inland areas extending from the Santa Monica Mountains in the south to Paso Robles in the north, as well as the northern Channel Islands. Individual villages in the Santa Barbara and Goleta area contained up to 1,000 residents, while villages elsewhere in the region were less populated. The Chumash were adept hunters-gatherers-fishers, with coastal populations relying heavily on marine resources such as shellfish, fish, and marine mammals. Chumash culture included well-developed technology and crafts, as well as an elaborate exchange system featuring a shell-bead currency that linked the island, mainland coast, and interior regions. Ocean-going plank canoes called *tomols* were a notable technology that allowed for cross-channel transportation.

In October 1542, the arrival of the Spanish explorer Juan Rodriguez Cabrillo ended the pre-contact period on the central coast of California. The arrival of the Cabrillo expedition and eventual establishment of Spanish settlements beginning with the Catholic Mission System brought great changes to the area by replacing indigenous economic and political structures with new/foreign systems that sought to alienate and disassociate native people of their ancestral lands for the benefit of foreign centralized power. In addition, foreign interlopers introduced diseases to the Chumash, against which they had no resistance, greatly affecting their populations. Despite these factors, places like *Qasil* represent an area where the Chumash maintained control and found new ways to participate in a dynamic, international economic system during this transition period.

Evaluation of CA-SBA-87

Findings of the Archaeological Survey Report demonstrate that extensive landform modification in the Area of Potential Effects has affected site CA-SBA-87. Development that has modified the landscape includes the construction of the Union Pacific Railroad and U.S. 101, as well as agricultural practices including grazing and plowing, and development of the State Park. Much of this work occurred prior to 1970, without the implementation of avoidance, minimization, and mitigation strategies to protect archaeological resources.

The most notable effects to site CA-SBA-87 occurred during construction of the existing Refugio Road Bridges in 1974. As part of the bridge construction project, Caltrans implemented an archaeological mitigation program that involved the completion of an extensive preconstruction salvage at site CA-SBA-87. The program was led by G. James West, a California Department of Parks and Recreation Archaeologist, with excavations taking place over the summer of 1969. West and his team of students and volunteers partially excavated the site, focusing primarily on the portions that were at risk due to bridge construction. The team salvaged an extensive collection of artifacts using techniques that at the time were novel, including the use of a backhoe to remove overburden.

West’s preconstruction salvage occurred when the field of cultural resources management, or “salvage archaeology,” was still in the early stages of development. The field was established following the passage of a suite of environmental regulations in the 1960s and 1970s that provided legislative protection of cultural resources. However, it would be several more years before the common practices of cultural resources management were established. In fact, West’s preconstruction salvage at the Refugio Road Bridges is one of the early projects that defined compliance archaeology in California.

In the early days of salvage archaeology, it was not yet common practice for a developer to provide funding for the analysis and reporting needed to

adequately curate artifact collections salvaged from construction projects. Unfortunately, this was the case for West's preconstruction salvage at the Refugio Road Bridges. Due to time constraints and a lack of funding, West and his team were only able to analyze and report on a sample of what was collected. This sample, as well as the remaining artifacts that have not yet been analyzed, were curated into the collections at the University of California, Los Angeles. Recent review of the collection by Caltrans archaeological consultants verified that the collection is in good condition and retains its integrity of data, including separation of artifacts by excavated level, thorough photo-documentation, and availability of field records from the excavation.

Site CA-SBA-87, including both the physical site and West's partially analyzed 1969 collection, had not previously been evaluated for eligibility to the National Register of Historic Places nor the California Register of Historical Resources. An evaluation analysis was prepared as part of the environmental evaluation process for the Refugio Road Undercrossing Bridges Replacement Project. Through the evaluation analysis, CA-SBA-87 is a significant resource under the National Register of Historic Places. The following steps led to this determination:

- CA-SBA-87 was evaluated for listing in the National Register of Historic Places. Due to previous disturbances at the site during construction of U.S. 101, including capping of the site with artificial fill, the evaluation focused on ethnographic data provided in a report by David Earle, a report of previous excavations by Dr. West (1969), and the catalog of West's (1969) artifact collection curated at the University of California, Los Angeles.

- Caltrans transmitted a request for Section 106 consultation to the State Historic Preservation Officer on May 1, 2018. However, after initial review of Caltrans' request, the State Register Historic Officer concluded they did not have adequate data to make a case for site eligibility.

- A second request along with further information was transmitted to the State Historic Preservation Officer on June 14, 2018. The letters can be viewed in Appendix B.

- On June 29, 2018 the State Historic Preservation Officer concurred that CA-SBA-87 is eligible for listing on the National Register of Historic Places (see Appendix B) under Criterion A/1 and D/4. Criterion A/1 is used for properties or archaeological sites tied either to specific events or a series of events that have made a significant contribution to the broad patterns of history; CA-SBA-87 is considered significant due to its role within the larger social and economic system of the Chumash at the time of European contact. CA-SBA-87 is also significant under Criterion A/1 because it is a known ethnohistoric village that modern Native Americans

can tie to their ancestors. Criterion D/1 is used to evaluate the integrity of a site, and whether the site still retains enough data that can be used to address important research questions. CA-SBA-87 is considered significant because West's 1969 report, curation catalog, curation materials, and salvaged collection retain integrity and clearly retain association, feeling, and location of the ethnographic past. Additionally, it has been demonstrated that intact pockets of archaeological data are still present at CA-SBA-87.

Because site CA-SBA-87 was determined eligible for listing in the National Register of Historic Places, it was evaluated as a potential Section 4(f) resource (see Appendix A). However, it was determined that Section 4(f) does not apply to CA-SBA-87 because after consultation with the State Historic Preservation Officer it was determined that the site does not warrant preservation in place since the curated archaeological collection and documentation from West's 1969 excavation are what makes this site valuable. See Appendix A for more information.

Built Environment Resources within the Area of Potential Effect

Two bridges in the Caltrans Historic Bridge Inventory are located within the APE and have been previously evaluated for inclusion in the National Register of Historic Places. The Refugio Road Undercrossing Bridges (No. 51-0215 R/L) and Cañada del Refugio On-ramp Bridge (Bridge Number 51-0030S) are listed as Category 5, meaning they were previously determined not eligible for inclusion in the National Register and that finding remains valid.

Environmental Consequences

Permanent impacts resulting from the project would be similar under both build alternatives. No temporary impacts are expected for either alternative.

Permanent Impacts

Following concurrence from the State Historic Preservation Officer on the eligibility findings presented in the Historic Property Survey Report, Caltrans prepared a document assessing the potential for the project to cause adverse effects to historic properties within the area of potential effect. The historic properties that occur within the APE include resources either listed in or eligible for listing in the National Register of Historic Places, and resources considered historical resources for the purposes of CEQA.

Caltrans concluded in a Finding of Adverse Effect that both proposed build alternatives would cause direct adverse effects to one National Register-eligible archaeological site, CA-SBA-87, which represents the ethnohistoric village of *Qasil*. This adverse effect corresponds to 36 CFR 800.5.2(i): "physical destruction of or damage to all or part of the property." As described above, the *Qasil* site has been partially excavated, and the remaining

deposits could provide further understanding of the site and the inhabitants that lived there, including scientifically important information on topics such as shell-bead economy and trade between the interior, coast, and islands.

In the Finding of Adverse Effect, Caltrans determined that adverse effects to CA-SBA-87 cannot be avoided during construction. Project-related earthwork that is necessary for bridge construction cannot be relocated around the site. It is expected that earthwork could physically destroy or mix intact cultural materials in a way that compromises the integrity of the site. There is also the potential to encounter human remains during construction.

However, it should be noted that the proposed mitigation strategy for the project, as outlined below in mitigation measures CUL-1, CUL-2, CUL-3, and CUL-4 would provide some benefit to site CA-SBA-87 and cultural resources in the greater Gaviota Coast region. Completing the analysis of West's 1969 collection would provide a great deal more knowledge about the site and the inhabitants that once lived there and would ensure that the collection is in satisfactory condition for study by current and future generations.

Avoidance, Minimization, and/or Mitigation Measures

The below-listed mitigation measures would be implemented to address adverse effects to cultural resources during construction and cumulatively (see Section 2.4.2). These mitigation measures are derived from the Archaeological Treatment Plan that was developed for the project in coordination with the State Historic Preservation Officer and local Chumash tribes.

While these measures would not fully offset the project-level and cumulative adverse effects to the archaeological site CA-SBA-87, they are intended to reduce the effects through complete analysis of the collections from the site—including the collection excavated by G. James West in 1969—and communication of the results to local Chumash tribes, the scientific community, and the public. The measures have been organized based on the type and timing of proposed work and are designed to address effects to the eligibility of site CA-SBA-87 in the National Register of Historic Places under criteria A and D.

To address eligibility under Criterion A, mitigation measures CUL-3 includes Chumash ethnographic studies and a summary of the studies in a technical report, which will document and communicate the importance of CA-SBA-87 to Chumash culture and history. Mitigation measure CUL-4 will further address eligibility under Criterion A because it involves public outreach to communicate and educate about site CA-SBA-87 and Chumash culture. Measure CUL-3 also includes a study of the archaeological collection G. James West excavated in 1969 to document its importance to the development of archaeological methods in the early days of cultural resources management.

To address eligibility under Criterion D, mitigation measure CUL-1, CUL-2, and CUL-3 include data recovery (including archaeological monitoring of additional ground-disturbing work) and analysis of the existing collection to synthesize information from the site and ensure the collection is in a condition for future research. Important research questions the site may answer relate to pre-contact, proto-contact, and Mission Period chronology, settlement structure and organization, subsistence and diet, technology, trade and currency, and local history of the Chumash.

CUL-1: Data Recovery. Prior to the start of construction, field investigations will be conducted to remove potential cultural material from areas to be impacted by construction, as outlined in the Archaeological Treatment Plan developed for the project. Components of the investigation may include establishment of a mapping datum and grid over the site, excavation of surface transect units, mechanical removal of overburden, and processing all materials excavated.

CUL-2: Archaeological Monitoring Plan. An archaeological monitoring program will be implemented during ground disturbance, as outlined in the Archaeological Treatment Plan developed for the project. Elements of the plan will include archaeological awareness training for construction personnel, presence of an archaeological monitor and Native American monitor during ground-disturbing activities, data recovery during monitoring activities, and a plan for inadvertent discoveries. If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be temporarily diverted while a qualified archaeologist assesses the nature and significance of the find. If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities will stop in any area or nearby area suspected to overlie remains, and the county coroner will be contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission which, pursuant to Public Resources Code Section 5097.98, will then notify the most likely descendent. At that time, the person who discovered the remains will contact the District 5 Environmental Branch so that it may work with the most likely descendent on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code Section 5097.98 are to be followed as applicable.

CUL-3: Analysis and Interpretation of Cultural Materials. Cultural materials collected from CA-SBA-87 will be analyzed using current professional standards, as outlined in the Archaeological Treatment Plan developed for the project. The bulk of this work will focus on the archived collection from West's 1969 excavation, which will be obtained on loan from the University of California, Los Angeles Archaeological Curation Facility. Cultural materials that may be discovered during data recovery under CUL-1 or archaeological monitoring under CUL-2 will also be included in the analysis. Work will include but not be limited to organization of the 1969

collection, analysis and digitization of cultural materials including an analysis of artifact tool classes, taxonomic identification of plant and animal remains, special studies relating to chronology and sourcing (e.g., radiocarbon dating), cataloguing of materials into the University of California, Los Angeles collections database, Chumash ethnographic studies and an ethnographic study of G. James West's 1969 archaeological excavations. Results will be summarized in a technical report and will provide information for the public outreach component outlined in measure CUL-4.

CUL-4: Public Outreach. Public outreach based on the history of CA-SBA-87 and Chumash tribal groups will be developed in direct consultation with interested parties and will be designed to benefit both Native American communities and enhance understanding of Native American culture for the public, as outlined in the Archaeological Treatment Plan developed for the project. Outreach strategies may include but are not limited to development of a virtual museum and associated educational materials, and creation of interpretive materials for use by the California Department of Parks and Recreation or other interested agencies. Interpretive materials may include interpretive panels at Refugio State Beach, pamphlets, educational videos that can be displayed on monitors or websites, and field trip guides for use by educators. Outreach to the archaeological community will occur through publication in a peer-reviewed journal such as *Advances in Archaeological Practice.*

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

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

To comply, the following must be analyzed:

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

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

Affected Environment

A Location Hydraulic Study was completed in April 2019, a Fish Passage Analysis was completed in May 2018, and a Draft Final Hydraulic Report was completed in November 2019. These reports serve as the basis for data discussed in this section. A Draft Final Hydraulic Study is being prepared and will be completed prior to the release of the final environmental document. Preliminary data from the draft report is also included in this section.

The Refugio Road Bridges span Cañada del Refugio Creek about 1,000 feet upstream from the Pacific Ocean. The Cañada del Refugio Creek watershed occupies about 8 square miles of the Santa Barbara National Forest, on the rolling to steep slopes of the Santa Ynez Mountains, which are covered by grass, brush, and trees. Cañada del Refugio Creek originates at an elevation of 1,500 feet in the Santa Ynez Mountains, and flows 5 miles downstream (south), passing beneath four smaller bridges and several private driveway bridges before emptying into the Pacific Ocean at Refugio State Beach. Within the project limits, the creek is lined with concrete-grouted rock slope protection leading to a double box culvert owned by the California Department of Parks and Recreation.

As indicated on Federal Emergency Management Agency Flood Insurance Rate Map Number 06083C1305H (September 28, 2018), the Refugio Road Bridges are located about 80 feet upstream from a 100-year Zone “A” floodplain (see Figure 2-3), which is described as having “no base flood elevations determined.” Areas within a 100-year floodplain have a one percent chance of annual flooding. The northern limit of the 100-year floodplain extends to the inlet of the double box culvert where creek bed modifications related to fish passage improvements are planned. The remainder of the project components are outside of the floodplain.

In coastal Santa Barbara County and near the project, flood risks are related to both coastal flooding and river flooding. Coastal flooding occurs when seawater floods the shoreline, typically in association with the simultaneous occurrence of very high tides, large waves, and storm swells during the winter. Coastal flood hazards are generated by swell waves from offshore storms, by wind waves from land-falling storms, and, on rare occasions, by tsunamis. River flooding is related to intense rains, causing rivers to exceed their capacity and overflow their banks. Coastal Santa Barbara County is subject to flash floods due to the “orographic effect” where approaching Pacific storms are forced upwards against the steep mountain ranges leading to an increased rain release over a short period of time.

Environmental Consequences

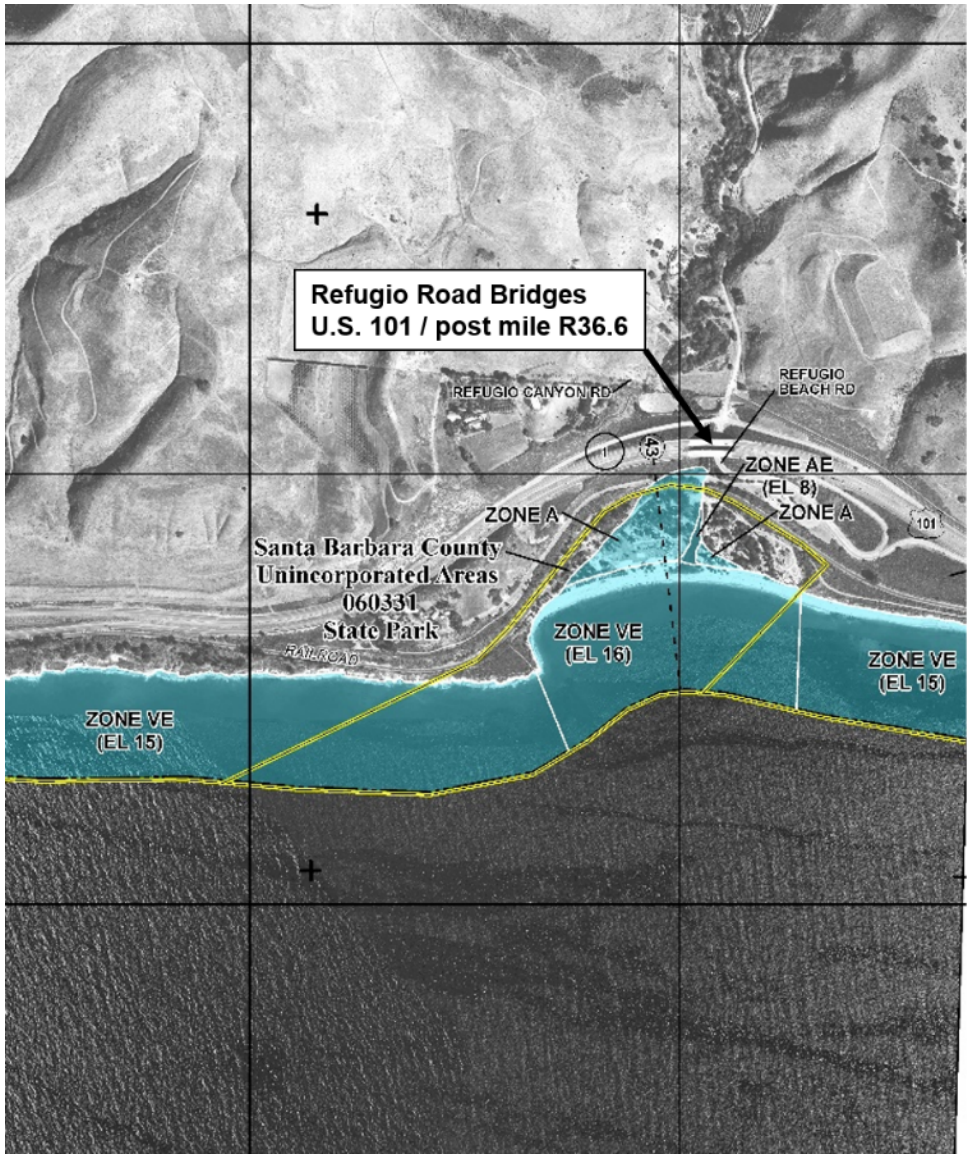
Permanent Impacts

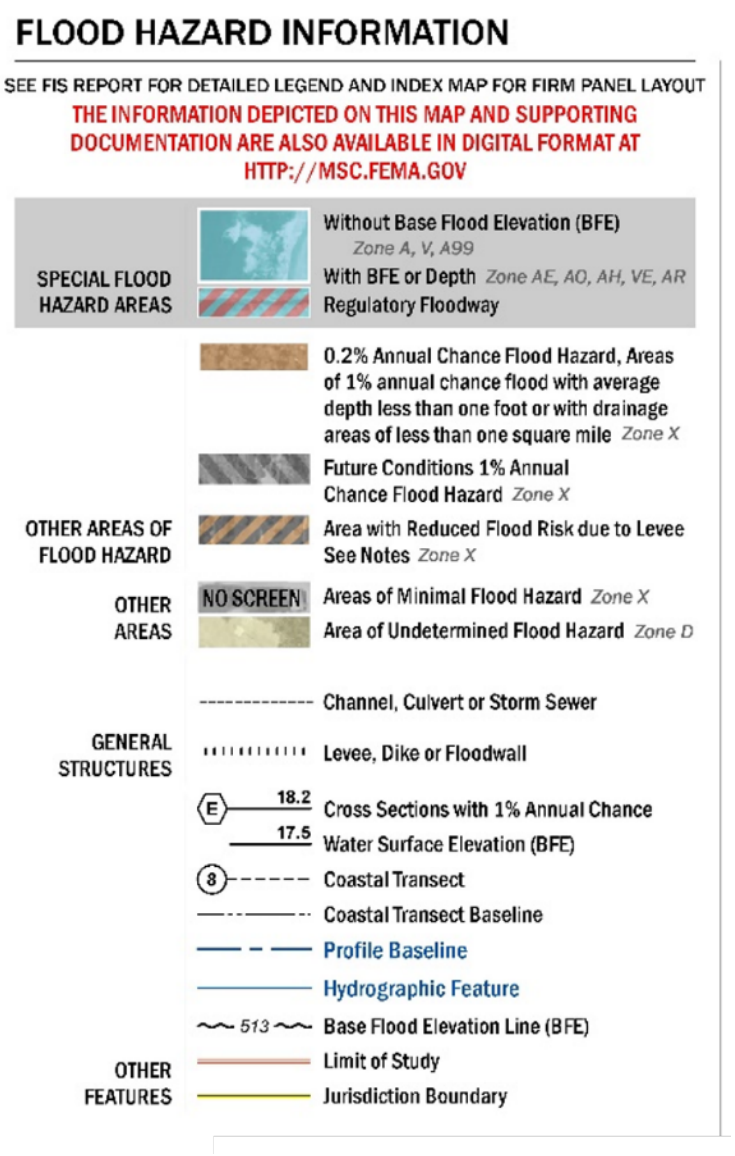
Most of the project components proposed for Alternatives 1 and 3 are outside of the floodplain. However, portions of the fish passage improvements associated with both alternatives would occur within the 100-year Zone “A” floodplain. Construction activities within the floodplain for both build alternatives would be similar and would not constitute a significant encroachment in the flood plain.

Proposed work for both build alternatives includes removal of the concrete-grouted rock slope protection from the creek bed and naturalization of the creek bottom through installation of a non-grouted rock weir system that would create areas with slow-moving water and resting pools that are beneficial for fish (see Section 2.3.1 for further discussion). The rock weir system would involve placement of large boulders in a series of rows that when viewed from above look like arches pointing in the upstream direction. The large boulders making up the weirs would be anchored at an adequate depth to resist scour and additional rock material would be placed between the weirs below the new creek bed material. The arched shape of the weirs is designed so that the direction of waterflow would cause the rocks to compress, transferring the force of the flow from the center of the weirs to the edges. The edges of the rock weirs would be keyed into a continuous rock toe that would be placed along the length of the creek. The rock toe would be grouted to the existing grouted rock slope protection lining the banks to ensure the stability of the toe. Taken together, the rock weir system would be a continuous system that works to maintain stability, resist high shear stresses, and eliminate scour and undercutting.

Development in a floodplain is only allowed if it does not cause flood elevation to rise more than 1 foot. Based on Surface Water Modeling System results from the Location Hydraulic Study, the fish passage improvements would increase the water surface elevation by 0.3 foot compared to existing conditions, which is well below the 1-foot requirement. Further, the project would not alter the flood source or expose residences, buildings, or crops to flooding and risk to life and property remains unchanged.

Figure 2-3 Federal Emergency Management Agency 100-year Flood Map (Map Number 06083C1305H, revised September 28, 2018)





Discussion of the Treatment of the Banks of Cañada del Refugio Creek

Several options were considered for treatment of the creek banks in association with the fish passage improvements. Underlying the existing rock slope protection, the creek banks are composed of highly erosive soils that must be stabilized to protect the Refugio Road Bridges and other nearby bridges and infrastructure from failure due to erosion and scour. Leaving the concrete-grouted rock slope protection on the creek banks and removing the rock slope protection from the creek bed was identified as the preferred design option because it would withstand the high flow velocities expected during storms while minimizing environmental impacts.

As described above, Cañada del Refugio Creek is subject to flash flooding events. These storms produce large volumes of fast-moving water carrying sediment and debris. As these storm flows travel down the creek they apply a tremendous amount of force (or shear stress) to the banks of the creek and the creek bottom. A model simulating a 100-year storm on the creek indicated that storm flows would produce shear stresses ranging from 10 to 12 pounds per square foot on the creek banks. Creek bank stabilization using brush-layering techniques, or another bioengineering method are only projected to withstand maximum shear stress levels of 8 pounds per square foot. Thus, bioengineering solutions may fail during a 100-year storm on Cañada del Refugio Creek. A 100-year storm is used by Caltrans as a standard base model, but larger storms in this watershed are possible and likely.

Replacing the grouted rock slope protection banks with a non-grouted rock slope protection system that can withstand a 100-year flood event would require the installation of larger, more deeply anchored boulders. The slope of the existing creek bed would also need to be shallower (a slope with a 2:1 horizontal to vertical ratio), which would widen the footprint of the creek. The existing concrete-grouted rock slope protection slope is constructed at a 1.5:1 horizontal to vertical ratio, which is possible because the concrete grout stabilizes the steeper slope. Widening the creek to accommodate shallower 2:1 slopes would require more extensive excavations and would increase the area of permanent impacts to biological resources (e.g., removal of vegetation, see Section 2.3) and to known archaeological resources present within the project limits (see Section 2.1.6). Widening of the creek would also require replacement of the northbound U.S. 101 on-ramp bridge and the private bridge farther north to prevent scour during high-energy flood events on Cañada del Refugio Creek. Without replacement, flood flows would rapidly contract to squeeze through the smaller bridge openings, and then would immediately expand upon exiting the bridge opening. The rapid contraction and expansion of flood flows would create a host of geomorphological issues, including generating turbulent flows that lead to scour. This scenario would also be produced at the inlet to the double box culvert downstream of the project. Finally, the horizontal space beneath the Refugio Road Bridges is limited and widening the creek in this area would encroach on Refugio Road and the pedestrian pathway.

Temporary (Construction) Impacts

There would be no construction impacts related to floodplain or hydrology. No construction storage and/or staging areas would be placed in a flood zone. See Section

1.3 for a description of the expected water management strategy for Cañada del Refugio Creek.

Avoidance, Minimization, and/or Mitigation Measures

There would be no impacts related to hydrology and the floodplain for Alternatives 1 or 3. Rather, the project is expected to provide a net benefit to the hydrology of Cañada del Refugio Creek by removed concrete-grouted rock slope protection from the creek bed. No avoidance, minimization, or mitigation measures would be required.

2.2.2 Water Quality and Storm Water Runoff

Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States from any point source (i.e., any discrete conveyance such as a pipe or human-made ditch) unlawful unless the discharge complies with a National Pollutant Discharge Elimination System permit. This act and its amendments are known today as the Clean Water Act. Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the National Pollutant Discharge Elimination System permit scheme. The following are important Clean Water Act sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the United States. Regional Water Quality Control Boards administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers.

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

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

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the U.S. Army Corps of Engineers' Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the U.S. Army Corps of Engineers' decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (40 Code of Federal Regulations Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (referred to as the Guidelines) were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the United States) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have lesser effects on waters of the United States and not have any other significant adverse environmental consequences.

According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards (the U.S. Environmental Protection Agency defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall"), jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the United States. In addition, every permit from the U.S. Army Corps of Engineers, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 Code of Federal Regulations 320.4. A discussion of the least environmentally damaging practicable alternative determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act (California Water Code)

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

The State Water Resources Control Board and Regional Water Quality Control Board are responsible for establishing the water quality standards (objectives and beneficial uses) required by the Clean Water Act and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable Regional Water Quality Control Board's Basin Plan. In California, Regional Water Quality Control Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the State Water Resources Control Board identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (National Pollutant Discharge Elimination System permits or Waste Discharge Requirements), the Clean Water Act requires the establishment of Total Maximum Daily Loads. Total Maximum Daily Loads specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, Total Maximum Daily Loads, and National Pollutant Discharge Elimination System permits. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

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

The Caltrans Municipal Separate Storm Sewer Systems Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by

Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015) has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the state to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices, to the maximum extent practicable, and other measures as the State Water Resources Control Board determines to be necessary to meet the water quality standards.

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

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009 and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012) regulates storm water discharges from construction sites that result in a Disturbed Soil Area of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the Regional Water Quality Control Board. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on

potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity (murkiness) monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan. In accordance with the Caltrans Statewide Storm Water Management Plan and Standard Specifications, a Water Pollution Control Program is necessary for projects with Disturbed Soil Area less than one acre.

Section 401 Permitting

Under Section 401 of the Clean Water Act, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will comply with state water quality standards. The most common federal permits triggering 401 Certification are Clean Water Act Section 404 permits issued by the U.S. Army Corps of Engineers. The 401 permit certifications are obtained from the appropriate Regional Water Quality Control Board, dependent on the project location, and are required before the U.S. Army Corps of Engineers issues a 404 permit.

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

Affected Environment

The main source used in preparing this section is the July 2019 Water Quality Assessment Report prepared for the project. The environmental setting for the project has been divided into several sections to discuss surface water and groundwater resources.

Regional Hydrology

The project is in the South Coast Hydrologic Unit, Arguello Hydrologic Area, and an undefined Hydrologic Sub-Area. The receiving water body for this project is Cañada del Refugio Creek, and the project is about 1,000 feet upstream from the Pacific Ocean at Refugio State Beach. The region is regulated by the Central Coast Regional Water Quality Control Board and the Central Coast Basin Plan.

Impairments of Receiving Water Bodies

Highway storm water contains a variety of pollutants that are sourced from both naturally occurring processes (e.g., natural erosion, decomposition of fallen tree leaves) and human activities (e.g., combustion products from fossil fuels, wearing of brake pads

and tires). In some cases, the pollutants in highway storm water can cause impairment of the water bodies that storm water drains into or worsen an existing impairment. A body of water is considered "impaired" if it fails to meet water quality standards.

On the most recent (2014/2016) 303(d) list of impaired water bodies, the Pacific Ocean at Refugio State Beach is listed as impaired by total coliform bacteria and Cañada del Refugio Creek is listed as impaired by chloride, fecal coliform bacteria, and sodium.

Municipal Supply

There are no drinking water or water recharge facilities at or downstream of the project location. While drinking water is available at Refugio State Beach, the water is sourced from a well upstream (north) of the project and transported to the state beach through a buried water line (see Section 2.1.3).

Groundwater Hydrology

The project is within the Goleta (Unit 3-16) groundwater basin. Groundwater elevations were determined during test borings conducted in 1967 prior to construction of the original structures. The maximum measured elevation of groundwater was about 9 feet deep near the column supports of the existing structures, about 19 feet deep at the western abutments, and about 13 feet deep at the eastern abutments. Cañada del Refugio Creek runs nearly year-round; therefore, depth to groundwater varies seasonally.

As described in the Central Coast Regional Water Quality Control Board's Basin Plan, the general water quality objectives for all groundwater in the Central Coast area include taste, odor, and radioactivity. Groundwater should not contain taste-producing or odor-producing substances in concentrations that adversely affect beneficial uses. In addition, radionuclides should not be present in concentrations that would be harmful to humans, plants, animals, or aquatic life.

Environmental Consequences

Potential impacts on water quality have been separated into several categories; both temporary and permanent potential impacts are addressed. Temporary and permanent impacts would be the same under both build alternatives.

Temporary (Construction) Impacts

Surface Water

Both build alternatives could result in short-term water quality impacts during the construction period. Grading, excavation, and the removal of vegetation could cause an increase in erosion and sedimentation. Demolition of the existing bridges under both build alternatives would be a large operation, creating waste, debris, and dust. Storm water runoff from the project site and U.S. 101 storm drains may transport pollutants to Cañada del Refugio Creek from construction activities if best management practices are not properly implemented. Storm water runoff drains into the creek and eventually discharges to the Pacific Ocean at Refugio Bay. Generally, as the Disturbed Soil Area increases, the potential for temporary water quality impacts also increases.

The Disturbed Soil Area for both build alternatives for this project is estimated to be 13 acres. This was calculated by summing the total bridge construction area, structure excavation area, fish passage improvement excavation area, potential local road excavation areas, temporary median crossover detour areas, and potential contractor stockpiling/staging areas.

Fueling or maintenance of construction vehicles would occur within the project site during construction. Therefore, the risk of accidental spills or releases of fuels, oils, or other potentially toxic materials exists. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface waters. The magnitude of the impact from an accidental release would depend on the amount and type of material spilled.

Overall, neither build alternative is expected to result in long-term water quality impacts due to the similarity between the existing and proposed conditions. Potential water-quality effects associated with the project would be short-term, limited to the construction period, and would be minimized or avoided through the implementation of best management practices and construction mitigation measures.

Groundwater

The project is not expected to involve excavations substantial enough to affect groundwater resources. Though excavations up to 20 feet deep are planned, excavation work would happen during the dry season when the water table is seasonally low, therefore upwelling is unlikely. Upwelling did not occur during construction of the original bridges in 1974. Dewatering may be needed for work in the creek or work at the center columns under Alternative 1 if seasonally high groundwater is encountered. If any groundwater occurs, perforated manifolds would be installed in the ground, and water would be suctioned out into a baker tank for settling.

Permanent Impacts

Surface Water

Storm water runoff from highways has the potential to affect the quality of receiving water bodies. The most common pollutants in highway runoff are heavy metals that come from vehicle tire and brake wear, oil and grease, and exhaust emissions. Currently there are no best management practices along U.S. 101 within the project limits to treat storm water.

Permanent impacts to surface water would be similar under both build alternatives and would generally be inconsequential compared to the size of the Cañada del Refugio Watershed. Both alternatives would create 0.3 acre of new impervious area due to widening of the bridges and installation of beyond the gore pavement, which means the volume and velocity of storm water flows from the bridge would increase slightly. This small increase may create a minor rise in pollutant loading and slightly affect the water quality of downstream receiving water bodies. However, the net new impervious area for the project would decrease by 0.3 acre due to the removal of 0.6 acre of concrete-

grouted rock slope protection from the creek bottom, which would aid in the infiltration of storm water runoff.

Other potential impacts to surface waters associated with the project would be minimized through the incorporation of applicable National Pollutant Discharge Elimination System requirements and by following the design goals of the project. Relevant design goals include the avoidance of water resources to the maximum extent practicable which promotes infiltration of storm water runoff, maximizing the treatment of storm water runoff, and reducing erosion by matching post-project runoff rates to pre-project rates.

Permanent impacts due to dredging or fill in waters of the state or United States would be mitigated (see Section 2.3.2, Wetlands and Other Waters).

Groundwater

Both build alternatives would have minimal localized impacts on the flow of groundwater. Each alternative would generally promote groundwater infiltration because the project would eliminate 0.3 acre of impervious surface area. However, considering the size of the groundwater area, the slight increase in water infiltration area would be negligible. The groundwater resources in the area do not represent a sole-source aquifer, so no notable impacts on water quality in groundwater wells are expected.

Avoidance, Minimization, and/or Mitigation Measures

The overall design features for water quality impacts are a condition of the National Pollutant Discharge Elimination System permit with the State Water Resources Control Board and other regulatory agencies. Implementation of best management practices would be developed and incorporated into the project design and operations prior to project startup. With proper implementation of best management practices, short-term construction-related water quality impacts and permanent water quality impacts would be avoided or minimized. Best management practices would be incorporated into the contracts for this project to reduce the discharge of pollutants temporarily, during construction, and permanently to the maximum extent practicable.

The following avoidance and minimization measures would reduce short-term water quality impacts that could occur during construction:

WQ-1: Construction activities will be scheduled according to the relative sensitivity of the environmental resources and as directed by regulatory permit conditions. When working near streams, erosion and sediment controls will be implemented to keep sediment out of the stream channel to avoid significant water quality concerns.

WQ-2: Minimize disturbance by selecting the narrowest crossing location, limiting the number of equipment trips across the stream during construction, and reducing the number and size of work areas (equipment staging areas and spoil storage areas). Isolate equipment staging and spoil storage areas away from the stream channel using appropriate storm water control barriers. Provide stabilized access to the stream when in-stream work is required.

WQ-3: Locate project sites and work areas in pre-disturbed areas when possible.

WQ-4: Preserve existing vegetation outside of the active work area. In a streambank environment, preservation of existing vegetation provides the benefits of water quality protection, streambank stabilization, and riparian habitat.

WQ-5: Temporary large sediment barriers, fiber rolls, and gravel bag berms should be installed as needed. Temporary large sediment barriers should be installed to control sediment. Such barriers should be installed only where sediment-laden water can pond, thereby allowing the sediment to settle out. Fiber rolls should be installed along slope contours above the high-water level to intercept runoff, reduce flow velocity, and release the runoff as sheet flow and remove sediment from the runoff. In a stream environment, fiber rolls should be used in conjunction with other sediment control methods. A gravel bag berm or barrier can be used to intercept and slow the flow of sediment-laden sheet flow runoff. In a stream environment, gravel bag barriers allow sediment to settle in runoff before water leaves the construction site and isolate the work area from the stream. Gravel bag barriers are not recommended as a perimeter sediment control practice around streams.

WQ-6: Clear-Water Diversion. In-channel systems put in place to divert water around the work area are required during the winter season and should also be pre-designed for rapid deployment to respond to unexpected rains outside of the winter season.

2.2.3 Geology, Soils, Seismicity and Topography

Regulatory Setting

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

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

Affected Environment

The main source used in preparing this section is the April 2013 *Structure Preliminary Geotechnical Report* prepared for the project. A final Geotechnical Report, Foundation Report, and a Final Hydraulic Study will be completed prior to or during the project design phase.

Regional Geology and Seismicity

The project is located along the Gaviota Coastline within the northernmost portion of the Transverse Ranges Geomorphic Province of California. The Transverse Ranges are characterized by east-west trending mountain ranges that extend from Point Conception in the northwest to the San Gabriel Mountains in the southeast and are highly folded and faulted. The local mountain range near the project is the Santa Ynez Mountains. U.S. 101 crosses the coastal bluffs emanating from the southern base of these mountains.

The bedrock geology near the project site consists of folded fine-grained marine deposits of the Miocene-aged Monterey Formation and Rincon Shale that are overlain by relatively flat-lying Pleistocene-age river terrace deposits and Holocene-age alluvial valley and floodplain deposits. Both types of deposits are composed of silts, sands, and gravels that eroded from the Santa Ynez Mountains and were deposited by south-flowing rivers and streams. Landslide deposits from previous debris flow or landslides originating from the hillsides flanking Cañada del Refugio Creek are also present within the project limits, but the slopes near the project are not currently showing any signs of instability. Cañada del Refugio Creek bisects the project site.

No faults directly cross the project site, but there are three faults with potential to influence the project site:

- Pitas Point (Lower West): a reverse fault capable of producing a maximum credible earthquake of moment magnitude 6.8, and a peak ground acceleration of 0.61 gravity.
- Santa Ynez Fault Zone (Pacific Section): a strike-slip fault capable of producing a maximum credible earthquake of moment magnitude 7.2, and a peak ground acceleration of 0.35 gravity.
- Channel Islands Western Deep Ramp: a reverse fault capable of producing a maximum credible earthquake of moment magnitude 6.5, and a peak ground acceleration of 0.38 gravity.

Site and Subsurface Conditions

Conditions were assessed through field observations and review of the as-built plans and log of test borings. The borings were drilled in 1967 at the original ground elevations and indicate that sediments in the project subsurface are composed of interbedded layers of silt, clay, sand, and gravel that overlie siltstones, shales, and sandstones. During construction of the original bridges in the 1970s, large approach embankments composed of artificial fill materials were constructed and are about 40 to 50 feet thick. The artificial fill structures along the edges of the bridges are performing well and are generally in good condition with no signs of instability.

The channel of Cañada del Refugio Creek has been realigned near the project. The channel was lined with concrete-grouted rock slope protection during construction of the original Refugio Road Bridges in 1974 to address scour hazards. As measured in the test borings from 1967, the maximum elevation of groundwater was about 9 feet deep

near the center column, 13 feet deep at the eastern abutments, and 19 feet deep at the western abutments.

Liquefaction

Liquefaction is the sudden loss of soil strength and stiffness in response to strong ground shaking. The phenomenon most commonly occurs during earthquakes in soils that are loosely packed and water saturated. When subjected to ground shaking, the porewater pressure in the soils increases, allowing individual soil particles to move around, effectively allowing the soil to behave like a liquid. As soils “liquify,” they become unable to support building or bridge foundations, leading to structure settling or failure. Liquefaction can also damage retaining walls and dams and may trigger landslides. Liquefaction hazards can be addressed by constructing structures on deep foundations or by using ground improvement techniques such as soil compaction.

The project site has a moderate potential for liquefaction due to the relatively shallow water table and the presence of loose to slightly compacted soils and silty sands.

Corrosion

Corrosion, commonly referred to as rusting, is the breakdown of metals by natural chemical or electrochemical reactions with elements in their environment. Caltrans considers structure foundation elements to be potentially susceptible to corrosion if the surrounding soils are acidic (have a pH lower than 5.5), have a high chloride content (greater than 500 parts per million), or have a high sulphate content (greater than 2,000 parts per million).

A corrosion analysis has not yet been completed for the site but may be a potential hazard given the location of the project next to the Pacific Ocean, and within the floodplain of Cañada del Refugio Creek.

Erosion and Scour

The soils along the banks of Cañada del Refugio Creek are characterized as Goleta Fine Sandy Loam which are highly erosive. The creek banks are currently protected from erosion and scour by concrete-grouted rock slope protection. The artificial fill structures along the edges of the bridges were well compacted during original construction to avoid issues relating to erosion. No notable erosion issues are currently present, except for the eastern abutment wall of the right bridge, which has been partially undermined due to poor drainage.

A scour analysis is currently being completed for the project but has not yet been finalized. Currently the infrastructure within the project site is protected from scour due to the presence of concrete-grouted rock slope protection lining the creek channel. See Section 2.2.1 for additional information relating to scour.

Environmental Consequences

Permanent Impacts

Potential geologic and seismic hazards at the project site may arise from liquefaction and ground shaking. Under both build alternatives, the replacement bridges and modifications to Cañada del Refugio Creek related to fish passage improvements would be designed and constructed to meet current seismic standards and minimize potential impacts from liquefiable soils. Based on the preliminary geotechnical report, the types of bridge foundations that have been determined to be feasible for the project include driven displacement piles, driven non-displacement piles, cast-in-drilled-hole piles, or cast-in-steel-shell piles.

Future analysis during the project design phase would determine the precise hazards relating to geology, seismicity, and soils. By following current design standards provided in the Highway Design Manual that would minimize identified hazards, the project would not expose people or structures to substantial adverse effects related to strong seismic shaking. The project would also be designed to resist erosion and scour (see Section 2.2.1).

Temporary (Construction) Impacts

Construction-period impacts would primarily include the potential for increased soil erosion during ground-disturbing earthwork. Such impacts would be minimized through implementation of standard best management practices as described in Section 2.2.2.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be implemented to avoid and minimize permanent impacts for the project:

GEO-1: Design the project according to Caltrans seismic standards, as provided in the Highway Design Manual.

GEO-2: Conduct additional soil sampling and laboratory tests for corrosion, scour, liquefaction, strength, index (unit weight, water content, gradation), and consolidation. This will include borings to assess subsurface conditions for the proposed bridge foundations.

2.2.4 Hazardous Waste and Materials

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, as well as the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes and materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980, and the Resource Conservation and Recovery Act of 1976. The purpose of the

Comprehensive Environmental Response, Compensation and Liability Act, often referred to as "Superfund," is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

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

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

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement the Resource Conservation and Recovery Act in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

Affected Environment

An Initial Site Assessment was completed for the project on April 17, 2019. The technical memorandum identifies whether hazardous waste sites occur near the Refugio Road Bridges and conducts a preliminary review of routine construction issues associated with working in a highway corridor that could affect the project. Once an alternative is selected and specific excavation limits are established, additional site

investigations would be conducted to further analyze potential routine hazardous waste construction issues.

According to Geotracker and other hazardous waste websites, there are no locations that have hazardous waste issues within or near the project limits. The American Plains pipeline oil spill of 2015 occurred along U.S. 101 about 1 mile west of the Refugio Road Bridges and released petroleum hydrocarbons that polluted the Pacific Ocean and contaminated beaches from Point Conception to Ventura. The spill did not result in contamination within the project footprint due to its location to the west of the bridges and occurrence at a lower elevation than the project footprint. However, it should be noted that a segment of the American Plains pipeline crosses Cañada del Refugio Creek in the northern portion of the project limits where fish passage improvements are planned. The oil pipeline has a low potential for petroleum hydrocarbon contamination in this area.

The project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a substantial hazard to the public or the environment. Although no hazardous waste has been identified to date, there is still the potential for the existence of hazardous materials on the existing bridges and within the project footprint.

Aerially deposited lead from the historical use of leaded gasoline exists along roadways throughout California. If encountered, soil with elevated concentrations of lead because of aerially deposited lead on the state highway system right-of-way within the limits of the project would be managed under the July 1, 2016, Aerially Deposited Lead Agreement between Caltrans and the California Department of Toxic Substances Control. This agreement allows such soils to be safely reused within the project limits if all requirements of the Aerially Deposited Lead Agreement are met.

Other specific routine construction issues that would be further evaluated include the potential for the presence of lead-containing paint and/or asbestos containing materials within the bridge structures. Any identified hazardous materials would need to be managed appropriately to reduce potential impacts during removal, storage, and/or disposal of hazardous materials and wastes.

Environmental Consequences

Temporary (Construction) Impacts

The project would involve soil disturbance and excavations, which have the potential to release aerially deposited lead that may be present in the soil within the project limits. After an alternative is selected, an aerially deposited lead investigation that includes soil sampling and documentation of soil lead concentrations would be conducted to determine if the soil within the project limits contains lead levels higher than regulatory limits.

The existing bridge site would be inspected for asbestos-containing material and lead-containing paint, which could be present. Treated wood waste would need to be disposed of properly. The yellow paint or yellow thermoplastic stripe in this segment of

the highway does not contain hazardous concentrations of lead. A lead compliance plan would be required, but stripe debris would not need to be disposed of as a hazardous waste.

Naturally occurring asbestos would not be encountered during construction or operation of the bridge because it does not occur in the project area.

Avoidance, Minimization, and/or Mitigation Measures

To minimize impacts of hazardous waste during project construction, the following minimization measures would be implemented.

HAZ-1: A Lead Compliance Plan will be required for handling, reusing or disposing of lead-contaminated soil. Prior to ground disturbance, an aerially deposited lead study will be performed to evaluate aerially deposited lead handling, disposal, and/or reuse criteria. If the aerially deposited lead study finds soils to be deemed hazardous waste, aerially deposited lead enriched soil can be used on the site in accordance with the conditions specified in the Soil Management Agreement of aerially deposited lead between Caltrans and the Department of Toxic Substances Control Board or be disposed of at a Class 1 landfill facility.

Lead-contaminated soil can only be used if it is placed under one foot of clean soil, a minimum of five feet above ground water and away from surface water bodies and/or under paved surfaces.

HAZ-2: If asbestos-containing materials are identified, they will be managed and disposed of accordingly.

HAZ-3: If lead-containing paint is identified, it will be disposed of as California and Resource Conservation and Recovery Act hazardous waste at a Class 1 landfill facility. Intact lead paint on components is accepted by most landfills and recycling facilities. Handling lead and disposal of removed lead-containing paint will follow Standard Special Provision 14-11.13.

HAZ-4: It is presumed that treated wood waste is a hazardous waste and must be managed in accordance with the Alternative Management Standard which among other things permit disposal of presumed hazardous treated wood waste at specific non-hazardous waste landfill. Proper management of treated wood waste will follow Standard Special Provision 14-11.14.

2.2.5 Air Quality

Regulatory Setting

The Federal Clean Air Act, as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency and the California Air Resources Board, set standards for the concentration of pollutants in the

air. At the federal level, these standards are called National Ambient Air Quality Standards. National Ambient Air Quality Standards and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide, nitrogen dioxide, ozone, particulate matter—which is broken down for regulatory purposes into particles of 10 micrometers or smaller and particles of 2.5 micrometers and smaller—and sulfur dioxide. National and state standards exist for lead, and state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. The National Ambient Air Quality Standards and state standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants; some criteria pollutants are also toxic air contaminants or may include certain toxic air contaminants in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel "Conformity" requirement under the Federal Clean Air Act also applies.

Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan for attaining the National Ambient Air Quality Standards. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the National Ambient Air Quality Standards, and only for the specific National Ambient Air Quality Standards that are or were violated. U.S. Environmental Protection Agency regulations at 40 Code of Federal Regulations 93 govern the conformity process. Conformity requirements do not apply in unclassifiable and attainment areas for National Ambient Air Quality Standards and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the National Ambient Air Quality Standards for carbon monoxide, nitrogen dioxide, ozone, particulate matter (particulate matter smaller than 10 micrometers and 2.5 micrometers), and in some areas (although not in California), sulfur dioxide. California has nonattainment or maintenance areas for all these transportation-related "criteria pollutants" except sulfur dioxide, and has a nonattainment area for lead; however, lead is not currently required by the Federal Clean Air Act to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans and Federal Transportation Improvement Programs that include all transportation projects planned for a region over a period of at least 20 years (for the Regional Transportation Plans) and four years (for the Federal Transportation Improvement Programs).

Regional Transportation Plans and Federal Transportation Improvement Programs conformity uses travel demand and emission models to determine if the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Federal Clean Air Act and the State Implementation Plan are met. If the conformity analysis is successful, the Metropolitan Planning Organization, Federal Highway Administration, and Federal Transit Administration make the determinations that the Regional Transportation Plans and Federal Transportation Improvement Programs conform to the State Implementation Plan for achieving the goals of the Federal Clean Air Act. Otherwise, the projects in the Regional Transportation Plans and/or Federal Transportation Improvement Programs must be modified until they conform. If the design concept and scope and the "open-to-traffic" schedule of a proposed transportation project are the same as described in the Regional Transportation Plans and Federal Transportation Improvement Programs, then the project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming Regional Transportation Plans and Transportation Improvement Program; the project has a design concept and scope that has not changed significantly from those in the Regional Transportation Plans and Transportation Improvement Program; project analyses have used the latest planning assumptions and U.S. Environmental Protection Agency-approved emissions models; and in particulate matter areas, the project complies with any control measures in the State Implementation Plan. Additional analyses (referred to as hot-spot analyses) may be required for projects located in carbon monoxide and particulate matter nonattainment or maintenance areas to examine localized air quality impacts.

Santa Barbara County Air Pollution Control District

Santa Barbara County Air Pollution Control District's air quality attainment plans provide an overview of our air quality and sources of air pollution and identify the pollution-control measures needed to meet clean air standards. In Santa Barbara County, plans are focused on achieving attainment of both state and federal ozone standards. The schedule for plan development is outlined by state and federal requirements and is influenced by our air quality. These plans affect the development of their rules and regulations and other programs. These plans also influence a range of activities outside the Santa Barbara County Air Pollution Control District, including transportation planning, allocation of monies designated for air-quality projects, and more (Santa Barbara County Air Pollution Control District, 2019).

Affected Environment

An Air Quality, Noise, and Greenhouse Gas Memorandum was prepared for the project in July 2018 and an addendum was released in January 2019.

The project site is in the South Central Coast Air Basin, which covers San Luis Obispo, Santa Barbara, and Ventura Counties. Air quality in Santa Barbara County is regulated by the Santa Barbara County Air Pollution Control District. The county is considered a

non-attainment area with respect to the California Ambient Air Quality Standards for ozone (i.e., 1-hour and 8-hour) and for airborne particulate matter smaller than 10 micrometers. The county is considered an attainment or unclassified area for all National Ambient Air Quality Standards.

Environmental Consequences

Potential impacts associated with each build alternative would be similar and would only occur during construction.

The project is considered exempt from federal air quality conformity analysis because it involves bridge reconstruction without the addition of new travel lanes. No difference in long-term air emissions would result from the project because no additional lanes or capacity are being added to U.S. 101.

Temporary (Construction) Impacts

During construction, there would be a temporary increase in air emissions and fugitive dust. Exhaust from construction equipment contains carbon monoxide as well as hydrocarbons, oxides of nitrogen, suspended particulate matter, and odors. However, the largest percentage of pollutants would be windblown dust generated during excavation, grading, hauling, and various other construction-related activities. The exhaust and dust from these activities would vary from day to day depending on the type of construction work being performed.

Depending on the location of the construction site and closeness to sensitive receptors, a project that generates high levels of construction emissions, including diesel particulate matter, may require special attention and mitigation. However, this project site is in a rural portion of the county. Only one habitable dwelling is found near the project site (about 800 feet away from the northbound bridge location). Refugio State Beach is next to the project site, but the campsite nearest the project is more than 500 feet away. Because of the small scope of work and location, this project presents minimal potential to subject surrounding sensitive receptors to inhalable construction emissions that would be considered significant.

Caltrans' Standard Specifications pertaining to dust control and dust palliative requirements, including Section 14-9.02, Air Pollution Control, and Section 10-5, Dust Control, are required parts of all construction projects and would be implemented for the project. These measures would effectively reduce and control emissions during construction. The project-level Storm Water Pollution Prevention Plan would address water pollution control measures that correlate with standard dust emission minimization measures, such as covering soil stockpiles, watering haul roads, watering excavation and grading areas, and so on. By incorporating appropriate engineering design and robust storm water best management practices during construction, minimal short-term air quality impacts would be expected.

Removing the existing bridge structure would require demolition activities that could create nuisance dust near the actual work location. Generated dust is not expected to

be substantial enough to disturb visitors to Refugio State Beach, nor the occupants of the habitable dwelling to the north of the project.

Because the existing bridges were built in 1974, bridge demolition could expose workers to health hazards related to lead-based paint, asbestos, or methacrylate. Implementation of measure AQ-1 would reduce impacts.

Avoidance, Minimization, and/or Mitigation Measures

The following minimization measure would be implemented to minimize temporary impacts on air quality during construction:

AQ-1: Implement Debris Containment and Collection Plan. A debris containment and collection plan should be included in the project's special provisions if a waste characterization evaluation determines that lead-based paint or asbestos-wrapped pipe is present. If a containment system is ultimately implemented, a "work monitoring area" should be included that will monitor ambient air and soil in and around the work area to verify that the system is effective in containing debris.

Climate Change

Neither the United States Environmental Protection Agency nor the Federal Highway Administration has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. The Federal Highway Administration emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the CEQA chapter of this document (Chapter 3). The CEQA analysis may be used to inform the NEPA determination for the project.

See Section 3.5 for a full discussion on Climate Change and a list of greenhouse gas reduction measures.

2.2.6 Noise

Regulatory Setting

Transportation projects that are subject to Caltrans' Traffic Noise Analysis Protocol are defined in 23 Code of Federal Regulations 772 as Type 1 projects:

"A proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increase the number of through-traffic lanes."

This project would neither increase existing traffic capacity nor alter the location of a highway. Therefore, it is not a Type 1 project that would require a more detailed noise analysis.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a project would have a noise impact. If a project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project, unless the measures are not feasible.

Affected Environment

An Air Quality, Noise, and Greenhouse Gas Memorandum was prepared for the project in July 2018 and an addendum was released in January 2019. The project is in a rural section of Santa Barbara County, next to Refugio State Beach. There are no residences near the highway within the project limits. The closest residences are about 1,000 feet to the north, off Refugio Road.

Environmental Consequences

Potential impacts associated with each build alternative would be the same, and would only occur temporarily, during project construction. The project would not increase traffic capacity because the replacement bridges would provide the same lane configuration as the existing bridges; therefore, no long-term noise impacts are expected.

Temporary (Construction) Impacts

Construction of the project would occur near the campground and a few nearby homes, both of which are noise-sensitive receptors. However, construction noise would be short term and would vary based on the type of activity and equipment used. Caltrans policy states that normal construction equipment should not emit noise levels greater than 86 decibels at 50 feet from the source.

Construction of the project would require demolition of the two bridges and pile driving for the new bridge foundations. Noise levels from these activities are not expected to exceed Caltrans specifications. Pile driving activities are expected to be intermittent but could last several weeks. The current estimate for the number of piles needed to construct the clear span bridge is 276. These noisier activities would not occur during overnight hours (9:00 p.m. to 6:00 a.m.) to avoid disturbing campers at Refugio State Beach (see Section 2.1.2). Any nighttime work would be limited to setting up detours and staging to minimize impacts to daytime traffic.

Construction noise impacts would be reduced because construction would be conducted in accordance with Caltrans' Standard Specifications, Section 14.8-02 (Measure NOI-1). Construction noise would be short term and intermittent during the construction period.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be implemented to minimize temporary impacts related to noise during construction:

NOI-1: Minimize Impact on Refugio State Beach Campground. To minimize impacts on the adjacent campground, construction should take place during daytime hours,

especially on the southbound bridge. Normal construction equipment should not emit noise levels greater than 86 decibels at 50 feet from the source during nighttime hours (9:00 p.m. to 6:00 a.m.).

NOI-2: Notify Sensitive Receptors of Construction Activity. A notice should be published in local news media and included on the Reserve California website so that prospective campers are aware of the dates and duration of proposed construction activities. The District 5 Public Information Office will post notices regarding the proposed construction. Informational materials about the project and potentially elevated noise levels during construction should be given to campers when registering at the kiosk.

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 in the Threatened and Endangered Species Section (Section 2.3.4). Wetlands and other waters are discussed in Section 2.3.2.

Regulatory Setting

Fish Passage

California Fish and Game Code Sections 15901 and 15931 make it unlawful to impede fish passage and Article 3.5 of the California Streets and Highways Code Section 156 requires Caltrans to address potential barriers to anadromous fish passage when conducting work on the state highway system where a barrier exists. Anadromous fish are fish that migrate up rivers and streams from the ocean to breed or spawn. Common anadromous fish in California include salmon and steelhead trout. The decline of naturally spawning salmon and steelhead trout is primarily a result of the loss of appropriate stream habitat and stream habitat connectivity which is required for them to migrate upstream and complete their life cycle.

To comply with California Streets and Highways Code Sections 156-156.4, Caltrans is required to complete an assessment of potential fish passage barriers prior to beginning project design. If it is determined that a structural barrier to fish passage exists, the project design will include a remediation of the problem. For new projects, the project will be designed and constructed so that no new fish passage barriers are created.

All fish passage assessments must be provided to the California Department of Fish and Wildlife and plans and projects to address fish passage barriers need to be developed in consultation with California Department of Fish and Wildlife.

Affected Environment

The Natural Environment Study prepared in October 2019, and a Fish Passage Analysis prepared in May 2018 were the main sources used in preparing this section.

The biological study area is defined as the area that may be directly, indirectly, temporarily, or permanently impacted by construction and construction-related activities. The size of the biological study area is 51.36 acres and includes a polygon encompassing the proposed bridge project site, associated infrastructure, and staging and access areas. The Refugio Lagoon is not included in the biological study area because it is not expected to be affected by the project. The biological study area is shown in Figure 2-4.

The biological study area is dominated by coastal scrub habitat that has been divided into three different natural communities: California sagebrush scrub (*Artemisia californica* shrubland alliance), quailbush scrub (*Atriplex lentiformis* shrubland alliance), and coyote brush scrub (*Baccharis pilularis* shrubland alliance). Also present in the biological study area are pockets of California sycamore woodland (*Platanus racemosa* woodland alliance), arroyo willow thickets (*Salix lasiolepis* shrubland alliance), and broadleaf cattail (*Typha latifolia* herbaceous alliance).

In addition, the biological study area contains about 7.3 acres of non-native grasslands that various sensitive species use for foraging and breeding. Ornamental trees such as olive and palm have been planted along the edges of Refugio Road and other secondary roads, covering about 1.3 acres. The trees may support nesting opportunities for birds and roosting opportunities for bats. These communities will not be further discussed because they are not native natural communities but are mentioned here to provide context for discussion of protected species elsewhere in Chapter 2.

California Sagebrush Scrub

The California sagebrush scrub community contains California sage as the dominant species in the shrub canopy. Within the biological study area, California sagebrush scrub forms a mosaic with coyote brush scrub, both communities are located predominantly on the large cut-slopes in the western portion of the biological study area. California sagebrush scrub may support habitat for certain special-status plant species, reptile species, and various nesting bird species. About 5.806 acres of California sagebrush scrub occur in the biological study area.

Quailbush Scrub

The quailbush scrub community contains greater than 50 percent relative shrub cover in the canopy. It is found mainly on the east side of the biological study area and is a dense shrub habiat about 3 to 5 feet tall and almost completey comprised of quailbush. This habitat supports various bird species and quailbush is a host plant to native

butterflies such as the western pygmy blue butterfly. About 1.448 acres of quailbush scrub occur in the biological study area.

Coyote Brush Scrub

The coyote brush scrub community contains coyote bush as the dominant species in the shrub canopy. This community can be found around the bridge abutments and southbound off-ramp. About 5.035 acres of coyote brush scrub occur in the biological study area.

California Sycamore Woodland

The California sycamore woodland community contains greater than 30 percent relative cover in the tree canopy. This community can be found in the biological study area in upper Cañada del Refugio Creek on private land just past the rock and concrete lining. This community supports high quality habitat for various birds of prey (raptors). About 0.299 acre of California sycamore woodland occurs in the biological study area.

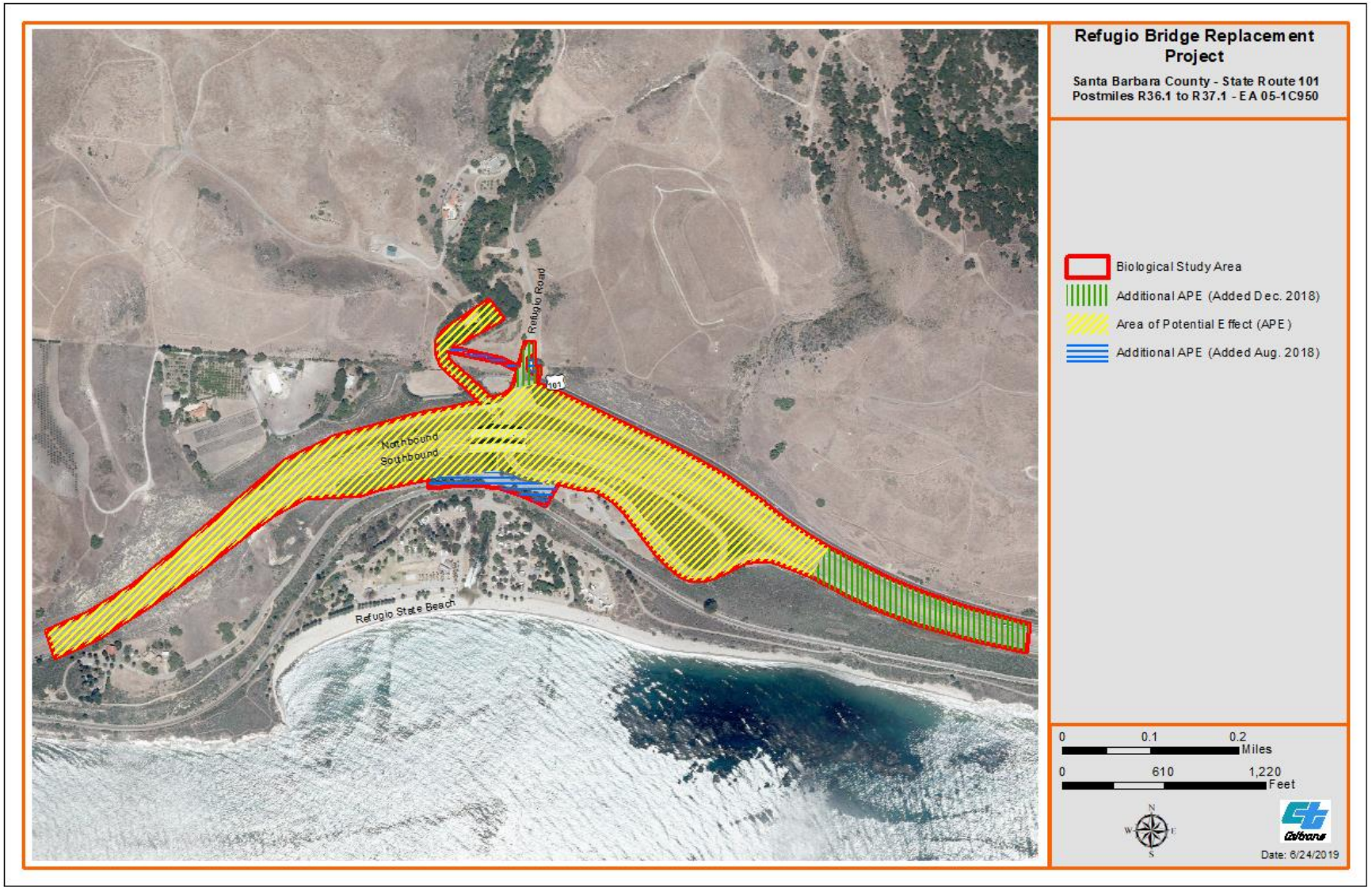
Arroyo Willow Thickets

The arroyo willow thickets community contains greater than 50 percent arroyo willow as relative cover in the shrub or tree canopy. The community can be found in the riparian corridor of Cañada del Refugio Creek both upstream and downstream of the existing bridges. This community supports high quality habitat for various nesting birds and other species that frequent riparian habitats such as raccoon, striped skunk, and Virginia opossum. About 1.256 acres of arroyo willow thickets occur in the biological study area.

Broadleaf Cattail

About 350 square feet (0.008 acre) of freshwater broadleaf cattail can be found growing in Cañada del Refugio Creek. This community contains broadleaf cattail at greater than 50 percent relative cover in the herbaceous layer.

Figure 2-4 Biological Study Area



Wildlife Corridors

A variety of native terrestrial animals likely use Cañada del Refugio Creek, the pedestrian path, and Refugio Road to cross beneath U.S. 101. Records of roadkill occurrences provide the best available data for the movement of wildlife across U.S. 101 near the project. In the California Roadkill Observation System, 44 roadkill carcasses have been observed within a 2-mile radius of the project site since 2009. There is not a higher incidence of roadkill at the project location in relation to the 2-mile stretches of highway to the north and south. California Highway Patrol has not documented any crashes involving wildlife since 2015.

Beneath the Refugio Road Bridges, waterfowl may use the wetted portions of Cañada del Refugio Creek. While no birds were observed nesting in trees within the biological study area, many active cliff swallow nests were observed nesting under the existing bridges and a white-throated swift was observed exiting a weep-hole on one bridge. Songbirds use the riparian corridor of Refugio Creek for migration, foraging, and nesting.

Fish Passage Conditions in Cañada del Refugio Creek

A Fish Passage Analysis was conducted in association with the Natural Environment Study to identify fish passage barriers in Cañada del Refugio Creek. Physical fish passage barriers include structures such as dams, levees, or culverts that are too high for fish to jump through. Barriers can also be created by water that is flowing too fast or slow, water that is too hot or too cold to support these sensitive species, or water that is polluted or lacks oxygen. Assessing fish passage conditions therefore involved looking at physical barriers to upstream migration, considering water quality, and modeling flow conditions in the creek. Modeling included an assessment of both high-flow and low-flow conditions for adult and juvenile salmonid fish (e.g., salmon, steelhead trout).

Results of the Fish Passage Analysis and Natural Environment Study indicate that fish migration is possible along Cañada del Refugio Creek during the wet season from the Pacific Ocean to about 2 miles upstream where a concrete apron beneath a road crossing acts as a total barrier to fish passage. This total barrier is north of the project site and is owned by the Santa Barbara County Public Works Road Division. Between the ocean and the total barrier are three partial barriers that are passable only during periods with adequate flow, which only occur during the wet season. These partial barriers include the double-box culvert beneath that campground road at Refugio State Beach which is owned by the California Department of Parks and Recreation, the concrete-grouted rock slope protection channel through the project site, and a set of culverts beneath a road crossing about a half mile north of the ocean that is owned by the Santa Barbara County Public Works Road Division. The severity of the latter barrier depends on the accumulation of sediment and debris within and on the upstream side of the culvert.

The partial barrier that exists within the project limits was created during original construction of the Refugio Road Bridges by Caltrans in 1974. Through the project limits, Cañada del Refugio Creek was rerouted and lined with concrete-grouted rock

slope protection to protect the bridge foundations and other nearby infrastructure from scour. However, results of modeling flow conditions through the rock slope protection channel indicate that fish passage is only possible for adult fish during high-flow conditions. At low-flow conditions the water depth is too shallow for adult fish. Fish passage criteria for juvenile salmon were not met for either low-flow or high-flow conditions.

Environmental Consequences

The biological study area includes the maximum amount of potential disturbance areas for both permanent and temporary impacts associated with construction of the project (including the proposed work area, bridge demolition impacts on the ground or streambed, areas of cut and fill, staging, access, and temporary stream diversion).

Permanent Impacts

Permanent impacts occur when human-made structures or hard surfaces encroach into and occupy portions of a natural community. For the proposed project, permanent impacts would occur due to the installation of wider bridge abutments to support the standard inside shoulder size increase, wider bent columns and foundations to support the two-span bridges under Alternative 1, longer bridge abutments under Alternative 3 to support the clear-span bridges, and permanent vegetation control installed under the Metal Beam Guard Rail and one off-ramp gore point.

Permanent impacts to each natural community are outlined in Table 2-2. In general, permanent impacts to the coastal scrub (California sagebrush scrub and quailbush scrub communities) would be slightly larger under Alternative 3 compared to Alternative 1, and the permanent impacts to arroyo willow thickets would be greater under Alternative 1 compared to Alternative 3. Impacts to all other communities would be similar for both alternatives. It is expected that California sagebrush scrub would be permanently impacted by about 305 square feet (0.007 acre) under Alternative 1 and by about 610 square feet (0.014 acre) under Alternative 3. Quailbush scrub would be permanently impacted by 525 square feet (0.012 acre) under Alternative 3 but would not be permanently impacted by Alternative 1. Arroyo willow thickets would be impacted by about 45 square feet (0.001 acre) under Alternative 1 but would not be permanently impacted by Alternative 3.

Migration and Travel Corridors

It is not expected that either build alternative would have permanent impacts to wildlife movement within the project area. The new structures would not create an impediment, and if lights are installed they can be fitted with shields and oriented to not deter movement.

Overall, it is expected that wildlife movement would be enhanced by the project due to the naturalization of Cañada del Refugio Creek. Caltrans would acquire a permanent planting easement along the creek, which would ensure that this area would remain a natural area for use by wildlife.

Fish Passage Conditions in Cañada del Refugio Creek

Both build alternatives would similarly improve fish passage conditions in Cañada del Refugio Creek. Caltrans proposes to remediate the creek bottom so that it is no longer a partial fish passage barrier to adult and juvenile fish. Caltrans Hydraulics, in consultation with the National Marine Fisheries Service and California Department of Fish and Wildlife, would design modifications to the concrete-grouted rock slope protection channel. The design will include plans to naturalize the streambed with a series of rock weirs, gravel bottom, and riparian tree plantings that would improve upstream and downstream migration. The gravel and rock weirs would create pools of water that are deep enough during low-flow conditions for fish to rest in, with a suitable substrate for spawning. Riparian plantings would occur at the ordinary high-water mark where the concrete-grouted rock slope protection currently impedes growth, and would provide shade across the resting pools, which is important for fish habitat.

The fish passage improvement work would occur throughout the portion of Cañada del Refugio Creek that was lined with concrete-grouted rock slope protection and would be part of a larger mitigation strategy for the project. See Section 2.2.1 for further information about proposed fish passage improvements.

Temporary (Construction) Impacts

Temporary, construction-period impacts would occur throughout the vicinity of the bridges and in the creek bed. Sources of impacts would be primarily from bridge demolition, equipment access, fish passage modifications, clearing vegetation, grading, staging, stock piling, traffic cross-over detours, temporary clear-water stream diversion, and falsework. A temporary access road to get equipment to the upper portion of the creek for fish passage modifications may be necessary if existing above ground utility lines cannot be relocated or raised high enough to allow clearance for heavy equipment (see Section 2.1.3). The temporary access road would be cleared of vegetation but not graded due to the potential presence of cultural resources at the location.

In general, temporary impacts to the quailbush scrub community would be greater under Alternative 1 (1.145 acres) in comparison to Alternative 3 (0.986 acre). Temporary impacts to all other communities would be similar for both alternatives. Under both build alternatives, the California sagebrush scrub community would be temporarily impacted by about 24,130 square feet (0.554 acre), the quailbush scrub community by 2,745 square feet (0.063 acre), the California sycamore woodland community by about 435 square feet (0.010 acre), the arroyo willow thicket community by about 13,200 square feet (0.303 acre), and the broadleaf cattail community by about 350 square feet (0.008 acre).

Migration and Travel Corridors

Passage for native terrestrial wildlife may be temporarily affected by the project and would be similarly affected under both build alternatives. In the daytime when construction activity and noise are present most wildlife species would be deterred from entering the area under the bridge. While many of these species are nocturnal and minimal night work is expected for the project, construction debris, falsework,

equipment, or other project-related items could deter or restrict wildlife passage at night as well.

Fish Passage Conditions in Cañada del Refugio Creek

Fish passage would be temporarily restricted during the dry season due to the installation of a clear-water stream diversion system in a portion of Cañada del Refugio Creek. However, current conditions in the creek during the dry season already create a barrier to fish passage for both adult and juvenile fish due to low flow.

Table 2-2 Impacts to Natural Communities and Critical Habitat

Community or Critical Habitat	Alternative 1: Permanent Impacts	Alternative 1: Temporary Impacts	Alternative 3: Permanent Impacts	Alternative 3: Temporary Impacts
California sagebrush scrub (*Artemisia californica* Shrubland Alliance)	0.007 acre	0.554 acre	0.014 acre	0.554 acre
Quailbush scrub (*Atriplex lentiformis* Shrubland Alliance)	0	0.063 acre	0	0.063 acre
Coyote brush scrub (*Baccharis pilularis* Shrubland Alliance)	0	1.145 acres	0.012 acre	0.986 acre
California sycamore woodland (*Platanus racemosa* Woodland Alliance)	0	0.010 acre	0	0.010 acre
Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance)	0.001 acre	0.303 acre	0	0.303 acre
Broadleaf cattail (*Typha latifolia* Herbaceous Alliance)	0	0.008 acre	0	0.008 acre
Southern California Steelhead Critical Habitat	0	0.411 acre	0	0.411 acre
California Red-legged Frog Critical Habitat	0.379 acre	8.895 acres	0.473 acre	8.792 acres

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and mitigation measures would be implemented to reduce impacts to natural communities. Measures WET-1, WET-2, and WET-3 outlined in section 2.3.2 will also reduce impacts to natural communities.

NC-1: Environmentally sensitive area fencing will be installed along the maximum disturbance limits to minimize disturbance to habitats and vegetation. Special Provisions for the installation of environmentally sensitive area fencing and silt fencing will be

included in the Construction Contract and will be identified on the project plans. Prior to the start of construction activities, environmentally sensitive area 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 several laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (33 U.S. Code 1344), is the main law regulating wetlands and surface waters. One purpose of the Clean Water Act is to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States 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, in the absence of adjacent wetlands. When adjacent wetlands are present, Clean Water Act jurisdiction extends beyond the ordinary high-water mark to the limits of the adjacent wetlands. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated a jurisdictional wetland under the Clean Water Act.

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

The U.S. Army Corps of Engineers 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 U.S. Army Corps of Engineers' Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the U.S. Army Corps of Engineers decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404(b)(1) Guidelines (40 Code of Federal Regulations Part 230; see link: https://www.epa.gov/cwa-404/section-404b1-guidelines-40-cfr-230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (referred to as the Guidelines) were developed by the U.S. Environmental Protection Agency in conjunction with the U.S. Army Corps of Engineers and allow the discharge of dredged or fill material into the aquatic system (waters of the United States) only if there is no practicable alternative

which would have less adverse effects. The Guidelines state that the U.S. Army Corps of Engineers may not issue a permit if there is a "least environmentally damaging practicable alternative" to the proposed discharge that would have lesser effects on waters of the United States, and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (Executive Order 11990) also regulates the activities of federal agencies regarding wetlands. Essentially, Executive Order 11990 states that a federal agency, such as Federal Highway Administration and/or Caltrans, as assigned, cannot undertake or help with 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 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, the Regional Water Quality Control Boards and the California Department of Fish and Wildlife. In certain circumstances, the Coastal Commission 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 California Department of Fish and Wildlife before beginning construction. If the California Department of Fish and Wildlife determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. California Department of Fish and Wildlife jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the U.S. Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Wildlife.

The Regional Water Quality Control Boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the Clean Water Act. In compliance with Section 401 of the Clean Water Act, the Regional Water Quality Control Boards also issue water quality certifications for activities which may result in a discharge to waters of the United States This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section (Section 2.2.2) for more details.

Affected Environment

The Natural Environment Study prepared in December 2019 was the main source used in preparation of this section.

The Natural Environment Study included a Jurisdictional Waters Assessment. This assessment formally delineated or mapped out the location and size of wetlands, other waters, and riparian areas for the purposes of federal, state, and local regulation. As documented in the Jurisdictional Waters Assessment, three parameters, U.S. Army

Corps of Engineers Clean Water Act federal wetlands do not exist in the biological study area, but other jurisdictional areas were identified. Figures 2-5 and 2-6 show jurisdictional areas for Alternatives 1 and 3, respectively.

About 25,300 square feet (0.581 acre) of potential Clean Water Act Other Waters of the U.S. regulated by U.S. Army Corps of Engineers were delineated within the biological study area. Other Waters of the U.S. include areas below the ordinary high-water mark that are connected to other jurisdictional waters but are lacking at least one of the three wetland parameters. These areas are mostly located along the banks of streams.

A total of 2.817 acres of Other Waters of the State (i.e., within the jurisdiction of the Regional Water Quality Control Board and California Department of Fish and Wildlife) and 1.711 acres of California Coastal Commission wetlands were delineated. Other Waters of the State have a broader definition than Other Waters of the U.S. and include riparian areas. Generally, Other Waters of the State include areas that extend from the streambed to the top of a streambank or outer edge of the riparian zone (whichever is greater) along with adjacent wetlands and non-federal isolated waters (if present). California Coastal Commission wetlands are like Other Waters of the State but exclude areas of the streambank that lack riparian vegetation.

The jurisdictional assessment also determined the function and value of the jurisdictional areas within Cañada del Refugio Creek. Function refers to the physical, chemical, and/or ecological attributes that wetlands and other waters naturally provide, while values are those attributes that directly or indirectly benefit humans. Based on observations, it was determined that the functions provided by Cañada del Refugio Creek include flood control, ground water recharge, and sediment trapping (physical functions); movement of carbon, nitrogen, and nutrients through biogeochemical cycling (chemical function); and wildlife habitat and wildlife migration (ecological functions). Cañada del Refugio Creek provides recreational value for bird and wildlife watching and aesthetic value since riparian corridors are somewhat uncommon along the Gaviota Coast.

Environmental Consequences

Estimates of permanent and temporary impacts to federal and state other waters and California Coastal Commission wetlands are presented in Table 2-3 for the two build alternatives. These impacts were determined by overlaying the project biological study area with the preliminary jurisdictional determination map prepared for the Jurisdictional Waters Assessment.

Permanent Impacts

No permanent impacts for either build alternative are expected for Other Waters of the U.S. because permanent impacts would not occur below the ordinary high-water mark.

Permanent impacts to Other Waters of the State are expected for both build alternatives because the streambank of Cañada del Refugio Creek was delineated surrounding the center columns and extending up the slope to the western bridge abutments. Permanent impacts for both alternatives are presented as net impacts, where the

surface area of the foundations for the existing bridges was subtracted from the surface area of the foundations for the proposed replacement bridges. For Alternative 1, the permanent impacts to Other Waters of the State would be about 700 square feet (0.016 acre) due to the wider inside shoulders of the replacement bridges and larger center columns. For Alternative 3, permanent impacts to Other Waters of the State would be about 2,265 square feet (0.052 acre) due to wider inside shoulders and larger abutments needed to support the clear-span bridges.

Permanent impacts to California Coastal Commission wetlands would be about 45 square feet (0.001 acre) under Alternative 1 because the expected footprint of the columns for the replacement bridges would be larger than the existing columns. No permanent impacts to California Coastal Commission wetlands are expected for Alternative 3.

Though minor permanent impacts would occur under both alternatives, it is expected that the project would improve the overall function and value of jurisdictional areas within the project limits. The removal of concrete-grouted rock slope protection from the bottom of Cañada del Refugio Creek would provide several improvements to the physical and chemical functions of the creek, including groundwater recharge, hydrological connectivity, and movement of carbon, nitrogen, and nutrients through biogeochemical cycling. The removal of fish passage barriers and naturalization of the creek bottom would improve wildlife habitat and migration. The recreational and aesthetic value of jurisdictional areas within the creek would be improved as more wildlife use the area and replacement plantings provide a more natural visual condition.

Temporary (Construction-Period) Impacts

Temporary impacts to jurisdictional areas would occur as the result of installation of a temporary clear-water stream diversion system, vegetation trimming, bridge demolition, removal of the bridge columns, falsework, fish passage modifications to the creek, equipment access, and foot traffic. Because the biological study area is identical for both build alternatives, the temporary impact acreages would be similar. It is expected that temporary impacts would be 0.411 acre for Other Waters of the U.S., 1.329 acres for Other Waters of the State, and 0.567 acre for California Coastal Commission wetlands. Cañada del Refugio Creek would be dewatered for three seasons under each build alternative.

The excavation activities within the footprints calculated for temporary impacts would differ between the two build alternatives. Most notably, large pits would need to be excavated to remove and replace the center bent pile caps under Alternative 1, while the pile caps would be abandoned in place under Alternative 3, as discussed further in Section 1.5.2. The excavation pit for each pile cap replacement under Alternative 1 may be up to 30 feet long by 60 feet wide and 20 feet deep and would require portions of the creek banks and existing concrete-grouted rock slope protection to be removed and replaced. Under Alternative 3, the center bent columns would be removed down to about 3 feet below the ground surface and then capped with engineered fill.

Caltrans best management practices and standard specifications relating to spill prevention, erosion control, equipment staging, and other activities with the potential to affect Cañada del Refugio Creek would be implemented to protect jurisdictional areas during construction.

Table 2-3 Impacts to Jurisdictional Areas

Jurisdictional Areas	Alternative 1: Permanent Impacts	Alternative 1: Temporary Impacts	Alternative 3: Permanent Impacts	Alternative 3: Temporary Impacts
Other Waters of the U.S. (U.S. Army Corps of Engineers Jurisdiction): includes areas located at or below the ordinary high-water mark of the creek and lack one or more of the three wetland parameters (hydrophytic vegetation, hydric soils, and/or wetland hydrology)	0	0.411 acre	0	0.411 acre
Other Waters of the State (Regional Water Quality Control Board and California Department of Fish and Wildlife Jurisdiction): includes Other Waters of the U.S. and areas that extend from the ordinary high-water mark to the tops of banks or outer edge of riparian canopy (whichever is greater).	0.016 acre	1.329 acres	0.052 acre	1.329 acres
California Coastal Commission Jurisdiction: includes Other Waters of the U.S. and areas above the ordinary high-water mark with riparian vegetation to the outer edge of that riparian vegetation but excludes areas of streambank lacking riparian vegetation.	0.001 acre	0.567 acre	0	0.567 acre

Figure 2-5 Jurisdictional Wetlands and Impacts—Alternative 1

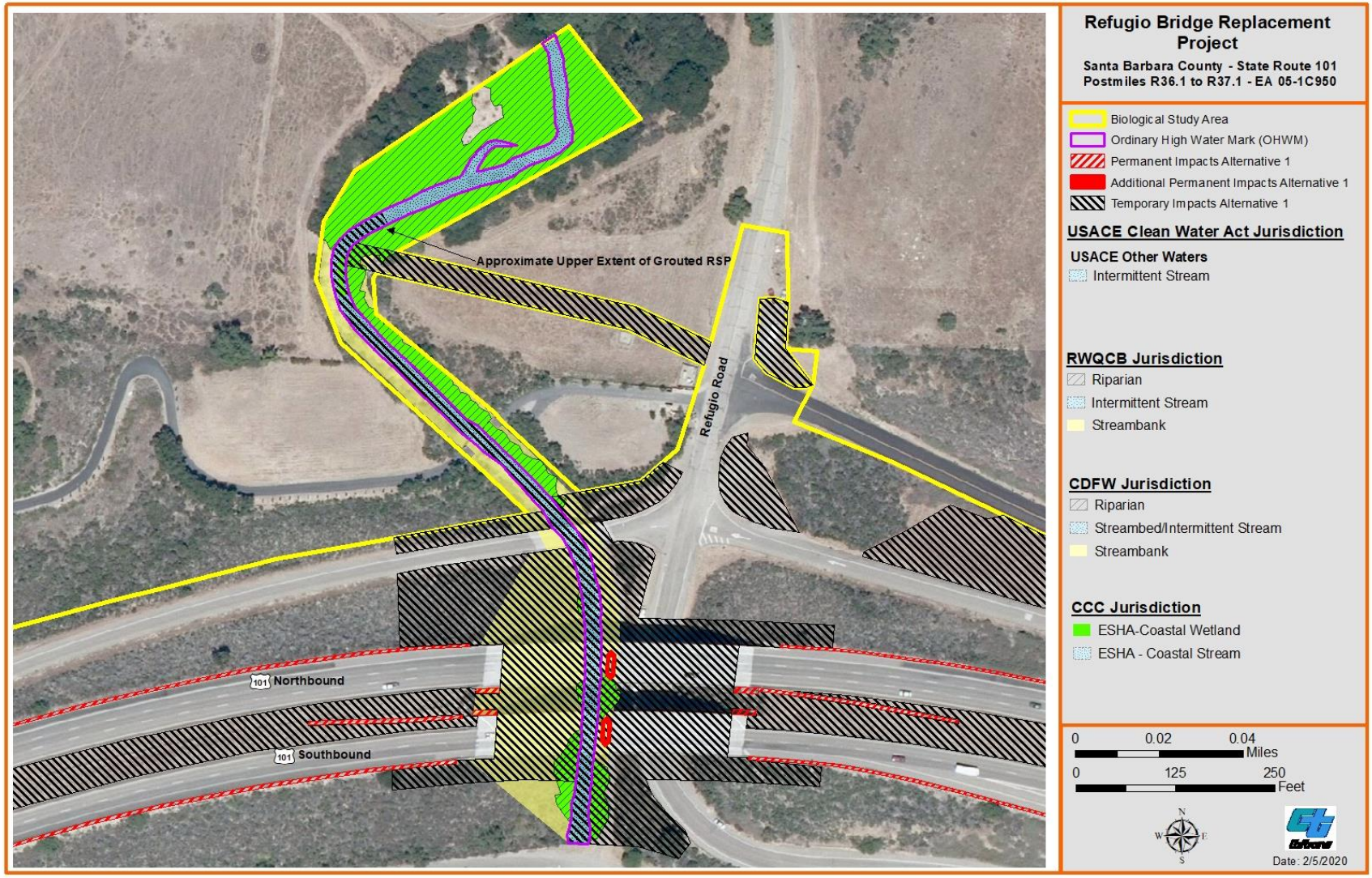
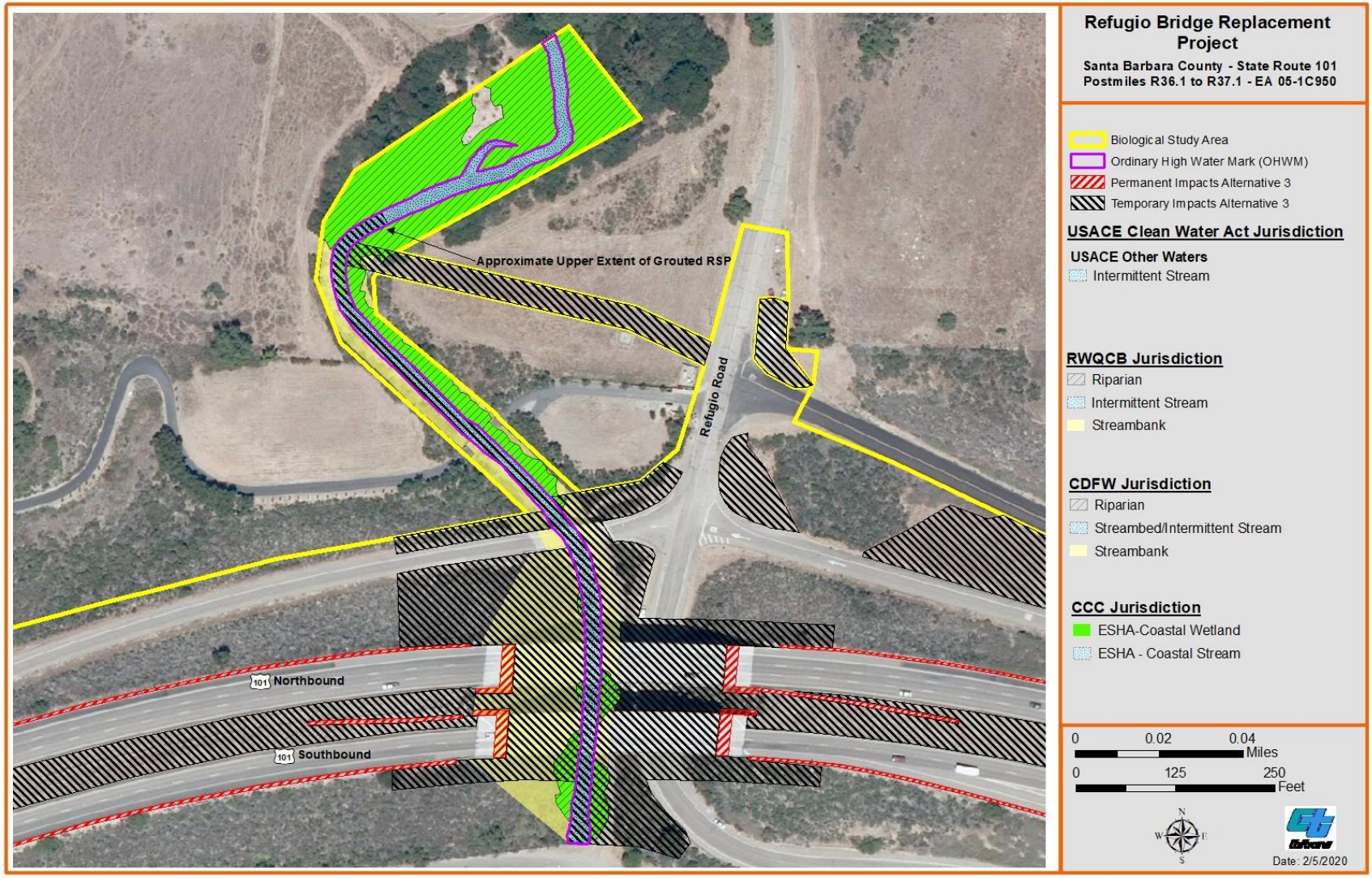


Figure 2-6 Jurisdictional Wetlands and Impacts—Alternative 3



Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be implemented for potential impacts to these jurisdictional areas resulting from the project:

WET-1: Prior to construction, Caltrans will obtain a Section 404 Nationwide Permit from U.S. Army Corps of Engineers, a Section 401 Water Quality Certification from Regional Water Quality Control Board, a Section 1602 Streambed Alteration Agreement from California Department of Fish and Wildlife, and a Coastal Development Permit from the California Coastal Commission.

WET-2: Prior to any ground-disturbing activities, environmentally sensitive area fencing will be installed around jurisdictional waters, coastal zone Environmentally Sensitive Habitat Areas, and the dripline of trees to be protected within project limits. Caltrans-defined environmentally sensitive areas will be noted on design plans and delineated in the field prior to the start of construction activities.

In addition, the following mitigation measure will be implemented:

WET-3: On-site compensatory mitigation for impacts to other waters is proposed at a 1:1 ratio (acreage) for temporary impacts and at a 3:1 ratio (acreage) for permanent impacts, except for permanent impacts to California Coastal Commission wetlands, which will be mitigated at a 4:1 ratio (acreage). Impacts to protected trees, as defined in Policy NS-12 of the Gaviota Coast Plan, would be mitigated at a 10:1 ratio (number of trees). Mitigation would be achieved through restoration (re-establishment) and would include acquisition of a permanent planting easement along Cañada del Refugio Creek. Fish passage modifications to the creek bed would improve migration for anadromous fish as well as improving riparian habitat and stream conditions.

Replacement plantings will be detailed in Caltrans' Landscape Architecture Landscape Planting Plan and the final Mitigation Management Plan. The Mitigation Management Plan will be developed in coordination with a Caltrans district biologist and will include developing planting specifications to ensure survival of planted vegetation and re-establishment of other waters, riparian habitat, and coastal scrub habitat. The final Mitigation Management Plan will detail mitigation commitments that will be consistent with standards and mitigation requirements from the applicable regulatory agencies. The Mitigation Management Plan will be prepared when full construction plans are prepared and will be finalized through the permit review process with regulatory agencies. It is expected that restoration plantings will be on-site and in-kind and consist of the same native species impacted, such as arroyo willow, sycamore, California sage, coyote bush, quailbush, and other associated native species known to occur in the project limits.

2.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service and California Department of Fish and Wildlife have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act and/or the California Endangered Species Act. Please see Section 2.3.5 Threatened and Endangered Species in this document for detailed information about these species.

This section of the document discusses all other special-status plant species, including California Department of Fish and Wildlife Species of Special Concern, U.S. Fish and Wildlife Service candidate species, and California Native Plant Society rare and endangered plants.

The regulatory requirements for the Federal Endangered Species Act can be found at 16 U.S. Code Section 1531, et seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the California Endangered Species Act can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Sections 1900 to 1913, and the California Environmental Quality Act, found at California Public Resources Code, Sections 21000-21177.

Affected Environment

The Natural Environment Study prepared in December 2019 was the main source used in preparation of this section. This section includes a discussion of special-status plant species. Federal or state designated plant species are discussed in Section 2.3.5.

The biological study area includes potential habitat for the following 20 special-status plant species: Douglas’ fiddleneck (*Amsinckia douglasiana*), La Purisima manzanita (*Arctostaphylos purissima*), Miles’ milk vetch (*Astragalus didymocarpus* var. *milesianus*), Davidson’s saltscale *(Atriplex serenana* var*. davidsonii)* Brewer’s calandrinia (*Calandrinia breweri*), Catalina mariposa lily *(Calochortus catalinae*), Lompoc ceanothus (*Ceanothus cuneatus* var*. fascicularis*), southern tarplant (*Centromadia parryi ssp. australis*), seaside bird’s break (*Cordylanthus rigidus ssp. littoralis*), paniculate tarplant *(Deinandra paniculata*), Santa Catalina island buckwheat (*Eriogonum giganteum var. giganteum*), mesa horkelia (*Horkelia cuneata ssp. puberula*), Coulter’s goldfields (*Lasthenia glabrata ssp. coulteri*), Santa Barbara honeysuckle (*Lonicera subspicata* var*. subspicata*), cliff aster (*Malacothrix*

saxatilis var*. saxatilis*), hubby's phacelia (*Phacelia hubbyi*), south coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*), black-flowered figwort (*Scrophularia atrata*), chaparral ragwort (*Senecio aphanactis*), and Sonoran maiden fern (*Thelypteris puberula* var*. sonorensis*).

Floristic botanical surveys were conducted within the biological study area on April 28, May 3, June 26, 2017, February 23, 2018, and May 23, 2019. Only two of these species were identified within the biological study area during botanical surveys: Santa Catalina island buckwheat (*Eriogonum giganteum* var. *giganteum*) and Cliff aster (*Malacothrix saxatilis* var. *saxatilis*). Both of these plants are not state or federally protected species but are considered rare plants by the California Native Plant Society. The plants have been assigned California Rare Plant Rank of 4, meaning that they are on the "watch list" due to their limited distribution in California.

Santa Catalina Island buckwheat is a perennial evergreen shrub that flowers between March and October. The shrub grows in coastal scrub and chaparral habitats in rocky soils, which were documented within the biological study area. In addition to the Rare Plant Rank of 4, this species of buckwheat has a threat rank of 0.3, meaning that it is not very threatened in California.

Cliff aster is a perennial rhizomatous herb that flowers between March and September. It can be found in coastal bluff scrub and coastal scrub habitats, both of which occur in the biological study area. In addition to the Rare Plant Rank of 4, cliff aster has a threat rank of 0.2, meaning that it is moderately threatened in California.

Environmental Consequences

Permanent and Temporary (Construction) Impacts

The project would require disturbance of habitat occupied by cliff aster and Santa Catalina Island buckwheat. About 20 cliff aster plants are growing beneath the bridges and would need to be removed prior to bridge demolition, and about 30 Santa Catalina island buckwheat plants are growing beneath metal-beam guardrail along the edges of the highway where permanent vegetation control would be placed.

Because both plants are considered rare plants by the California Native Plant Society, avoidance and minimization measures are included to reduce adverse effects to these species.

Avoidance, Minimization, and/or Mitigation Measures

The following minimization measure would be implemented for potential temporary and permanent impacts to special-status plant species resulting from the project:

PLA-1: Prior to construction, the top two inches of the soil within about 1.5 feet of all Santa Catalina island buckwheat and cliff aster plants affected in the project work area will be collected by the contractor and stockpiled during construction. Prior to collection, soils should be inspected for the presence of invasive species such as fountain grass. If invasive species are present, the soils will not be collected and stockpiled. Toward the end of construction and prior to permanent erosion control application the stockpiled soil will be spread in areas that are suitable habitat. The contractor will coordinate with the Caltrans district biologist, no sooner than 60 working days prior to construction.

2.3.4 Animal Species

Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service, and the California Department of Fish and Wildlife 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 2.3.5 below. All other special-status animal species are discussed here, including California Department of Fish and Wildlife fully protected species and Species of Special Concern, and U.S. Fish and Wildlife Service or National Oceanic and Atmospheric Administration's National Marine 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 to 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

Affected Environment

The Natural Environment Study, prepared in 2018, was the main source used in preparation of this section. The biological study area includes potential habitat for 20 special-status animal species and includes the following: coast range newt (*Taricha torosa*), northern California legless lizard (*Anniella*

pulchra), western pond turtle (*Emys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), coast patch-nosed snake (*Salvadora hexalepis virgultea)*, two-striped garter snake (*Thamnophis hamondii*), Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps*), golden eagle (*Aquila chrysaetos*)*,* great blue heron *(Ardea herodias*), burrowing owl (*Athene cunicularia*), ferruginious hawk (wintering) *(Buteo regalis*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), yellow-breasted chat (*Icteria virens*), purple martin (*Progne subis*), American yellow warbler (*Setophaga petechia*), pallid bat (*Antrozous pallidus*), San Diego desert woodrat (*Neotoma lepida intermedia*), and American badger (*Taxidea taxus)*. Federal or state designated animal species are discussed in Section 2.3.5.

Coast Range Newt, Western Pond Turtle, Two-Striped Garter Snake

Coast range newt, western pond turtle, and two-striped garter snake are all California Species of Special Concern.

The coast range newt is a stocky medium-sized amphibian (up to 3.5 inches or 7.8 inches with the tail) with rough to grainy skin that is yellowish-brown to dark brown on its back or upperside and pale yellow to orange on its underside. The species is terrestrial but migrates to water to breed. Upland habitats are forests, oak woodlands, chaparral and grasslands. Aquatic breeding habitats are ponds, reservoirs, and sluggish pools next to streams. Coast range newt populations have suffered declines due to habitat loss and introduced predatory mosquitofish, crayfish, and bullfrogs, which eat the larvae and eggs. Coast range newts can be found in California from sea level to about 4,200 feet in coastal mountains from Mendocino to San Diego counties.

The western pond turtle is a medium-sized (up to 8.5 inches long) turtle with a low-profile shell that is olive, brown, or blackish and usually has a network of spots, lines, or dashes of brown or black. The turtles live where water persists year-round in rivers, streams, lakes, ponds, wetlands, reservoirs, and brackish estuarine waters. Waters favored by turtles typically support aquatic vegetation that floats or extends above the water surface such as cattails and algal mats. Pond turtles like to 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 and over-winter. In warmer areas along the central and southern California coast, pond turtles may be active all year. Western pond turtles were historically present in most Pacific slope drainages between the Oregon and Mexican borders and were once widely distributed in central California. Populations have declined throughout their range primarily due to destruction of wetland habitats from human development including agricultural development, flood control, water diversion projects, and urbanization.

The two-striped garter snake is a medium-sized garter snake that is olive, brown, or brownish gray on its back, pale cream to salmon colored on its belly, with a single yellow-orange lateral stripe on each side of the body. Garter snakes are an extremely aquatic species that use water for both predation and escape from predators. Its habitat includes perennial (year-round) and intermittent (seasonal) streams with rocky stream bottoms that are bordered by dense vegetation. It is generally found near streams or stock ponds in the summer and occupies upland coastal sage scrub and grassy locations near its summer range in the winter. In milder areas such as the Gaviota Coast, mammal burrows and surface objects such as rocks and rotting logs serve as winter refuges. The two-striped garter snake occurs mainly in the Coast Ranges between Monterey County and Baja California. Habitat modification, predation by introduced species and loss of prey food base have been noted as causes for the decline of two-striped garter snake.

No coast range newts, western pond turtles, or two-striped garter snakes were observed in the Cañada del Refugio Creek biological study area during surveys, but have the potential to inhabit the biological study area. There are California Natural Diversity Database occurrence records of each species in the Cañada del Refugio Creek watershed and within other coastal creeks along the southern slopes of the Santa Ynez mountains. Along Cañada del Refugio Creek, there is an undated occurrence record of a coast range newt about 2.66 miles upstream of the biological study area, and of a western pond turtle collected in Refugio State Beach, presumably in Refugio Lagoon. There is a 1961 California occurrence record for a two-striped garter snake collected about 2.55 miles upstream of the biological study area.

Northern California Legless Lizard, Coast Horned Lizard, and Coast Patch-Nosed Snake

The northern California legless lizard, coast horned lizard and coast patch-nosed snake are all considered California Species of Special Concern.

California legless lizards are burrowing lizards up to 7 inches long that superficially resemble snakes due to their long, slender bodies that lack appendages. They are found in coastal dunes, chaparral, and coastal scrub type habitats. The lizards usually forage at the base of shrubs or other vegetation either on or just below the surface, in leaf litter, or sandy soil. Legless lizards eat insect larvae, small adult insects, and spiders. The range of the California legless lizard is from Contra Costa County south to the Mexican border, and it is threatened by loss of habitat due to agriculture, urbanization, off-road vehicle activity on coastal dunes, and the introduction of invasive plant species such as ice plant.

Coast horned lizards are small, reddish brown, yellow, or gray flat-bodied lizards with a wide oval-shaped body and a crown of horns on their head. They can be found in several habitat types such as areas with an exposed

gravelly-sandy substrate with scattered shrubs, clearings in riparian woodlands, dry uniform chaparral, and annual grassland. Horned lizards hibernate in small mammal burrows or burrows they excavate themselves in loose soils, or under surface objects. Coast horned lizards are active April to October and they prey primarily on beetles and ants. The lizards are generally found from the San Francisco Bay area south to Baja California, from the Pacific coast inland to the Sierra Nevada. Their range has been severely fragmented, and their populations have undergone severe declines in recent years due to habitat loss and the invasion of Argentine ants.

Coast patch-nosed snakes are fast, moderately sized, slender, striped snakes with smooth scales, large eyes, and a large scale over the tip of the snout. The snakes are active during daylight hours, even in extreme heat. They are mostly terrestrial when active but may climb shrubs in pursuit of prey or burrow into loose soil. They inhabit semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. Coast patch-nosed snakes eat mostly lizards, along with small mammals, and possibly small snakes, nestling birds, and amphibians. Coast patch-nosed snakes are found from Carrizo Plain National Monument south to the coastal northern Baja California. They are risk, primarily in southern California, due to habitat loss from development and agriculture, as well as loss of prey.

Of the several general wildlife surveys conducted in the biological study area, five were conducted in the summer months of 2016-2018 in warm dry weather, when reptiles are normally active above ground. No northern California legless lizards, coast horned lizards, or coast patch-nosed snake individuals were found during surveys. There is a single undated California Natural Diversity Database occurrence record of a coast horned lizard about 3.76 miles north of the biological study area.

Because suitable habitat for each species occurs in the biological study area, and all three species are known to burrow under the surface of sandy soil or leaf litter (making their detection during surveys difficult), the presence of these species in the biological study area cannot be ruled out.

Cooper's Hawk, Southern California Rufous-Crowned Sparrow, Golden Eagle, Great Blue Heron, Burrowing Owl, Ferruginous Hawk, White-Tailed Kite, California Horned Lark, Yellow-Breasted Chat, Purple Martin, American Yellow Warbler, and Other Nesting Birds

This section discusses a variety of migratory, nesting birds found along the Gaviota Coast that have suitable habitat within the biological study area and are considered special status species. Within the group are two state fully protected species (golden eagle and white-tailed kite), four species identified by California Department of Fish and Wildlife as California Species of Special Concern (burrowing owl, yellow-breasted chat, purple martin, and American yellow warbler), and four species on the California Department of Fish and

Wildlife's watch list (Cooper's hawk, southern California rufous-crowned sparrow, ferruginous hawk, and California horned lark). Most the birds are protected by the Federal Migratory Birds Treaty Act. See the Natural Environment Study prepared for the project for descriptions and additional information on the bird species discussed in this environmental document.

No special-status bird species were observed during reconnaissance surveys of the biological study area, including Cooper's hawk, southern California rufous-crowned sparrow, great blue heron, burrowing owl, ferruginous hawk, California horned lark, yellow-breasted chat, purple martin, and American yellow warbler.

The Santa Barbara Breeding Bird Study database has a recent record of an adult American yellow warbler feeding a fledgling about 630 feet upstream of the biological study area and the ebird.com species maps have several records of the American yellow warbler and yellow-breasted chat both in Refugio State Beach and along Refugio Road next to the biological study area.

Other types of nesting birds were observed during field surveys of the biological study area. American cliff swallows (*Petrochelidon pyrrhonota*) have used the U.S. 101 bridges over Cañada del Refugio Creek for colony nesting over many years. Roughly 500 mud nests were observed on the bridges during surveys conducted in the nesting season. A white-throated swift (*Aeronautes saxatalis*) was observed exiting and entering a drain hole in the U.S. 101 northbound bridge and was inferred to be nesting inside the bridge at the time.

Other common birds observed included species such as scrub jay (*Aphelocoma californica*), green heron (*Butorides virescens*), wrentit (*Chamaea fasciata*), American crow (*Corvus brachyrhynchos*), snowy egret (*Egretta thula*), northern mockingbird (*Mimus polyglottos*), and red-tailed hawk (*Buteo jamaicensis*). Potential nesting habitat for many bird species occurs in trees within the biological study area.

Pallid Bat and Other Bat Species

The pallid bat is considered a Species of Special Concern by California Department of Fish and Wildlife. Pallid bats have yellow to cream colored fur on their backs, white fur on their bellies, and exceptionally large ears that are nearly half the length of their bodies. The bats are nocturnal and apparently not migratory, but make local, seasonal movements. They reside, or "roost" in colonies that may consist of as few as a dozen to more than 100 individuals. They establish day, maternity, and night roosts in deep crevices such as caves, mines, rock faces, or crevices in bridges and buildings. Night roosts are used for feeding and are typically a quarter-mile away from the day roosts, which are used for sleeping. Their primary food sources are ground dwelling insect species including crickets, grasshoppers, beetles, and

centipedes. Pallid bats range over much of the western United States, from central Mexico to British Columbia. They are found throughout California, especially in lowland areas below 6,400 feet. Their populations are in decline due to human disturbance of roosting areas and pesticide use.

On April 11, 2017, a daytime roosting bat survey was conducted by Caltrans Biologists. The two Refugio Road undercrossing bridges and the northbound U.S. 101 on-ramp bridge and surrounding vegetation within the biological study area were assessed for the potential of providing habitat for roosting bats. It was determined that the bridges generally do not contain suitable bat roosting sites because they are closed concrete box girder bridges and do not have concave undersides with seams or crevices. Bats prefer to roost in protected pockets with vertical angles, and aside from a few drain holes, such sites are not present on the undersides of the three surveyed bridges.

No bats were observed during the survey, nor were any indicators for the presence of bats documented. Typical indicators for the presence of bats include grease or urine stains, guano (bat feces), and prey remains.

Although no bats were detected, there is a low possibility that bats may be using cliff swallow mud nests on the bridge for day roosting. This inference is based on bats found roosting in mud nests removed from other bridges in Caltrans District 5. The Refugio undercrossing bridges have roughly 500 mud nests in the horizontal angle under the bridge decks. Therefore, the presence of day roosting bats could not be completely ruled out as mud nests and drain holes may provide day roosting habitat.

San Diego Desert Woodrat and American Badger

The San Diego desert woodrat and American badger are listed as California Species of Special Concern by California Department of Fish and Wildlife.

The San Diego desert woodrat is a small pack rat with dark gray to yellowish gray fur and white belly, big ears, and a lengthy long-haired tail. These woodrats live in woodland and coastal scrub habitats where they build houses (nests or middens) constructed with twigs, sticks, cactus parts, rocks, or other materials they may encounter. Woodrats mostly prefer to construct houses against a rock crevice but are adaptable and may also build at the base of cactus, in the lower branches of trees, or other locations. Houses are used for nesting, food caching, and predator escape. Woodrats eat leaves, fruits, seeds, and bark from many different types of plants, and are mainly nocturnal. Populations have declined due to habitat loss and fragmentation from commercial, residential, and agricultural development. Population declines have been worsened by wildfires.

The American badger is a medium-sized mammal (14 to 19 pounds and 2.5 feet in length) with a stocky, flat body, brown or black fur with white stripes and distinctive head markings, short powerful legs, and huge foreclaws

measuring up to 2 inches long. The species occurs in open shrub lands, forest, and herbaceous habitats. The American badger is a fossorial carnivore, meaning it burrows for hunting, cover, aestivation, and nesting. It needs friable soils to excavate its burrows. Badgers eat rodents such as ground squirrels and pocket gophers, some reptiles, earthworms, eggs, birds, and carrion. American badgers occur broadly in North American from northern Alberta south to central Mexico. In California, they can be found in most regions except for the humid coastal forests in the northwest part of the state. Despite their wide range, badger populations have declined heavily due to their susceptibility to predator control through indiscriminate trapping and poisons, along with habitat loss and farming operations.

Two woodrat middens were discovered during surveys conducted May 3, 2017, but it is unclear if the middens belong to the San Diego desert woodrat or the big-eared woodrat. One was between the U.S. 101 northbound lanes and the northbound off-ramp at Refugio Road, which was active, because a wood rat (unknown species) was briefly observed near the midden. The other midden was between the U.S. 101 southbound lanes and the southbound off-ramp at Refugio Road. San Diego desert woodrats prefer to construct middens in rock terrain, so it is more likely that these middens belong to big-eared woodrats. However, the construction of these middens by San Diego desert woodrats cannot be ruled out because San Diego desert woodrats have been recorded nearby in the California Natural Diversity Database. Two separate occurrence records from 1992 document the presence of San Diego desert woodrats along the Southern Pacific railroad tracks about 2.66 miles and 4.6 miles west of the biological study area.

No American badgers or evidence of the presence of badgers were observed during multiple survey visits to the biological study area. However, the biological study area provides suitable foraging habitat for American badger and the species is generally nocturnal and burrowing (i.e., difficult to observe during a survey), so the presence of badgers cannot be ruled out. The California Natural Diversity Database includes an occurrence record of a female badger in the western portion of the biological study area in 1922, and another record documents a badger about 4.6 miles to the west in 2003. There is also the potential for American badger to enter the biological study area due to the transitory nature of the species.

Environmental Consequences

Potential permanent and temporary (construction) impacts for animal species are described below.

Coast Range Newt, Western Pond Turtle, Two-Striped Garter Snake

Project construction could result in the injury or mortality of coast range newt, western pond turtle, or two-striped garter snake (if present) during construction and installation of a temporary stream diversion system in the

creek. A potential need to capture and relocate these species could 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 could directly or indirectly affect water quality. The potential for impacts to these species is expected to be low, as they were not found within the biological study area during surveys, but this potential could change through time, as the species could potentially expand populations, migrate through, or colonize the creek corridor.

Northern California Legless Lizard, Coast Horned Lizard, and Coast Patch-Nosed Snake

The project could result in the injury or mortality of northern California legless lizard, coast horned lizard, and coast patch-nosed snake (if present) during construction. A potential need to capture and relocate these species could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by construction equipment or even by worker foot traffic. With inclusion of avoidance and minimization measures, the project is not expected to impact these species.

Cooper's Hawk, Southern California Rufous-Crowned Sparrow, Great Blue Heron, Burrowing Owl, Ferruginous Hawk, California Horned Lark, Yellow-Breasted Chat, Purple Martin, American Yellow Warbler, and Other Nesting Birds

Caltrans typically expects the bird nesting season to occur from February 1 to September 30. The removal of vegetation and demolition of the existing bridges could directly impact active bird nests and any eggs or young residing in nests, if the included avoidance and minimization measures are not implemented. Indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. While temporary loss of vegetation supporting potential nesting habitat could occur, this would be mitigated by habitat restoration. The implementation of the avoidance and minimization measures such as appropriate timing of vegetation removal, pre-activity surveys, and exclusion zones would reduce the potential for adverse effects to nesting bird species.

Pallid Bat and Other Bat Species

Unoccupied swallow mud nests and drain holes could provide roosting locations for bats. As a result, mud nests on these bridges must be removed and exclusion devices placed over drain holes prior to starting work. Direct impacts to bats could result during removal of mud nests from the existing bridge if bats are found to be roosting in these nests. These direct effects could result in the injury or mortality of bats or harassment that could alter roosting behaviors. Indirect impacts could also result from noise and disturbances associated with construction, which could also alter roosting

behaviors. The implementation of bat and bird exclusion measures from the bridge, pre-activity surveys, and exclusion devices would reduce the potential for adverse effects to roosting bat species. As the bridges are replaced, there may be a temporary loss of roosting habitat but eventually the bridges would be replaced and planting of new trees as mitigation would occur.

San Diego Desert Woodrat and American Badger

While it is not expected that the project would have a direct or indirect impact to the San Diego desert woodrat, construction activities have the potential to kill, injure or disrupt woodrats. Implementation of the avoidance and minimization measures would reduce the potential for impacts.

Similarly, it is not expected that the project would have a direct or indirect impact to the American badger, but excavation within the area of potential impact has the potential to kill, injure, or displace burrowing animals. Implementation of the avoidance and minimization measures would reduce the potential for impacts. Mitigation planting is expected to improve foraging habitat for the American badger within the biological study area.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be implemented to reduce potential permanent and temporary impacts on animal species from the project.

Coast Range Newt, Western Pond Turtle, Two-Striped Garter Snake

The following avoidance and minimization measures would be implemented for both alternatives:

AS-1: Prior to implementation of a water management strategy in Cañada del Refugio Creek, Caltrans will conduct an informal worker environmental training program including a description of coast range newt, western pond turtle and two-striped garter snake, their legal and protected status, proximity to the project site, and avoidance and minimization measures to be implemented during the project.

AS-2: Prior to construction, a biologist determined qualified by Caltrans will survey the biological study area and, if present, capture and relocate any coast range newts or two-striped garter snakes to suitable habitat upstream of the biological study area, and western pond turtles will be captured and relocated to Refugio Lagoon. Observations of Species of Special Concern or other special-status species will be documented on California Natural Diversity Database forms and submitted to California Department of Fish and Wildlife upon project completion. If these species or other aquatic Species of Special Concern are observed during construction, they will likewise be relocated to suitable habitat outside of the impact area by a qualified biologist.

Northern California Legless Lizard, Coast Horned Lizard, and Coast Patch-Nosed Snake

The following avoidance and minimization measures would be implemented for both alternatives:

AS-3: All excavation and vegetation removal will be monitored by a qualified biologist. The qualified biologist will be on-site during all new excavations and vegetation removal.

AS-4: Northern California legless lizards, coast horned lizards, coast patch-nosed snakes, or any species (excluding state or federal listed species) discovered during monitoring will be captured and relocated by the qualified biologist to suitable habitat outside of the biological study area. Observations of Species of Special Concern or other special-status species will be documented on California Natural Diversity Database forms and submitted to California Department of Fish and Wildlife upon project completion.

Cooper's Hawk, Southern California Rufous-Crowned Sparrow, Great Blue Heron, Burrowing Owl, Ferruginous Hawk, California Horned Lark, Yellow-Breasted Chat, Purple Martin, American Yellow Warbler, and Other Nesting Birds

Temporary impacts to vegetation would be offset by replacement plantings within the project limits (measure WET-3), as well as additional riparian plantings as part of the fish passage enhancement work (measure TES-15). This would be more than enough to replace any potential nesting habitat. In addition, the following avoidance and minimization measures would be implemented for both alternatives:

AS-5: If feasible and regulatory approvals allow, tree removal will be scheduled to occur from October 1 and January 31, outside of the typical nesting bird season, to avoid potential impacts to nesting birds. If it is not feasible to conduct this work outside of the nesting bird season, nesting bird surveys should be conducted by a qualified biologist no more than 14 days prior to the start of construction. If an active nest is found, a qualified biologist will determine an appropriate buffer and monitoring strategy based on the habits and needs of the species. The buffer area will be avoided until a qualified biologist has determined that the nest is no longer active.

AS-6: Unoccupied swallow mud nests could provide roosting locations for bats protected by the State of California. As a result, mud nests on these bridges must be removed prior to starting work and outside of the bird nesting season (scheduled to occur from October 1 and January 31). The applicant (contractor) will prepare a plan to exclude birds and bats from nesting or roosting on the bridges. This plan will discuss methods of removing mud nests or other nests and eliminating access to the angles of the bridges where swallows typically build nests, and to drainage holes where white-

throated swifts are known to nest and may provide roosting habitat for bats. The exclusion methods will be implemented after the mud nests have been removed. Exclusion methods should include, but are not limited to installing thick plastic sheeting, or polytetrafluoroethylene (i.e., Teflon brand) sheeting in the angles where swallows build nest. For drainage holes, one-way exclusion material will be used to prevent inadvertent trapping of bats. The exclusion plan will be submitted to the Caltrans district biologist for approval at least 45 working days prior to implementation. Refer to AS-8 below.

AS-7: Mud nest removal and installation of exclusion methods will be completed prior to the beginning of the bird nesting season. Mud nests will be removed, and the exclusion devices will be installed any time outside of the nesting bird season (i.e., install devices between October 1 to January 31). Refer to measures AS-9 and AS-10 in the avoidance and minimization measures for bats for additional procedures.

AS-8: Daily inspections and recorded inspection logs will also be a part of the exclusion plan. After installed, exclusion devices will be inspected daily by the contractor to remove any partially constructed nests, monitor for any wildlife that may become trapped by the exclusion devices, and/or repair exclusion devices, if necessary. If any wildlife is discovered trapped or a bat-occupied or bird-occupied area is discovered, the Caltrans district biologist will be notified immediately and any further work on the bridges will cease until further protection measures can be implemented.

Pallid Bat and Other Bat Species

Impacts to vegetation would be offset by replacement plantings within the project limits (Mitigation Measure WET-3), which would also replace potential roosting habitat. Further, all avoidance and minimization measures for nesting birds (AS-6 though AS-8) will be implemented for bats as well. In addition, the following avoidance and minimization measures would be implemented for both alternatives:

AS-9: The applicant (contractor) will contact the District Biologist at least 7 days prior to removing swallow mud nests from the bridges.

AS-10: Mud nest removal will require a boom lift, snooper truck, or equipment suitable to access mud nests. Swallow mud nests will be scraped off the bridge and allowed to drop into a container. Mud nests will not be dropped to the ground or onto roadways or waterways.

San Diego Desert Woodrat and American Badger

The following avoidance and minimization measures would be implemented for both alternatives for San Diego desert woodrat:

AS-11: No more than 14 days prior to construction activities, a preconstruction survey will be conducted within the biological study area by a qualified biologist to determine the presence or absence of woodrat middens.

AS-12: If woodrat middens are located during this survey, the qualified biologist will establish an environmentally sensitive area with a 25-foot buffer around each midden and no project activities requiring grading, mechanized equipment or vehicles, or large crews will be allowed within the 25-foot protective buffer.

AS-13: If project activities cannot avoid impacting the middens, then a qualified biologist will dismantle the middens by hand prior to grading or vegetation removal activities. The midden dismantling will be conducted such that the midden material is slowly removed while the biologist looks for young woodrats. The material will be placed in a pile at the closest adjacent undisturbed habitat and more than 50 feet from construction activities.

AS-14: If young are encountered during midden dismantling, the dismantling activity will be stopped and the material replaced back on the nest and the nest will be left alone and rechecked in two to three weeks to see if the young are out of the nest or capable of being out on their own as determined by a qualified biologist; once the young can fend for themselves, the nest dismantling can continue.

The following avoidance and minimization measures would be implemented for both alternatives for American badger:

AS-15: No more than 14 days prior to construction activities or any project activity likely to impact American badger, a preconstruction survey will be conducted for American badger. The survey will identify badger habitat features on the project site, evaluate use by badgers and, if possible, assess the potential impacts to the badger by the proposed activity. The status of all dens should be determined and mapped. Known dens, if found occurring within the biological study area, will be monitored for three days with a tracking medium to determine the current use. If no badger activity is observed during this period, the den will be destroyed immediately to preclude subsequent use. If badger activity is observed at the den during this period, the den will be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Only when the den is determined to be unoccupied will the den be excavated under the direction of the biologist.

AS-16: If the preconstruction and pre-activity survey reveals an active natal pupping den or new information regarding badger presence within 200 feet of the project boundary, a qualified biologist will immediately notify the California Department of Fish and Wildlife.

AS-17: Prior to ground breaking, a qualified biologist will conduct an environmental education and training session for all construction personnel. Prior to, during, and after the site disturbance and/or construction phase, use of pesticides or herbicides should comply with all federal, state, and local regulations. No rodent control pesticides will be used, including anticoagulant rodenticides such as brodifacoum, bromadiolone, difethialone and difenacoum. This is necessary to minimize the possibility of primary or secondary poisoning of American badgers or other special-status species.

AS-18: A litter control program will be instituted at each project site. No canine or feline pets or firearms (except for law enforcement officers and security personnel) will be permitted on construction sites to avoid harassment, killing, or injuring badgers.

2.3.5 Threatened and Endangered Species

Regulatory Setting

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

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

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

Affected Environment

The Natural Environment Study prepared in December 2019 was the main source of information used in preparation of this section. The biological study area includes habitat for two threatened or endangered plant species and six threatened and endangered animal species.

The plant species include Gaviota tarplant *(Deinandra increscens* ssp. *villosa*) and Lompoc yerba santa (*Eriodictyon capitatum*). The animal species include tidewater goby (*Eucyclogobius newberryi*), southern California steelhead (*Oncorhynchus mykiss irideus*), California red-legged frogs (*Rana draytonii),* foothill yellow red-legged frogs (*Rana boylii*), southwestern willow flycatcher (*Empidonax traillii extimus*), and least Bell's vireo (*Vireo bellii pusillus*).

Gaviota Tarplant and Lompoc Yerba Santa

Gaviota tarplant and Lompoc yerba santa are both federally endangered species. Gaviota tarplant is also a state endangered species while Lompoc yerba santa is considered a state rare species. Gaviota tarplant is an annual herb that occurs in coastal bluff, coastal scrub, and valley and foothill grassland habitats. As a member of the sunflower family, Gaviota tarplant produces pale to deep yellow flowers and can grow up to 3 feet tall. It flowers from May to October. Lompoc yerba santa is a perennial evergreen shrub that grows in coastal bluff scrub and closed cone coniferous forest habitats and prefers sandy soils. It can grow up to 9 feet tall and produces clusters of lavender flowers. It flowers between May and September.

Gaviota tarplant focused surveys were conducted on July 14, 2016 and June 26, 2017 to specifically target the federal and state endangered Gaviota tarplant in the project area. Surveys were conducted during the blooming period, and a Gaviota tarplant reference site, about 7 miles west of the project (near Mariposa Reina), was visited the morning prior to the surveys to verify that Gaviota tarplant was in bloom at the time. No Gaviota tarplant was found within the biological study area during the surveys.

Floristic botanical surveys were conducted on April 28, May 3, June 26, 2017, February 23, 2018, and May 23, 2019, and included surveying for Lompoc yerba santa. No individuals were observed during the survey and no suitable habitat was documented. While portions of the biological study area contain sandy, acidic soils (Primary Constituent Element 1), maritime chaparral and related plant communities that are usually associated with Lompoc yerba santa (Primary Constituent Element 2) were not observed. The project biological study area does not occur in federally designated critical habitat for the species.

Tidewater Goby

The tidewater goby is listed as a federally endangered species by the U.S. Department of Fish and Wildlife, and a Species of Special Concern by the California Department of Fish and Wildlife.

Tidewater gobies are small fish that commonly inhabit lagoons and estuaries that form where streams flow into the ocean, usually protected by a sand bar. Generally, gobies prefer water that is between 10 and 40 inches deep with little to no flow, high oxygen content, and relatively low salinity. They prefer bottom substrates that are sandy or muddy so that males can dig burrows where they lay their eggs.

Tidewater gobies were not observed within the biological study area, though focused aquatic surveys were not conducted. This species has been documented in Refugio Lagoon to the south of the biological study area since 1984, when investigations conducted by the State Lands Commission confirmed its presence in the lagoon. Additional surveys conducted in Refugio Lagoon in 1989, 1990, 1995, 2001, 2005, and 2012 found tidewater gobies present in the “lagoon at the mouth of Cañada del Refugio.” The U.S. Fish and Wildlife Service Recovery Plan for the Tidewater Goby maps the occupied portion of Cañada del Refugio Creek to be south of U.S. 101 in Refugio Lagoon and states that the habitat locality occurs and is managed by Refugio State Beach. No record of tidewater goby presence in Cañada del Refugio Creek upstream of the lagoon could be found in the literature and database search.

The concrete-lined and rock-lined channel within the biological study area is unlikely to be suitable for these fish because surface water is not always persistent. On May 31, 2018 surface water in the biological study area was

estimated to be only 1 to 3 inches deep except for one small depression in the upper portion of the grouted rock slope protection that was about 10-12 inches deep. Other factors such as slope, flow rates, turbulence, open exposure to predators, and a concrete substrate make it unlikely for tidewater gobies to occur in the biological study area. However, their presence cannot be ruled out due to the ability of tidewater gobies to move upstream.

Southern California Steelhead Trout

The southern California distinct population of steelhead trout is a federally endangered species and is found on the special animals list compiled by California Department of Fish and Wildlife.

Steelhead trout are the anadromous (ocean-going) form of rainbow trout. Adults migrate from the ocean into upstream freshwater habitat to spawn, and the resulting juvenile fish hatch and rear in freshwater habitats before migrating downstream to the ocean to mature. Steelhead trout historically ranged from Alaska southward to the California-Mexico border. Southern California steelhead (referred to as the southern California distinct population segment) range from the Santa Maria River at the northern border of Santa Barbara County to the Tijuana River at the southern border of San Diego County.

Suitable freshwater habitat for steelhead trout can generally be characterized by clear, cool water with abundant cover such as submerged branches, rocks, and logs. Steelhead trout also prefer well-vegetated stream margins, relatively stable water flow, and pools of water that are deep enough during low flow conditions for fish to rest in.

Southern California steelhead trout were not observed during surveys along Cañada del Refugio Creek, though no intensive aquatic survey methods (e.g., snorkel surveys, seine-netting, or dip-netting) were conducted. Although Cañada del Refugio Creek is known to be used by steelhead trout, very little information on their presence is available. Historically, the creek was planted with hatchery rainbow trout and juvenile steelhead trout rescued from the Santa Ynez River during the 1940s. California Department of Fish and Game (currently referred to as California Department of Fish and Wildlife) staff surveyed Cañada del Refugio Creek in 1934 and 1947 and observed steelhead trout. In a 1984 environmental impact report for the Arco Coal Point Project, rainbow trout are mentioned as present in the upper reaches of Cañada del Refugio Creek. Stoecker Environmental Consulting reports three documentations of steelhead trout in the creek and cites a 1990 observation of a single 12-inch to 13-inch steelhead trout in the upper Cañada del Refugio Creek watershed. Staff from National Marine Fisheries Service surveyed in 2001 and determined steelhead were absent from the creek. No California Natural Diversity Database records of steelhead trout occur in the Cañada del Refugio Creek watershed.

While the habitat quality of the concrete-grouted rock slope protection creek channel in the biological study area can be characterized as low, taking a conservative approach and based on the best available information, the presence of juvenile steelhead trout in the biological study area could not be ruled out. Steelhead trout is therefore inferred within the biological study area with an estimated low likelihood for presence.

California Red-Legged Frog

The California red-legged frog is a federally threatened species and listed as a Species of Special Concern by California Department of Fish and Wildlife. Red-legged frogs are moderate to large and commonly recognized by the reddish color that forms on the underside of their legs and belly. The frogs use a variety of habitats including aquatic, riparian, and upland habitats, and are commonly associated with dense stands of overhanging willows.

California red-legged frogs were not observed during reconnaissance surveys in the biological study area, though no protocol surveys were conducted. The biological study area contains suitable aquatic breeding, aquatic non-breeding, upland, and dispersal habitats. There are several occurrence records for red-legged frogs along Cañada del Refugio Creek including one record of a red-legged frog egg mass found directly below the southbound U.S. 101 bridge, therefore presence of the species within the biological study area is inferred.

Foothill Yellow-Legged Frog

The foothill yellow-legged frog is a state candidate for a threatened species and listed as a Species of Special Concern by California Department of Fish and Wildlife. Yellow-legged frogs are medium-sized frogs with a slim waist, long legs, webbed hind feet, and yellow coloring on the underside of their legs and belly. The frogs inhabit the open, sunny banks of shallow streams. They are rarely found away from water and prefer streams with a rocky stream bottom so that they can lay their eggs.

Foothill yellow red-legged frogs were not observed during reconnaissance surveys in the biological study area, though no protocol surveys were conducted. The biological study area contains suitable breeding and non-breeding habitat. There is a 1974 record of a yellow-legged frog collected in Cañada del Refugio Creek at the second Refugio Road crossing, about 630 feet from the biological study area. Presence of the species cannot be completely ruled out, but it is determined to have a very low potential for occurrence, considering the likelihood that the species has been eliminated from the region.

Southwestern Willow Flycatcher and Least Bell's Vireo

The Southwestern willow flycatcher and least Bell's vireo are both federal and state endangered species.

Both the southwestern willow flycatcher and least Bell's vireo are small, migratory perching birds that prefer riparian habitat. The southwestern willow flycatcher is a green, brown, and pale yellow bird with a whitish throat that is less than 5.75 inches long and weighs 11 to 12 grams. It occurs from near sea level to over 8,500 feet but is mostly found at lower elevations in dense riparian vegetation near streams or other surface water, or in highly saturated soils.

The least Bell's vireo is a small North American songbird that is about 4 inches long with a 7-inch wingspan. It is one of four subspecies of Bell's vireo and is the grayest of the subspecies. Least Bell's vireos require riparian areas to breed and typically inhabit structurally diverse woodlands along watercourses. They occur in several riparian habitat types, including cottonwood-willow woodlands and forests, oak woodlands, and mule fat scrub.

No protocol surveys were conducted for the southwestern willow flycatcher and least Bell's vireo, and neither bird species was observed during reconnaissance surveys of the biological study area. There are no known records for either southwestern willow flycatcher or least Bell's vireo along Cañada del Refugio Creek. The nearest records for the southwestern willow flycatcher and least Bell's vireo are over 14 miles north along the Santa Ynez River near the town of Buellton. While Cañada del Refugio Creek contains riparian tree habitat, areas within the biological study area were assessed to be marginal habitat for the southwestern willow flycatcher and least Bell's vireo because they lack dense riparian vegetative cover low to the ground, and the riparian corridor lacks a stratified canopy within the biological study area. The southwestern willow flycatcher and least Bell's vireo were determined to have a very low potential for occurrence.

Critical Habitat

Cañada del Refugio Creek occurs within federally designated steelhead trout critical habitat: South Coast Hydrologic Unit 3315 (NMFS 2005a). Federal fish and wildlife agencies consider the physical and biological features essential to the conservation of the species that may require special management considerations or protection to be the primary constituent elements essential to the conservation of the species. Within the biological study area, Cañada del Refugio Creek was determined to support southern California steelhead trout Primary Constituent Element 3 (freshwater migration corridors free of obstruction). While the grouted rock slope protection may be a partial barrier to fish, it is not an obstruction defined as preventing passage.

A large portion of the biological study area occurs within California red-legged frog Critical Habitat Unit STB-6, Arroyo Quemado to Cañada del Refugio Creek. Cañada del Refugio Creek was determined to support California red-legged frog Primary Constituent Element 2 (aquatic non-breeding habitat), and Primary Constituent Element 4 (dispersal habitat). Based on a 2012

California Natural Diversity Database record of California red-legged frog egg masses discovered in Cañada del Refugio Creek directly under the southbound U.S. 101 bridge, the channelized creek is inferred to support Primary Constituent Element 1 (Aquatic Breeding Habitat). Primary Constituent Element 3 (upland habitat) was assessed to occur in portions of the greater biological study area, but is bound by the hazards of U.S. 101, on-ramps and off-ramps, and Refugio Road.

The biological study area does not occur in federally designated critical habitat for any other plant or animal species.

Environmental Consequences

Gaviota Tarplant and Lompoc Yerba Santa

The project is not expected to impact any federal or state listed plant species. The Federal Endangered Species Act Section 7 effects determination is that the project would have no effect on Gaviota tarplant or Lompoc yerba santa. There would be no effect on critical habitat for any of these federally listed plant species.

Tidewater Goby

Bridge replacement work over Cañada del Refugio Creek would require implementation of a water management strategy in Cañada del Refugio Creek, which would temporarily alter aquatic habitat quality and restrict access for tidewater gobies (if the area is used by the species). This could result in direct impacts to the species in the form of injury or mortality as tidewater gobies are captured, handled, and relocated.

Removal of vegetation to allow for installation of a water diversion system and temporary construction equipment access into the stream channel would somewhat affect shading and microhabitat temperature regulation characteristics, but these effects would be temporary because removed vegetation would be replaced on-site and in-kind. Modifications to improve fish passage are likely to make the creek more suitable for tidewater gobies.

Dewatering and construction within Cañada del Refugio Creek in areas possibly occupied by tidewater gobies could result in direct impacts to the species in the form of injury or mortality as fish are captured, handled, and relocated. Erosion and sedimentation could also occur, which could directly or indirectly affect water quality, but the on-site use of settling tanks (such as Baker tanks) should alleviate this issue. While the placement of a clear-water diversion system within the grouted rock slope protection portion of Cañada del Refugio Creek could result in temporarily restricting access for tidewater gobies, the extent and effect of this are estimated to be minor since current conditions in the creek during the dry season already create a barrier to tidewater gobies. Diverting the creek flow and eventually removing the diversion and restoring normal flows could also produce direct or indirect

effects that could impact the structure of the streambed substrate or increase turbidity (murkiness). These impacts would likely be temporary and rectified once the fish passage improvements are made to the creek bed.

The Federal Endangered Species Act Section 7 effects determination is that the project may affect and is likely to adversely affect tidewater gobies. The basis for this determination is that tidewater goby presence has been inferred (could not be ruled out) and there would be a potential for take of the species during stream diversion activities, capture, and relocation. An unknown number of tidewater gobies could be subjected to take, but the potential is expected to be either zero, or very low due to habitat conditions. The project would have no effect on tidewater goby critical habitat which does not occur in the watershed. Avoidance and minimization measures are included.

Southern California Steelhead Trout

Bridge replacement work over Cañada del Refugio Creek would require diverting a portion of the creek, which would temporarily alter the availability of aquatic habitat in the biological study area and temporarily restrict fish passage for steelhead trout. However, the extent and effect of this are estimated to be minor since current conditions in the creek during the dry season already create a barrier to fish passage for both adult and juvenile fish due to low flow. Dewatering Cañada del Refugio Creek in areas potentially occupied by steelhead trout could result in direct impacts to the species in the form of injury or mortality as steelhead trout are captured, handled, and relocated.

Removal of vegetation to allow for installation of a temporary stream diversion system and temporary construction equipment access into the stream channel would somewhat affect shading and microhabitat temperature regulation characteristics, but these effects would be temporary because removed vegetation would be replaced in-kind. Modifications to improve fish passage would make the creek more suitable for steelhead trout migration, improve shading over the creek, and potentially provide new spawning and rearing habitat.

Erosion and sedimentation could also occur, which could directly or indirectly affect water quality, but the on-site use of settling tanks (e.g., Baker tanks) should mitigate this issue. The placement of a clear-water diversion system within the grouted rock slope protection portion of Cañada del Refugio Creek as well as the 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 (murkiness). These impacts would likely be temporary and rectified once the fish passage improvements are made to the creek bed.

Impacts to steelhead trout would consist mainly of temporary impacts to steelhead trout critical habitat of about 0.411 acre, for construction activities

and fish passage modifications along a 300-foot section of Cañada del Refugio Creek grouted with concrete rock slope protection.

While the potential for steelhead trout presence in the biological study area is expected to be unlikely due to poor habitat conditions and insufficient surface water in Cañada del Refugio Creek from June to October (when in-stream work would occur), the potential for presence increases during the late fall and spring months for adult steelhead trout in-migration from the Pacific Ocean, and for adults and juveniles out-migrating or possibly rearing within the biological study area.

Hydro-acoustic Impacts

Pile driving would be necessary to construct the project as proposed. Elevated sound levels from pile driving could result in additional impacts to steelhead trout and common attenuation techniques used in water would not be possible, considering that all pile driving would occur on land (dry pile driving). Sound generated by percussive pile driving has the potential to affect fish in several ways. Potential effects range from alteration of behavior to physical injury or mortality. These effects depend on the intensity and characteristics of the sound, the distance and location of the fish in the water column relative to the sound source, the size and mass of the fish, and the fish's anatomical characteristics. Pile driving has the potential to harm or even kill steelhead trout potentially residing outside of the dewatered area or moving through the diversion pipe within the biological study area.

Effects Determination for Steelhead

Pile driving and stream diversion activities could result in take of individual steelhead trout and the diversion would also create a temporary loss of steelhead trout habitat and worsen the existing barrier to migration within the biological study area. The extent and effects of the habitat loss are estimated to be minor and restricted to three seasons of the driest months (June to October). While modifications to the creek bed providing improved fish passage and habitat conditions would be beneficial to steelhead trout habitat in Cañada del Refugio Creek, temporary impacts to the creek bed are not fully discountable or insignificant effects under the Federal Endangered Species Act Section 7 definitions and the effects determinations cannot be made on the "net" effects of the action.

The Federal Endangered Species Act Section 7 effect determination is therefore that the project may affect, and is likely to adversely affect, the federally endangered southern California steelhead trout. The basis for this determination is that steelhead trout presence has been inferred (based on the best available information) and there would be a potential for take of the species during pile driving, stream diversion, capture, and relocation activities. An unknown number of steelhead trout could be subjected to take,

but the potential is expected to be low, due to seasonally low flow rates and low-quality habitat conditions within the project limits.

California Red-Legged Frog

The project could result in the injury or mortality of California red-legged frogs (if present) during construction or diversion of Cañada del Refugio Creek. A potential need to capture and relocate red-legged frogs could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by construction equipment or even worker foot traffic. Erosion and sedimentation could occur, which could directly or indirectly affect water quality. While the placement of a water diversion system within a portion of the creek during construction would result in a temporary loss of aquatic habitat for red-legged frogs, the extent and effect of this are estimated to be minor.

The Federal Endangered Species Act Section 7 effects determination is that the project may affect, and is likely to adversely affect, the California red-legged frog. The basis for this determination is that presence of the California red-legged frog has been inferred and there would be a low but possible potential for take of the species during water management activities and construction.

Foothill Yellow-Legged Frog

In the unlikely event that foothill yellow-legged frogs occur in Cañada del Refugio Creek, the project could result in the injury or mortality of foothill yellow-legged frogs (if present) during construction or diversion of the creek. Capturing and relocating foothill yellow-legged frogs could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by construction equipment or even worker foot traffic. Erosion and sedimentation could occur, which could directly or indirectly affect water quality. While the placement of a clear-water diversion system within a portion of the creek during construction would result in a temporary loss of aquatic habitat for foothill yellow-legged frogs (if present), the extent and effect of this are estimated to be minor and restricted to three construction seasons during the driest months of the year (June to October). Fish passage modifications to Cañada del Refugio Creek are likely to provide improved aquatic habitat for foothill yellow-legged frogs.

The foothill yellow-legged frog is not a federally listed species therefore no Federal Endangered Species Act Section 7 determination is needed for this species. No compliance with the California Endangered Species Act would be required for foothill yellow-legged frog because this species is not expected to be encountered during construction and the measures implemented to avoid impacts to the California red-legged frog would also protect yellow-legged frogs.

Southwestern Willow Flycatcher and Least Bell's Vireo

Caltrans typically expects the bird nesting season to occur from February 1 to September 30. The removal of vegetation and demolition of the existing bridges could directly impact active bird nests and any eggs or young residing in nests, if the included avoidance and minimization measures are not implemented. Indirect impacts could also result from noise and disturbance associated with construction, which could alter perching, foraging, and/or nesting behaviors. While temporary loss of vegetation supporting potential nesting habitat could occur, this would be mitigated by habitat restoration. The implementation of the avoidance and minimization measures such as appropriate timing of vegetation removal, pre-activity surveys, and exclusion zones would reduce the potential for adverse effects to nesting bird species.

The Federal Endangered Species Act Section 7 effects determination is that the project may affect, but is not likely to adversely affect, least Bell's vireo and southwestern willow flycatcher. The basis for this determination is that riparian vegetation within the biological study area is unlikely to be suitable nesting habitat but cannot be ruled out as marginally suitable foraging habitat for these species.

In addition, the project is not likely to adversely affect these species because avoidance and minimization measures would be employed to protect all nesting bird species protected by the Federal Endangered Species Act, the California Endangered Species Act, the Migratory Bird Treaty Act, and California Fish and Game Code, making the potential for effect insignificant (under the Federal Endangered Species Act Section 7 definitions) and discountable, because adverse effects have a very low chance to occur. There would be no effect on least Bell's vireo or southwestern willow flycatcher critical habitat, as none occur in or near the biological study area.

The southwestern willow flycatcher and least Bell's vireo are also state listed under the California Endangered Species Act, but because they are not expected to be encountered during construction and measures would be implemented to avoid impacts to nesting birds, no California Endangered Species Act compliance would be required.

Critical Habitat

Table 2-2 shows permanent and temporary impacts to critical habitat in the biological study area.

The Federal Endangered Species Act Section 7 effects determination is that the project may affect, and is likely to adversely affect, federally designated southern California steelhead trout critical habitat. It is expected that 0.411 acre of southern California steelhead trout critical habitat would be temporarily impacted under both alternatives. No permanent impacts to steelhead trout critical habitat would occur in Cañada del Refugio Creek. Dewatering activities could result in a temporary loss of steelhead trout

habitat and exacerbate the existing barrier to migration within the biological study area, but the extent and effects of this are estimated to be minor and restricted to the driest months (June to October). While modifications to the creek bed providing improved fish passage and habitat conditions would be beneficial to steelhead trout habitat in Cañada del Refugio Creek, Section 7 determinations cannot be made on the net sum of effects from an action. The temporary loss of steelhead trout habitat and worsening of the existing barrier to migration within the biological study area for steelhead is an adverse impact and is not a fully discountable or insignificant effect under the Federal Endangered Species Act Section 7 definitions.

The Federal Endangered Species Act Section 7 effects determination is that the project may affect, and is likely to adversely affect, the California red-legged frog critical habitat. It is expected that 8.895 acres of California red-legged frog critical habitat would be temporarily impacted under Alternative 1 and 8.792 acres under Alternative 3. Permanent impacts would be 0.379 acre under Alternative 1 and 0.473 acre under Alternative 3. While the project could result in a temporary disruption of habitat for California red-legged frogs, the extent and effects of this are estimated to be minor and restricted to three construction seasons during the driest months of the year (June to October). Fish passage modifications to Cañada del Refugio Creek are likely to provide improved aquatic habitat and dispersal habitat for California red-legged frogs.

Avoidance, Minimization, and/or Mitigation Measures

Gaviota Tarplant and Lompoc Yerba Santa

No avoidance or minimization measures are required for these species.

Tidewater Goby

In addition to the previously proposed measures (WET-1 through WET-3), the following measures, including several adapted from U.S. Fish and Wildlife Service, would serve to further avoid or minimize impacts to tidewater gobies within the biological study area under both alternatives:

TES-1: Prior to construction, Caltrans will acquire incidental take authorization for tidewater gobies from U.S. Fish and Wildlife Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.

TES-2: Prior to initiation of the water management plan for Cañada del Refugio Creek, Caltrans will conduct an informal worker environmental training program including a description of the tidewater goby, its legal and protected status, proximity to the project site, avoidance and minimization measures to be implemented during the project, and the implications of violating the Federal Endangered Species Act and permit conditions.

TES-3: If dewatering is required, any pumps used will be fitted with an anti-entrapment device to prevent tidewater gobies from being drawn into the pump or impinged on intake screening. Just prior to dewatering and just after dewatering, the U.S. Fish and Wildlife Service-approved biologist will remove by hand or net all tidewater gobies found within the dewatering area and relocate them to Refugio Lagoon downstream of the biological study area.

TES-4: A U.S. Fish and Wildlife Service-approved biologist will remain on-site and observe tidewater gobies and turbidity (murkiness) levels within the work areas during installation of a clear-water stream diversion system and dewatering (if needed) and will capture and relocate tidewater gobies to Refugio Lagoon as necessary.

TES-5: Caltrans will provide the U.S. Fish and Wildlife Service a written summary of work performed (including biological survey and monitoring results), best management practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. The documentation describing listed species surveys and relocation efforts (if appropriate) will include names of the U.S. Fish and Wildlife Service-approved biologists, 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 and recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts.

Southern California Steelhead Trout

Remediation of the partial fish passage barrier in the biological study area (see measure TES-15 below), in addition to on-site compensatory mitigation for impacts to jurisdictional waters (measure WET-3), would mitigate impacts to steelhead trout habitat. In addition to the previously proposed measures (WET-1, WET-2), the following measures would serve to further avoid or minimize impacts to steelhead trout within the biological study area:

TES-6: Prior to construction, Caltrans will acquire incidental take authorization for steelhead trout from National Marine Fisheries Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.

TES-7: Prior to implementation of a water management plan in Cañada del Refugio Creek, a qualified biologist will conduct an informal worker environmental training program including a description of steelhead trout, its legal and protected status, proximity to the project site, avoidance and minimization measures to be implemented during the project, and the implications of violating Federal Endangered Species Act and permit conditions.

TES-8: During construction, in-stream work, including pile driving, will be limited to the low-flow period from June 1 and October 31 in any given year, when the surface water is likely to be at seasonal minimum and to avoid adult steelhead trout spawning migration and peak smolt migration. Deviations from this work window will only be made with permission from Caltrans and the relevant regulatory and resource agencies.

TES-9: A qualified biologist will be retained with experience in steelhead trout biology and ecology, aquatic habitats, biological monitoring (including dewatering), and capturing, handling, and relocating fish species. The biological monitor will continuously monitor placement and removal of any creek diversion and dewatering system (if needed) to capture steelhead trout and other native fish species and relocate them to suitable habitat as appropriate. The monitor will capture steelhead trout in the biological study area just prior to installation of the stream diversion and any remaining stranded immediately after. Steelhead trout will be relocated to suitable habitat upstream of the work area, using methods approved by the appropriate regulatory agencies. This may include but will not necessarily be limited to: seine-netting, dip-netting, and providing aerated water in buckets for transport and ensuring adequate water temperatures during transport. The biologist will note the number of steelhead trout observed in the affected area, the number of steelhead trout captured and relocated, and the date and time of the collection and relocation.

TES-10: During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes will be completely screened with no larger than 3/32-inch (2.38 mm) wire mesh to prevent steelhead trout, California red-legged frogs, and other sensitive aquatic species from entering the pump system. Pumped water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction, and prior to re-entering the stream will be directed through a silt filtration bag and/or into a settling basin to allow the suspended sediment to settle out. Upon completion of construction activities, any diversions or barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Alteration of the streambed will be minimized to the maximum extent possible; any imported material will be removed from the streambed upon completion of the project.

TES-11: When the biological monitor is on-site, they will monitor erosion and sediment controls to identify and correct any conditions that could adversely affect steelhead trout or steelhead trout habitat. The biological monitor will be granted the authority to stop work activity as necessary and to recommend measures to avoid and minimize adverse effects to steelhead trout and steelhead trout habitat.

TES-12: Caltrans will provide National Marine Fisheries Service a written summary of work performed (including biological survey and monitoring

results), best management practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. The documentation describing listed species surveys and relocation efforts (if appropriate) will include names of the Caltrans-approved biologists, 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 and recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).

TES-13: Sound attenuating devices will be used during pile driving, if any feasible method is available for dry pile driving.

TES-14: Vibration and oscillation of piles will be used to the greatest extent feasible to install piles and reduce the need for hammer driving.

Also, the following mitigation measure would be implemented to reduce impacts to steelhead:

TES-15: Remediate the partial fish passage barrier in the biological study area.

California Red-Legged Frog

Caltrans expects the project would qualify for the Federal Endangered Species Act incidental take coverage under the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program, which includes the following applicable avoidance and minimization measures:

TES-16: Only U.S. Fish and Wildlife Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.

TES-17: Ground disturbance will not begin until written approval is received from the U.S. Fish and Wildlife Service that the biologist is qualified to conduct the work.

TES-18: A U.S. Fish and Wildlife Service-approved biologist will 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 will be allowed enough time to move them from the site before work begins. The U.S. Fish and Wildlife Service-approved biologist will 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 will be in the same drainage to the extent

practicable. Caltrans will coordinate with U.S. Fish and Wildlife Service on the relocation site prior to the capture of any California red-legged frogs.

TES-19: Before any activities begin on a project, a U.S. Fish and Wildlife Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will 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, with a qualified person on hand to answer any questions.

TES-20: A U.S. Fish and Wildlife Service-approved biologist will be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of habitat has been completed. After this time, Caltrans will designate a person to monitor on-site compliance with all minimization measures. The U.S. Fish and Wildlife Service-approved biologist will ensure this monitor receives the worker awareness training outlined in measure TES-19 and in the identification of California red-legged frogs. If the monitor or the U.S. Fish and Wildlife Service-approved biologist recommends that work be stopped because California red-legged frogs would be affected in a manner not expected by Caltrans and the U.S. Fish and Wildlife Service during review of the proposed action, they will notify the resident engineer immediately. The resident engineer will resolve the situation by requiring that all actions that are causing these effects be stopped. When work is stopped, U.S. Fish and Wildlife Service will be notified as soon as possible.

TES-21: Habitat contours will be returned to a natural configuration at the end of the project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible, or modification of original contours would benefit the California red-legged frog.

TES-22: The number of access routes, size of staging areas, and the total area of activity will be limited to the minimum necessary to complete the project. Environmentally sensitive areas will 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.

TES-23: Caltrans will attempt to schedule work for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain

California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and technical assistance between Caltrans and the U.S. Fish and Wildlife Service during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of year.

TES-24: To control sedimentation during and after project completion, Caltrans will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act received for the project. If best management practices are ineffective, Caltrans will attempt to remedy the situation immediately, in coordination with U.S. Fish and Wildlife Service.

TES-25: Unless approved by U.S. Fish and Wildlife Service, water will not be impounded in a manner that may attract California red-legged frogs.

TES-26: A U.S. Fish and Wildlife Service-approved biologist will permanently remove any individuals of exotic species, such as bullfrogs (*Rana catesbeiana*), signal and red swamp crayfish (*Pacifasticus leniusculus; Procambarus clarkii*), and centrarchid fishes from the project area, to the maximum extent possible. The U.S. Fish and Wildlife Service-approved biologist will be responsible for ensuring his or her activities comply with the California Fish and Game Code.

TES-27: 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.

TES-28: To ensure that diseases are not conveyed between work sites by the U.S. Fish and Wildlife Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Task Force will always be followed.

TES-29: Project sites will be revegetated with an assemblage of native riparian and upland vegetation suitable for the area. Locally collected plant materials will be used as much as practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible or practical.

TES-30: Caltrans will 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 will not use herbicides during the breeding season for the California red-legged frog.
b. Caltrans will conduct surveys for the California red-legged frog immediately prior to the start of herbicide use. If found, California red-legged frogs will 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 will 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 will 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 will be taken to ensure that no herbicide is applied to native vegetation.
f. Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water).
g. Foliar applications of herbicide will not occur when wind speeds exceed 3 miles per hour.
h. No herbicides will be applied within 24 hours of forecasted rain.
i. Application of all herbicides will be done by qualified Caltrans staff or contractors to ensure that overspray is minimized, that all applications are made in accordance with the label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will 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 will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat, unless otherwise preapproved by the necessary agencies. Prior to the onset of work, Caltrans will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

Foothill Yellow-Legged Frog

The avoidance and minimization measures included for red-legged frog (TES-16 through TES-33) will also be implemented for foothill yellow-legged frogs.

Because the foothill yellow-legged frog is a California state candidate threatened species, the following measures will also be implemented:

TES-31: Prior to initiation of a water management strategy in Cañada del Refugio Creek, Caltrans will conduct an informal worker environmental training program including a description of foothill yellow-legged frog, their legal and protected status, proximity to the project site, and avoidance and minimization measures to be implemented during the project.

TES-32: In the unlikely event that foothill yellow-legged frogs are observed during preconstruction surveys or construction monitoring, all in-stream project activities will stop immediately, and Caltrans will contact California Department of Fish and Wildlife within 48 hours to determine if a Section 2081 Incidental Take Permit is necessary.

Southwestern Willow Flycatcher and Least Bell's Vireo

Temporary impacts to vegetation would be offset by replacement plantings within the project limits (measure WET-1), as well as additional riparian plantings as part of the fish passage enhancement work (measure TES-15). This would be more than enough to replace any potential nesting habitat. Avoidance and minimization measures for nesting birds (AS-5 through AS-8) would also minimize impacts to listed bird species. The following avoidance and minimization measure would be implemented for both alternatives:

TES-33: If least Bell's vireos and/or southwestern willow flycatchers are observed within 100 feet of the biological study area during construction, a qualified biologist will implement an exclusion zone and work will be avoided within the exclusion zone until the least Bell's vireo and/or southwestern willow flycatcher is located greater than 100 feet from project-related disturbance. If an active least Bell's vireo and/or southwestern willow flycatcher nest is observed within 100 feet of the biological study area, all project activities will stop immediately, and Caltrans will contact U.S. Fish and Wildlife Service and California Department of Fish and Wildlife within 48 hours. If required, Caltrans will then initiate the Federal Endangered Species Act Section 7 formal consultation with U.S. Fish and Wildlife Service and California Endangered Species Act coordination for the least Bell's vireo and/or southwestern willow flycatcher and implement additional measures as necessary.

Critical Habitat

Section 2.3 contains various measures to protect jurisdictional waters (WET-1 through WET-3), steelhead (TES-6 though TES-15), California red-legged frog (TES-16 though TES-33), and other species. Many of these measures are designed to minimize impacts to steelhead trout and California red-legged frog critical habitat as well. Temporary impacts to Cañada del Refugio Creek would be restored and habitat conditions enhanced with fish passage remediation and additional riparian plantings at the ordinary high-water mark

where cement currently impedes growth. Temporary impacts to in-stream vegetation and riparian vegetation would be mitigated through implementation of the Mitigation Management Plan.

2.3.6 Invasive Species

Regulatory Setting

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

Affected Environment

A Natural Environment Study prepared in December 2019 was the main source used in preparation of this section. A total of 35 invasive plant species as identified by the California Invasive Plant Council's online California Invasive Plant Inventory Database (2018) were observed within the biological study area. Five exotic plant species with a "High" invasiveness rating were observed in the biological study area: giant reed (*Arundo donax*), red brome (*Bromus madritensis* ssp. *rubens*), iceplant (*Carpobrotus edulis*), pampas grass (*Cortaderia jubata*), and sweet fennel (*Foeniculum vulgare*). The remaining invasive plant species were listed with an invasiveness rating of moderate (14 species) or limited (16 species).

None of the invasive species were observed to be highly established within the biological study area. The distribution of invasive plant species is mainly sparsely scattered throughout the biological study area and most common in ruderal and disturbed areas.

Environmental Consequences

Ground disturbance and other activities related to construction could potentially spread existing invasive species within the biological study area or introduce new invasive species to the biological study area.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures are recommended for both alternatives:

IS-1: Only clean fill will be imported. When practicable, invasive exotic plants in the project site will be removed and properly disposed. All vegetation removed from the construction site will be taken to a landfill to prevent the spread of invasive species. If soil from weedy areas must be moved off-site, the top six inches containing the seed layer in areas with weedy species will be disposed of at a landfill.

IS-2: Invasive species listed in the California Invasive Plant Council's online California Invasive Plant Inventory Database will not be included in the Caltrans erosion control seed mix or landscaping planting plans.

IS-3: The contract specifications for permanent erosion control will require the use of regionally appropriate California native forb and grass species that occur in the same general geographic area as the project site.

IS-4: Mulches used on the project will be from source materials that will not introduce exotic species.

2.4 Cumulative Impacts

2.4.1 Background and Methods

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the 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 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.

Regulatory Setting

The California Environmental Quality Act (known as 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 (known as NEPA) can be found in 40 Code of Federal Regulations Section 1508.7.

Resources Considered in the Cumulative Impact Analysis

This cumulative impact analysis includes an analysis of resources that may be undergoing a change due to cumulative impacts of development or are in poor health near the project. For each identified resource, a brief description of the resource, resource study area, and the historic and current health of the resource are provided. For the Refugio Road Undercrossing Bridges Replacement Project, the resources considered include Cultural Resources and Biological Resources. Specific biological resources addressed in this analysis include jurisdictional areas, the tidewater goby, the California red-legged frog and its critical habitat, and the southern California steelhead trout and its critical habitat.

Additional biological resources considered for inclusion in the cumulative impact analysis were other federal or state endangered plant species, animal species, and critical habitat areas that were discussed in Section 2.4.4, and all California Department of Fish and Wildlife Species of Special Concern that have the potential to occur within the biological study area. These resources were ultimately not included in the cumulative analysis because the species are considered stable on the rural Gaviota Coast and would not be adversely affected by the project.

Definition of Resource Study Area

Caltrans guidance for cumulative impacts sections under CEQA and NEPA indicates that a resource study area should be defined for each resource. A resource study area is the geographic area within which impacts on a resource are analyzed. The boundaries of a resource study area are often broader than the boundaries used for project-specific analysis, such as a biological study area. The resource study area for each resource is described below.

Projects analyzed for cumulative impacts

Information on current and probable future projects were obtained from the Caltrans project database, the County of Santa Barbara Planning and Development Cumulative Impacts list, and the California Department of Parks and Recreation.

Within the varying Resource Study Areas, the following current, recent, and reasonably foreseeable projects have been identified:

Caltrans Projects

- Goleta to Gaviota Roadside Safety Improvements Project (construction completed, all environmental commitments were met)—A project aimed at improving the safety for Caltrans maintenance workers by reducing their

exposure to traffic. The project involved roadside modifications at various locations between post mile 17.2 and post mile 45.0 on U.S. 101. Modifications included grading for the addition of maintenance vehicle pullouts, adding paving beyond the gore areas, adding weed abatement material under existing metal beam guardrails, eliminating curb and dike, and resetting and relocating roadside signs.

- Gaviota Curve Realignment (construction completed, post-construction monitoring for plant establishment still in progress)—This was a safety improvement project to widen and realign northbound U.S. 101 at the Gaviota curve, between post mile 45.6 and post mile 46.4. The project realigned the existing compound curve with a single radius curve and widened the existing shoulders, modified the median barrier, and modified the culverts and vertical profile, among other project features.
- Gaviota Rest Area Water Systems Upgrade (environmental document completed; project is out for bid)—The project will rehabilitate existing facilities at the northbound and southbound Gaviota Safety Roadside Rest Area.
- Gaviota Culvert Replacement (environmental document was finalized in 2018)—The project will replace an existing, deteriorating culvert at post mile 45.5 on U.S. 101 near Gaviota State Park.
- Gaviota-Nojoqui Rehabilitation Project (environmental document currently in preparation)—The project would rehabilitate the roadway on U.S. 101 between post mile 46.2 and post mile 52.3 (north of Gaviota State Beach and south of Buellton). Rehabilitation would include reconstructing the roadbed, widening shoulders (where possible) to achieve standard shoulder widths, reconstructing metal beam guardrails, and other related features.
- Replace Culvert near Arroyo Quemado (in the planning phase; environmental analysis not yet initiated)—The project would replace the existing deteriorating corrugated metal pipe culvert at post mile 40.0 of U.S. 101 with a new plastic or reinforced concrete pipe.
- South Coast 101 Drainage Project (in the planning phase; environmental analysis not yet initiated)—The project would complete drainage improvements at 61 locations between post mile 0 and post mile 52.2 along U.S. 101 in Santa Barbara County. Other project components include upgrading transportation messaging systems and installing census loops in the pavement.

California Department of Parks and Recreation Projects

- El Capitán State Beach: Various projects—The California Department of Parks and Recreation is proposing six different projects within El Capitán Sate Beach that will be discussed together in this cumulative impact analysis. The projects include replacement of an existing water treatment plan, construction of a new lifeguard operations facility, improvements to a

trail near the park entrance, and replacement of a sewer lift station (Station Number 8). Additional projects include repairs of the Bill Wallace Trail and the El Capitán Creek Embankment following severe storm damage.

- Gaviota State Park: Repairs to Gaviota Pier (received coastal development permit—The California Department of Parks and Recreation would repair and protect the pier at the state beach. Project elements include installing 1,700 tons of rock riprap slope protection, a 90-foot seaward extension, about 51 new vertical pilings, 15 new batter piles, and the removal and replacement of timber decking, guardrails, structural supports and cross bracing.
- Gaviota State Park: Main Water Supply Upgrades (in the early planning phase)—The California Department of Parks and Recreation is seeking a solution to upgrade its existing water system which experiences breaks on a regular basis that leaves the southern half of the park with limited water and fire suppression ability. The project is currently in the preliminary planning phase. The California Department of Parks and Recreation is seeking a work order for geotechnical engineering services.

Oil and Gas Projects

- ExxonMobil Interim Trucking Project (Draft Supplemental Environmental Impact Report circulated April 2019)—ExxonMobil, LLC proposes the interim trucking of crude oil from the Las Flores Canyon Facility to the east of Refugio State Beach to receiver sites in Santa Maria and Maricopa. Trucks would use the Refugio Road and U.S. 101 interchange to enter and exit the Las Flores Pump Station. Minor modifications to the Las Flores Canyon Facility are proposed to aid in the loading of crude oil onto the trucks, including lease transfer units and associated facilities, truck loading racks, operator shelter, paving of selected areas, and minor containment and drainage grading.
- Plains Replacement Pipeline Project (draft environmental document in preparation)—Plains Pipeline, LLC proposes to replace the existing, inactive, 123.4-mile pipeline system known as Lines 901 and 903 that previously transported crude oil from the Plains Las Flores Pump Station (within ExxonMobil's Las Flores Canyon Facility east of Refugio State Beach) to the Pentland Delivery Point in Kern County. Along the Gaviota Coast, the existing 24-inch to 30-inch diameter pipelines would be abandoned in place or removed and replaced with 12-inch to 16-inch diameter pipelines.

Residential Development Projects

- Santa Barbara Ranch (approved by Santa Barbara County)—A new residential development including 54 single family dwellings, equestrian barn and facilities, and public recreation amenities including an access

road, parking lot, restroom, multi-use trails, educational kiosk, and coastal viewing and access stairway.

- Paradiso del Mare Ocean and Inland Estates (in process)—Proposed construction of two new single-family dwellings: an inland estate to the north of the Union Pacific Railroad Tracks, and an ocean estate to the south of the tracks. The project also includes construction of a trail on the coastal side of the tracks that would provide beach access and a trailhead with 18 parking spaces. A 117-acre Open Space Conservation Easement is also part of the project.
- El Rancho de Tajiguas (future project)—The division of 23 parcels into eight lots. Six of the lots will be for single family residences and agricultural lands, one will be for agricultural production and related features (e.g., tractor sheds, ranch office, employee housing, etc.), and a lot in the northern part of the ranch will be set aside as a conservation easement for long-term habitat restoration. The agricultural and residential lots will be part of a long-term agricultural conservation easement. A related project involves upgrading the existing septic system to a modern wastewater treatment system.

Conservation Projects

- Establishment of the Jack and Laura Dangermond Preserve—A new 24,000 acre preserve with 8 miles of coastline was established in December 2017 and donated to the Nature Conservancy for protection in perpetuity.
- Donation of Las Varas Ranch to the University of California at Santa Barbara—An 1,800-acre working cattle ranch with 2 miles of coastline was gifted to the University of California at Santa Barbara in January 2019. The University plans to maintain its current operation as a cattle ranch for the foreseeable future.

2.4.2 Cultural Resources (Archaeological Resources)

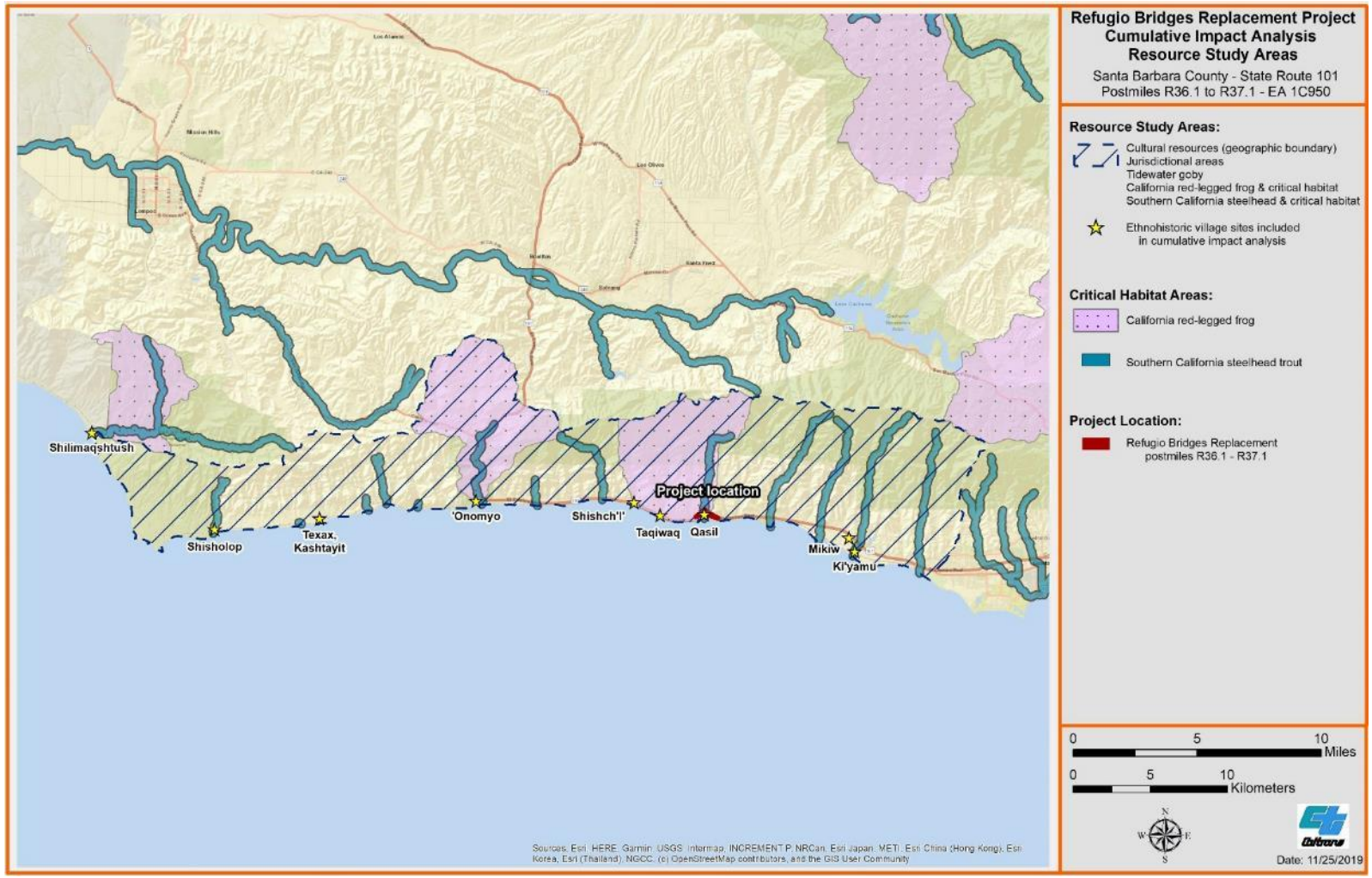
Resource Study Area

The resource study area used for analyzing cumulative impacts to cultural resources (archaeological resources) is defined based not only on geography, but also by time and shared history. The resource study area therefore includes all pre-contact and protohistoric Chumash ethnographic and ethnohistoric villages of the northern Santa Barbara Channel Region (i.e., the rural Gaviota Coast) where a complex social, economic, and political system developed. As described in greater detail in Section 2.1.6, the pre-contact period refers to the time prior to the arrival of European explorers and ended in 1542 with the arrival of Spanish explorer Juan Rodríguez Cabrillo. The protohistoric period refers to the time where contact with Europeans was limited and extends from Cabrillo's arrival in 1542 to the arrival of the Portolá overland expedition in 1769 and the beginning of the Spanish Mission period.

The establishment of Spanish missionaries, as well as the introduction of old-world diseases such as smallpox and influenza, greatly impacted the Chumash population and affecting their traditional way of life.

Prior to European contact, the Chumash people were adept hunters-gatherers-fishers (see Section 2.1.6) that lived in villages on the coast as well as in inland areas. Along the Santa Barbara Channel, the Refugio Bay area was in the geographic center of a series of at least a dozen named ethnohistoric villages between Dos Pueblos in the east near Goleta and Point Conception in the west. Each of these villages was nestled within sheltered canyons where streams and rivers brought freshwater down to the Pacific Ocean, and natural resources were abundant. Groups of villages are documented as banning together during times of conflict or environmental stress, with “headquarter” villages overseeing smaller satellite communities. European explorers documented several major village groups in the region that were located near Dos Pueblos Canyon (villages of *Mikiw* and *Ki’yamu*), Refugio State Beach (village of *Qasil*), Tajiguas (village of *Taqiwaq*), La Quemada Canyon (probable village of *Shishuch’i’*), Gaviota State Beach (village of ‘*Onomyo*), Hollister Ranch (*Shisholop* and *Texax/Kashtayit*), and Jalama State Beach (*Shilimaqshtush*). As documented in the Historic Property Survey Report prepared for the project, all these village groups have shared history and therefore will be emphasized in the cumulative impact assessment. The geographic extent of the resource study area for archaeological resources and the generalized locations of discussed ethnohistoric village sites are shown in Figure 2-7.

Figure 2-7 Cumulative Impact Analysis Resource Study Areas



Current Health and Historical Context

Health, as it relates to cultural resources, is better expressed in terms of whether a resource retains its integrity: how much of the resources remain and how well the resource can convey its significance. Cultural resources in the resource study area are currently in moderate to poor health due to degradation by both natural processes and human activities. Because archaeological resources are generally found near the ground surface or buried in surficial soils a variety of natural processes can affect them including wildfires, earthquakes, erosion, and weathering.

Human activities often have the greatest impact on archaeological resources because such activities involve physical modification of the landscape, including grading and other earthmoving operations. Human activities can also worsen the effects of natural processes. For example, road construction can destabilize slopes and increase erosion of archaeological sites, and agricultural practices may speed up erosion or change the chemistry of soils preserving archaeological resources. Types of human activities in the resource study area that have affected archaeological resources include

- Settlement, urbanization, and continuing population growth
- Development of state parks and associated recreational facilities
- Ranching and agriculture
- Installation of oil and gas facilities
- Development of the Southern Pacific Railroad, U.S. 101, and other infrastructure

Virtually every known archaeological resource in the resource study area has been affected to some extent by natural processes and past human activities. In some cases, effects have damaged or destroyed the most important qualities of the resource. Because many of the ethnohistoric village sites are sited near coastal bays or estuaries that are attractive locations for modern settlement, they have been affected by human development. Most, if not all, village sites have likely been disturbed by ranching and farming activities and the construction of U.S. 101 and the railroad. The villages near Refugio, Gaviota, and Jalama have been disturbed by the development of state parks and associated infrastructure, and the villages near Arroyo Quemada, Tajiguas, and Hollister Ranch may have been disturbed by the establishment of single-family residences and ranching activities. Therefore, archaeological resources are in poor to moderate health within the resource study area.

Archaeological resources are non-renewable resources, so once a site, feature, or individual artifact is destroyed it can never be replaced. Thus, the poor to moderate health of archaeological resources on the Gaviota Coast will never fully recover. However, the health or integrity of archaeological resources is no longer in severe decline because new developments are required to offset impacts to these resources through mitigation that involves

research, recordation, and interpretation. As described in Section 2.1.6, the environmental movement of the 1960s and 1970s saw the passage of federal and state legislation that provided the regulatory protection of archaeological resources and led to the establishment of the field of cultural resources management. On a local level, the County of Santa Barbara's Comprehensive Plan (including the Coastal Land Use Plan) and the recently certified Gaviota Coast Plan contain policies that aim to protect and preserve archaeological resources. These plans also strive to limit development on the rural Gaviota Coast, which will further preserve archaeological resources.

While the effects of past development on archaeological resources in the resource study area cannot be undone, current and future development will be completed in compliance with laws and regulations created to protect archaeological resources. When projects cannot avoid archaeological resources, appropriate mitigation strategies, developed in accordance with the State Historic Preservation Officer and local tribes, will be implemented.

Environmental Consequences

The proposed Refugio Bridges Replacement project would contribute to the cumulative impact to archaeological resources in the resource study area because it would adversely affect the ethnographic and ethnohistoric village of *Qasil* in a manner that is significant under CEQA. This site has already been extensively disturbed by human activities, most notably during construction of the existing Refugio Road Bridges, such that only a small fraction of the original site remains intact. The ground disturbance proposed for the Refugio Road Undercrossing Bridges Replacement Project would destroy a portion of these intact archaeological deposits. Impacts to *Qasil* are cumulatively significant because of the small number of ethnographic and ethnohistoric village sites along the Gaviota Coast, the scientific and cultural importance of such sites, and the nonrenewable nature of archaeological resources.

In addition to the proposed project, the Paradiso del Mare Ocean and Inland Estates project would both result in an adverse effect to archaeological resources that are considered significant under CEQA. This project would adversely affect an archaeological site associated with the ethnohistoric villages at Dos Pueblos Canyon (*Mikiw* and *Ki'yamu*). The project would construct a cap of engineered fill over the site to protect it from development, making the site inaccessible for future study.

Though the potential impacts to archaeological resources have not yet been determined for the six projects still in environmental review, it is notable that these projects are located near three ethnohistoric villages in the resource study area: *Onomyo, Shishuch'i',* and *Taqiwaq*. The Gaviota State Park Water Main Supply Upgrades is near the village of *Onomyo,* the Caltrans Arroyo Quemado culvert replacement is located near the probable village of *Shishuch'i'*, and the El Rancho de Tajiguas Project is near the village of

Taqiwaq. The alignments for the linear Plains Pipeline Project, Caltrans Gaviota-Nojoqui Rehab project, and Caltrans South Coast 101 Drainage project span near each of these three villages. Therefore, there is a potential that five of the eight ethnohistoric village clusters identified in the resource study area could be adversely affected by development in the near future.

Taken together, the cumulative effects of current and future development are significant for archaeological resources in the resource study area because two of eight ethnohistoric villages would be adversely affected, and three of the other villages are at risk. The cumulative effects of these projects are significant because collectively the new projects along the Santa Barbara Channel would increase the human occupation and use of the area, which increases the potential for vandalism, casual collecting, and inadvertent disturbances of archaeological resources.

However, it should be noted that not all effects of current and future projects in the resource study area are adverse. Minimization and mitigation strategies identified for the projects were developed in coordination with the State Historic Preservation Officer and appropriate tribal members, and include elements of conservation, education, and research and analysis. Examples of conservation include the designation of portions of the Paradiso del Mare project as open space where known archaeological sites are present, the donation of Las Varas Ranch to the University of California at Santa Barbara, and the creation of the Jack and Laura Dangermond Reserve near Point Conception. All these examples of conservation will reduce the potential for future development to disturb both known and undiscovered archaeological resources. An example of a beneficial education element is the proposed mitigation strategy for Santa Barbara Ranch, which is designed to offset the potential impacts of human use and occupancy by providing educational materials to new homeowners.

Finally, several projects include research and analysis as part of the mitigation strategies to offset the harm caused by current and previous development. The proposed mitigation strategy for the Refugio Road Undercrossing Bridges Replacement Project includes analyzing and curating the unfinished collection excavated in 1969 by G. James West prior to the construction of the original bridges (Mitigation Measures CUL-3 and CUL-4, see below and Section 2.1.6). For the Paradiso del Mare developments, the mitigation strategy includes preparation of an ethnohistory and descendant genealogy study for the sites near Dos Pueblos Canyon. While this work would not fully mitigate for the effects of past and future site destruction, it would ensure that the important artifacts and information collected from the ethnohistoric villages of the northern Santa Barbara Channel would be preserved in perpetuity and be available for study by current and future generations.

Avoidance, Minimization, and Mitigation Measures

Mitigation measures CUL-1, CUL-2, CUL-3, and CUL-4 developed for project-level impacts to cultural resources (see Section 2.1.6) would also address cumulative impacts to cultural resources, particularly measures CUL-3 and CUL-4. These mitigation measures are intended to reduce effects to archaeological resources at site CA-SBA-87 through data recovery, analysis, and public outreach. These efforts would benefit archaeological resources in the resource study area because they would contribute data important to prehistoric research in the resource study area, historic events in the resource study area, and the development of modern archaeological methods.

Relevant measures that could be implemented for current and future projects that may affect cultural resources have been identified based on implementing actions from the Gaviota Coast Plan, and from mitigation strategies recommended in projects included in this cumulative impact analysis. Measures for future projects could include elements of the following:

CML-1: Public education and outreach developed in consultation with the State Historic Resources Preservation Officer, local Native American tribes, and any other interested parties. Outreach and education would communicate information about local Chumash tribes, Native American culture, and the abundance of archaeological resources on the Gaviota Coast. Strategies could include development of physical or digital displays or interpretive materials at state parks, publication of educational books, collaboration with local museums or universities, and expansion of the digital museum that would be created for the Refugio Road Undercrossing Bridges Replacement Project.

CML-2: Supporting academic research on Chumash ethnographic and ethnohistoric villages. Support could occur in the form of a research grant for undergraduate or graduate students or grants for students to travel and present their research at an academic conference.

CML-3: Designation of open space in areas with known archaeological resources. When avoidance of a site is not feasible, protection of the site through capping by artificial fill, like the strategy employed at the Paradiso del Mare Ocean and Inland estates project.

Gaviota Coast Plan Implementing Action CS-1: Landmarking Buildings, Structures and Places. The County and the community should continue to work with willing landowners to identify buildings, structures, and places, including Rural Historic Landscapes, Traditional Cultural Properties, and Tribal Cultural Resources that qualify for listing as a County Landmark or Place of Historical Merit and forward these nominations to the County Historic Landmarks Advisory Commission.

Gaviota Coast Plan Implementing Action CS-3: Community Cultural Center. The County and Gaviota Coast residents will investigate, consider and pursue options to develop a community cultural center and/or other community cultural research and education opportunities including Native American culture.

Gaviota Coast Plan Implementing Action CS-1: Tribal Access. The County, Native American representatives and willing landowners should work together to ensure appropriate tribal access to Traditional Cultural Properties and Tribal Cultural Resources, while still respecting the rights and privileges of property owners.

2.4.3 Jurisdictional Areas

Jurisdictional areas include areas where wet soils, water, and water-loving vegetation are present. Riparian habitat is included in jurisdictional areas and is typically characterized by varying types of vegetation that occur near jurisdictional waters and wetlands.

Jurisdictional areas are included in the cumulative impact analysis due to the sensitive nature of the resource and its generally poor health.

Resource Study Area

The resource study area used for analyzing cumulative impacts to jurisdictional areas is defined as the rural Gaviota Coast, which includes coastal watersheds stretching from Point Conception in the west to Goleta in the east (includes the Conception, Gaviota, Capitán, and Naples super-planning watersheds). The resource study area encompasses about 150 square miles. This resource study area was chosen based on geography, drainage patterns, and intensity of human development. The resource study area therefore follows the boundaries of watersheds representing south-flowing creeks along the mostly undeveloped portions of the Gaviota Coast.

Current Health and Historical Context

Historically, jurisdictional areas in California have been in decline. Within the resource study area and the larger Gaviota Coast region, historical land uses that have affected jurisdictional areas include cattle ranching, agriculture, and residential development. Since the late 1800s, additional changes to the area have included the construction and operation of the Southern Pacific railroad, U.S. 101, and the state park campgrounds, as well as the expansion of oil development. All these developments have had an impact on the local ecology and the health of riparian habitats along creeks within the resource study area. The expansion of these developments has mostly slowed or stabilized in recent years. Dependence on ground water, since the first wells were drilled along the Gaviota Coast, has likely affected the frequency and quantity of surface water conditions in Cañada del Refugio Creek and other

creeks within the resource study area. The continuing effects of present land uses such as agriculture continues to draw water from the local aquifer to supply these activities.

Recent passage of the Gaviota Coast Plan in November 2018 is expected to aid in the protection and recovery of wetlands. The plan identified the loss of wetlands as a major issue and accordingly developed policies that promote the protection and restoration of wetlands and riparian habitat.

Environmental Consequences

For the proposed project, expected impacts to jurisdictional areas would occur during work associated with improving fish passage in Cañada del Refugio Creek. The impacts on jurisdictional waters and/or riparian habitat would be relatively small in scale. The removal of invasive giant reeds and subsequent replanting of native arroyo willow trees and other native plants would be beneficial to the ecology of the project area. The temporary loss of riparian areas along the creekbanks would be replaced with willow wattles and other native vegetation. The project would incorporate appropriate measures to reduce temporary and permanent impacts to riparian areas.

According to planning and environmental documents, the following projects evaluated within the resource study area could have impacts to jurisdictional areas within the resource study area.

- The Santa Barbara Ranch Project is expected to have impacts to jurisdictional areas consisting of 0.1 acre of permanent impacts incurred from the widening of Ranch Road and bridge work, and 0.2 acre of temporary impacts. The project will implement compensatory mitigation and replanting of native plants to mitigate for disturbances.

- The Paradiso del Mare Ocean and Inland Estate Project is expected to impact jurisdictional areas. The project will implement compensatory mitigation and replanting of native plants to mitigate for disturbances during construction. A 117-acre Open Space Conservation Easement is part of the project, which will protect biological resources.

- The Plains Replacement Pipeline Project is expected to impact jurisdictional areas. The draft environmental document is in preparation. The pipeline is expected to cross 27 jurisdictional areas along the Gaviota Coast. Of these 27 areas, roughly 15 may be able to avoid impacts by utilizing a horizontal directional drilling process that would avoid the jurisdictional areas. However, roughly 12 of these crossings would likely result in impacts to jurisdictional areas. It is expected that the project would implement compensatory mitigation and replant of native plants to mitigate for disturbances.

- The El Rancho de Tajiguas Project is currently in the planning phase with the expectation the environmental document will be circulated next year. It is unknown if there will be impacts to jurisdictional areas, but it is assumed that impacts will be addressed with compensatory mitigation and replanting of native plants to offset disturbances.

- At least two of the El Capitán State Beach Projects may affect jurisdictional areas in and surrounding El Capitán Creek. It is expected the project will implement compensatory mitigation and replanting of native plants to mitigate for disturbances.

- The Gaviota State Park: Main Water Supply Upgrades Project is currently in the planning phase and does not yet have an environmental document available for review. It is unknown if there will be impacts to jurisdictional areas. In the event of impacts, the project will implement compensatory mitigation and replanting of native plants to mitigate for disturbances.

- The Gaviota Culvert Replacement Project is expected to impact wetlands and U.S. Army Corps of Engineers Other Waters. This is expected to include 0.25 acre of temporary impacts and 0.04 acre of permanent impacts. Jurisdictional areas will be replaced at a ratio of 1:1 for temporary impacts and 3:1 ratio for permanent impacts.

- The Culvert Replacement near Arroyo Quemado Project may include impacts to jurisdictional areas. The project is currently in the planning phase and will implement compensatory mitigation and replanting of native plants if impacts to jurisdictional areas occur.

- The Gaviota-Nojoqui Rehab Project is expected to impact jurisdictional areas. The environmental document is currently being prepared and will implement compensatory mitigation and replanting of native plants if impacts to jurisdictional areas occur. Jurisdictional areas will be replaced at a ratio of 1:1 for temporary impacts and 3:1 ratio for permanent impacts.

- The South Coast 101 Drainage Project is in the early planning stages but is expected to impact jurisdictional areas. Jurisdictional areas will be replaced at a ratio of 1:1 for temporary impacts and 3:1 ratio for permanent impacts.

Based on the analysis of cumulative impacts to wetlands and other waters in the resource study area, this analysis has found that these resources are not currently experiencing a cumulative effect from current and future projects. The large development projects are generally avoiding jurisdictional areas, and all projects with permanent impacts are appropriately mitigating impacts by restoration at a 3:1 ratio. Additionally, the designation of open space as part of the Santa Barbara Ranch project will protect jurisdictional areas. Similarly, the Refugio Road Undercrossing Bridges Replacement Project is

not contributing to a significant adverse cumulative impact to wetlands and other waters and will instead result in a net benefit by removal of invasive plant species within the riparian areas and eliminating human-made structures from the creek channel.

Avoidance, Minimization, and Mitigation Measures

See Section 2.3.2 for project-specific measures for jurisdictional areas that are designed to mitigate and minimize the project's overall impact to other waters within the project limits.

The Gaviota Coast Plan includes implementing actions that would reduce effects to natural resources, including jurisdictional areas. Avoidance, minimization, and/or mitigation measures for future projects that may affect jurisdictional areas could include elements of the following:

Gaviota Coast Plan Implementing Action NS-1: Watershed Management Plan. Develop a watershed management plan that describes the major watersheds of the Gaviota Coast, identifies special species and habitats, identifies major issues in each watershed, and provides goals, policies, and priority actions to guide community organizations, resource managers, policy makers, and county staff to protect the natural functions of the watersheds. The plan should include the following objectives: 1.) Create a voluntary program that allows land owners and/or managers to create individual watershed management plans, restore impacted watersheds, or create watershed monitoring programs for their property. 2.) The county will consider developing a mandatory program requiring the preparation of a watershed management plan for specific types of discretionary development, such as subdivisions. The mandatory watershed management plan may require such options as creating individual watershed management plans, restoration of impacted watersheds, or watershed monitoring programs and would be implemented by planning tools, including development agreements.

2.4.4 Threatened and Endangered Species and Critical Habitat

Tidewater gobies, California red-legged frogs, and southern California steelhead trout are included in this cumulative impact analysis. These species are included because they are all federal and state endangered species and the project has the potential to adversely affect them. Also included in the analysis are federally designated habitat areas for both California red-legged frogs and southern California steelhead trout.

Resource Study Area

The resource study area used for the tidewater goby, California red-legged frog and critical habitat, and southern California steelhead trout and critical habitat in the cumulative impact analysis is defined as the rural Gaviota Coast. The resource study area includes coastal watersheds stretching from

Point Conception in the west to Goleta in the east (includes the Conception, Gaviota, Capitán, and Naples super-planning watersheds), encompassing about 150 square miles. This resource study area was chosen based on geography, drainage patterns, location of critical habitat areas, and intensity of human development. The resource study area therefore follows the boundaries of watersheds representing south-flowing creeks along the mostly undeveloped portions of the Gaviota Coast.

Federally designated critical habitat areas for California red-legged frogs and southern California steelhead trout occur within the resource study area, but no critical habitat for the tidewater goby has been designated in this region.

Current Health and Historical Context

Tidewater Goby

Historically, tidewater gobies could be found in at least 134 California coastal brackish water habitats from San Diego County to Del Norte County. Currently, the species has been eliminated from 23 of these sites and 55 to 70 of the remaining sites are either too small or degraded that long-term persistence is uncertain. The decline of the tidewater goby is primarily due to loss of their estuarine habitat, which can largely be attributed to human activities. Human activities include agricultural run-off, municipal run-off, habitat degradation due to water diversions or groundwater pumping, recreational activity in or near the lagoon, stream channelization, and reduction or modification of habitat.

The U.S. Department of Fish and Wildlife published a recovery plan for tidewater goby, and the resource study area occurs within the Conception Recovery Unit, Sub-Unit CO3. The CO3 subunit contains 28 small habitat areas for tidewater gobies, with at least three areas where the gobies have been eliminated due to human activities. The resource study area contains 16 of the 28 locations, including a recolonized population of gobies that live in the Refugio Lagoon in Refugio State Beach.

The tidewater goby population in the resource study area is presently considered stable due to implementation of the recovery plan, and the protection of habitat areas, such as Refugio Lagoon.

California Red-Legged Frog and Red-Legged Frog Critical Habitat

California red-legged frogs historically ranged from Marin County southward to northern Baja California, but now have a more restricted range. The largest remaining known population of red-legged frogs are in Monterey, San Luis Obispo, and Santa Barbara counties. Wetland conversion to agriculture, riparian habitat degradation, urbanization, predation by bullfrogs, the chytrid fungus, and historic market harvesting have all reportedly contributed to their decline in the early to mid-1900s.

The U.S. Department of Fish and Wildlife published a recovery plan that identified critical habitat units for the California red-legged frog. The resource study area occurs within Recovery Unit 7–Northern Transverse Ranges and Tehachapi Mountains. The resource study area also occurs within a recognized core area of Recovery Unit 7, Core Area 24 Santa Maria River–Santa Ynez River. Core areas are locations where there are focused recovery efforts. Core Area 24 was identified because it contains a source population and provides connectivity between other known populations.

The California red-legged frog population on the Gaviota Coast is considered stable, largely in part due to the restoration efforts within Core Area 24 and the larger Recovery Unit 7 area. However, the threats to California red-legged frogs listed above are still present.

Southern California Steelhead Trout and Steelhead Trout Critical Habitat

Population levels and available spawning habitat for southern California steelhead trout began declining in the early 20th century, dwindling from a historic population of 32,000 to 46,000 returning adults to less than 500 returning adults in 2012. Large historical impacts include the building of dams and diversion of water for agriculture and urban development. Other impacts include a general degradation of habitat due to erosion, pollution, and mining, and the construction of numerous anthropomorphic barriers to fish migration at road crossings. Given the presence of human occupation of the Gaviota Coast dating back at least 12,000 years, it is expected that fishing pressures may have also played a role in steelhead trout decline.

The resource study area contains 10 creeks that were designated as critical habitat in 2005, including Cañada del Refugio Creek within the project limits. The trend for current health of the steelhead trout population along the Gaviota coast is stable because there has been no appreciable change since the latest status review completed in 2011.

The passage of California Fish and Game Code Sections 15901 and 15931 making it unlawful to impede fish passage, and Article 3.5 of the California Streets and Highways Code Section 156 that requires Caltrans to remediate fish passage barriers may aid in the future recovery of steelhead trout.

Environmental Consequences

Tidewater Goby

The proposed project would require diverting a portion of Refugio Creek, which would temporarily alter aquatic habitat quality and restrict access for tidewater gobies (see Section 2.3.5). The extent and effect of the stream diversion would be minor since current conditions in the creek during the dry season already create a barrier to tidewater gobies. However, if tidewater gobies are present within the project limits, diverting the stream could result in

direct impacts to the species in the form of injury or mortality as tidewater gobies are captured, handled, and relocated.

According to planning and environmental documents, the following projects evaluated within the resource study area could have impacts to tidewater gobies within the resource study area.

- The Paradiso del Mare Ocean and Inland Estate Project may have impacts to tidewater gobies due to the potential presence of tidewater goby habitat along the southern margin of the project limits. It is expected that the project will implement avoidance and minimization measures if the potential exists for impacts on tidewater gobies.

- The Plains Replacement Pipeline Project may impact tidewater gobies. The draft environmental document is currently in preparation. There is a low probability that tidewater gobies will occur within the project area, but it is expected that the project will implement additional avoidance and minimization measures to avoid impacts to tidewater goby.

- The El Rancho de Tajiguas Project is currently in the planning phase with the expectation the environmental document will be circulated next year. The project is not in tidewater goby critical habitat and it is unlikely that suitable habitat is present in the project limits. It is currently unknown whether there are expected impacts to tidewater gobies, but if impacts to tidewater gobies are expected, it is assumed avoidance, minimization, and mitigation measures will be implemented.

- The Gaviota State Park: Main Water Supply Upgrades Project is currently in the planning phase and does not yet have an environmental document available for review. Tidewater goby critical habitat occurs within Gaviota State Park, therefore there is potential that the project could affect the species. If effects would occur, the project would implement avoidance, minimization, and mitigation measures to reduce impacts.

- The Culvert Replacement near Arroyo Quemado Project is currently in the early planning phase and it is not currently known if the project will impact tidewater gobies. While there does not appear to be suitable habitat for tidewater gobies in the project limits, potential effects cannot be ruled out. The project would implement avoidance, minimization, and mitigation measures if impacts to tidewater gobies are expected.

Though the tidewater goby has been substantially impacted by human development in the past, this species is not currently experiencing a cumulative effect from the current and future projects identified in this analysis because it is expected that effects from all projects would be avoided, minimized, or mitigated. It is expected that the health of the population in the

resource study area would remain stable, especially considering the species' ability to naturally recolonize the Refugio Lagoon.

The proposed project is not expected to substantially contribute to the ongoing cumulative impacts on tidewater gobies. Impacts to tidewater gobies associated with the proposed project will be relatively small in scale. The proposed fish passage improvements could provide overall permanent benefits to tidewater gobies.

California Red-Legged Frog and Red-Legged Frog Critical Habitat

The proposed project is expected to result in temporary impacts to the California red-legged frog and its associated habitat and could result in the injury or mortality of California red-legged frogs (if present) during construction or diversion of Cañada del Refugio Creek (see Section 2.3.5). A potential need to capture and relocate the frogs could subject these animals to stresses that could result in adverse effects. Injury or mortality could occur via accidental crushing by construction equipment or even worker foot traffic. Erosion and sedimentation could occur, which could directly or indirectly affect water quality. While the placement of a stream diversion system would result in a temporary loss of aquatic habitat for red-legged frogs, the extent and effect of this are estimated to be minor.

According to planning and environmental documents, the following projects evaluated within the resource study area could have impacts to California red-legged frogs or their habitat within the resource study area.

- The Santa Barbara Ranch Project may affect California red-legged frogs. One hundred fifty acres of non-native grasslands will be converted to residential development and may include aquatic and upland dispersal habitat for frogs. Direct impacts to California red-legged frogs are assumed to be avoided by utilizing avoidance measures such as a buffer around suitable habitat, as well as silt fencing around work sites. Compensatory mitigation, replanting of native plants, and designation of open space areas may benefit red-legged frogs.

- The Paradiso del Mare Ocean and Inland Estate Project may impact California red-legged frogs. It is expected that the project will implement avoidance, minimization, and mitigation measures if there are expected impacts to red-legged frogs. A 117-acre Open Space Conservation Easement is part of the project, which may benefit red-legged frogs.

- The Plains Replacement Pipeline Project may impact California red-legged frogs. The draft environmental document is currently in preparation. Most impacts would be to disturbed annual grassland and coastal sage scrub, but roughly 27 locations with potentially suitable aquatic habitat are present along the Gaviota coast. The project will implement avoidance and minimization measures to avoid impacts to

roughly half of these locations. However, it is expected there will be both permanent and temporary impacts to both aquatic and upland habitat.

- The El Rancho de Tajiguas Project is currently in the planning phase with the expectation that the environmental document will be circulated next year. The project is in California red-legged frog critical habitat and it is expected that suitable aquatic and upland habitat for frogs exists within the project limits. While precise impacts to red-legged frogs are unknown, there is potential that the project could affect the species. It is assumed that any impacts to red-legged frogs would be reduced when feasible through implementation of avoidance, minimization, and mitigation measures.

- The El Capitán State Beach Projects may impact California red-legged frogs due to their proximity to known occurrences of red-legged frogs and the presence of marginal habitat. If impacts to the species would occur, avoidance, minimization, and mitigation measures would be implemented.

- The Gaviota Culvert Replacement Project may affect California red-legged frogs due to the presence of suitable upland habitat within the project limits. No suitable aquatic habitat was identified. The closest California red-legged frog critical habitat occurs about 1,000 feet west of the biological study area near Gaviota Creek, therefore, no critical habitat will be impacted. The project will implement suitable avoidance, minimization, and mitigation measures as described in the Caltrans Programmatic Biological Opinion for the species.

- The Gaviota Curve Realignment Project has completed construction and is undergoing post construction monitoring for plant establishment. Impacts to California red-legged frog critical habitat occurred on a scale of 1.56 acres of permanent impacts and 3.86 acres of temporary impacts. Avoidance, minimization, and mitigation measures were successfully implemented to protect the frogs and their associated critical habitat, and no unexpected impacts occurred.

- The Culvert Replacement near Arroyo Quemado Project is currently in the early planning phase. Because culvert replacement projects involve working within streams, it is assumed that the project may impact California red-legged frogs, but the extent of impacts is not yet known. Caltrans has a Programmatic Biological Opinion for California red-legged frogs, therefore appropriate measures would be implemented to reduce any impacts to the species.

- The Gaviota-Nojoqui Rehab Project may impact California red-legged frogs. The environmental document for the project is currently being prepared. Project construction could result in injury or mortality due to proximity to suitable frog habitat. Measures from the Caltrans

Programmatic Biological Opinion for the California red-legged frog would be used to reduce any expected impacts.

- The South Coast 101 Drainage Project is in the early planning stages but is expected to impact California red-legged frogs. Environmental analysis on this project is scheduled to begin in the fall of 2020. Measures from the Caltrans Programmatic Biological Opinion for California red-legged frogs would be used to reduce any expected impacts.

California red-legged frogs are not experiencing a cumulative effect from the current and future projects identified in this analysis because the health of the population in the resource study area is considered stable and project effects are expected to be avoided, minimized, or mitigated. Compensatory mitigation, replacement planting, and designation of open space areas may benefit the species, and it is expected that the existing red-legged frog population in the resource study area will remain stable.

The Refugio Bridges Replacement project is not expected to substantially contribute to cumulative impacts on California red-legged frogs beyond the continuing effects of present land uses that have and are reasonably likely to occur into the future. Rather, it is likely that the proposed project would ultimately have a net beneficial effect for red-legged frogs in Cañada del Refugio Creek due to the fish passage remediation and enhanced habitat conditions.

Southern California Steelhead Trout and Steelhead Trout Critical Habitat

The proposed project would result in temporary impacts on steelhead trout critical habitat, as discussed in Section 2.3.5. Temporary impacts would be the result of the overall project activities associated with the construction of the project. However, the proposed project will have appropriate measures in place to reduce the potential for temporary impacts to steelhead trout and steelhead trout habitat. It is expected that in-stream construction would occur during the dry season to avoid impacting steelhead and restoration of the creek area would help offset impacts to steelhead trout habitats. The impacts to steelhead trout and steelhead trout habitat would be small in scale, and compensatory mitigation such as fish passage modifications to the concrete-grouted rock slope protection creek channel will be implemented to offset impacts to Refugio Creek. The proposed project would contribute to a fish passage improvement benefit for Cañada del Refugio Creek by restoring the creek habitat. As such, the project is not expected to substantially contribute to cumulative steelhead trout impacts.

According to planning and environmental documents, the following projects evaluated within the resource study area could have impacts to steelhead trout or their habitat within the resource study area.

- The Paradiso del Mare Ocean and Inland Estate Project may impact steelhead trout. Suitable habitat for steelhead trout exists within the project limits and may be directly impacted by project construction or indirectly impacted due to changes in water quality from an increase in impervious surfaces and pollutant runoff. Avoidance, minimization, and mitigation measures to reduce impacts to steelhead trout will be implemented.

- The Plains Replacement Pipeline Project may impact steelhead trout. The draft environmental document is currently in preparation. Most impacts will be to disturbed annual grassland and coastal sage scrub, but roughly 27 locations with potentially suitable habitat are present along the Gaviota coast. Of those 27 locations 18 are named creeks or rivers, six are unnamed U.S. Geological Survey blueline drainages, and three are unnamed drainages. The project will implement avoidance and minimization measures to avoid impacts to roughly half of these locations. However, it is expected there will be both permanent and temporary impacts to these features.

- The El Rancho de Tajiguas Project is currently in the planning phase with the expectation the environmental document will be circulated next year. It is not currently known if there are expected impacts to steelhead trout, but suitable steelhead trout habitat may be present within the project limits. It is assumed that avoidance, minimization, and mitigation measures will be implemented if potential impacts exist.

- The two El Capitán State Beach Projects that have completed environmental documents state there may be impacts to steelhead trout and its corresponding critical habitat. Measures will be implemented to reduce impacts to the species, and a known fish passage barrier will be removed at the El Capitán State Beach entrance road. It is unknown if the other El Capitán State Beach projects may impact steelhead trout or steelhead trout critical habitat. If impacts to steelhead trout are identified, it is assumed avoidance, minimization, and mitigation measures will be implemented. The removal of a fish passage barrier in the state park will be beneficial to steelhead trout.

- It is unknown if the Culvert Replacement near Arroyo Quemado Project is expected to impact steelhead trout because the project is in the early planning stages. Because culvert replacement projects involve working in a stream, it is assumed that steelhead trout may be affected. If the culvert is a fish passage barrier, the barrier would be removed. The project would implement avoidance, minimization, and mitigation measures if impacts to steelhead trout are identified.

- The South Coast 101 Drainage Project is in the early planning stages but is expected to impact steelhead trout. Environmental analysis on this

project is scheduled to begin in the fall of 2020 and will implement the appropriate measures when entering construction. This project is expected to improve fish passage at numerous locations along the Santa Barbara coast and would provide a net benefit to steelhead trout.

Southern California steelhead trout and associated steelhead trout critical habitat are not experiencing an adverse cumulative effect from current and future projects in the resource study area. Rather, the identified projects are expected to provide a net benefit to steelhead trout because several of these projects would remove barriers to fish passage. Temporary and permanent impacts to steelhead trout from the projects are expected to be avoided, minimized, and mitigated.

Similarly, the proposed project would not contribute to a significant cumulative impact to steelhead trout or steelhead trout habitat but would instead provide a net benefit to steelhead trout by removal of a fish passage barrier within a federally designated critical habitat area.

Avoidance, Minimization, and Mitigation Measures

See Section 2.3.5 for project-specific measures for tidewater goby, California red-legged frog and critical habitat, and southern California steelhead trout and critical habitat. These measures are designed to mitigate and minimize the project's overall impact to these species and their associated critical habitat.

The Gaviota Coast Plan includes implementing actions that would reduce effects to natural resources. Avoidance, minimization, and/or mitigation measures for future projects that may affect threatened and endangered species or critical habitat areas could include elements of the following:

Gaviota Coast Plan Implementing Action NS-2: Wildlife Corridors. Landforms and natural features, between the watersheds and mountain and ocean habitats, that are potential wildlife movement areas for apex species and medium and large mammals should be identified in consultation with state and federal wildlife agencies, and/or through specialized scientific studies.

Gaviota Coast Plan Implementing Action NS-4: Habitat Restoration. Consider policies and programs to support and encourage voluntary habitat restoration efforts by landowners.

Gaviota Coast Plan Implementing Action NS-5: Restoration Priorities. The County, in conjunction with the University of California, Santa Barbara and/or other Resource Land Management organizations, should use economic and environmental considerations to develop a prioritized list of potential voluntary restoration projects for coastal lagoons, coastal

watersheds, and removal of barriers along streams and creeks to restore fish passage and wildlife movement.

Gaviota Coast Plan Implementing Action NS-6: Mitigation Banks. Within the Gaviota Coast Plan area, the County should consider developing mitigation banks or an in-lieu fee program as alternative policy approaches.

Gaviota Coast Plan Implementing Action NS-7: Coastal Vegetation Mapping. Within the Gaviota Coast Area, the county shall seek funding to map biological habitats at the alliance or association level per the second (or most current) volume of Manual of California Vegetation.

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Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance under the California Environmental Quality Act

The proposed project is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration 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 (known as U.S.) Code Section 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 primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement, or a lower level of documentation, will be required. NEPA requires that an Environmental Impact Statement be prepared when the proposed federal action (i.e., a 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 Environmental Impact Statement, 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 Environmental Impact Report must be prepared. Each and every significant effect on the environment must be disclosed in the Environmental Impact Report and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an Environmental Impact Report. 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 Significant Irreversible Environmental Changes

The proposed project cannot be constructed without impacting the archaeological site identified as CA-SBA-87, known as the village *Qasil,* which was disturbed extensively during construction of the existing Refugio Road Bridges in 1974. Impacts to the site would include the physical destruction of intact pockets of archaeological deposits due to ground disturbance, which may compromise the integrity of the site and affect the site's eligibility for the national historic register. Archaeological resources are non-renewable resources, so once the resource is disturbed or destroyed it can never be replaced. Therefore, impacts to site CA-SBA-87 would still be significant even after the implementation of mitigation measures.

The significant impact to cultural resources because of project construction is considered both an individual impact and a cumulative impact. When considered in conjunction with other current and reasonably foreseeable projects in the northern Santa Barbara Channel region (the resource study area identified for archaeological resources in the cumulative impact analysis), the proposed work would result in degradation of important archaeological properties along the coast.

See Sections 2.1.6 and 2.4 for further discussion.

3.3 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the 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 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 in order to provide the reader 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.

3.3.1 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?

Less Than Significant Impact—The project would replace existing structures with structures of similar length and profile and thus would not affect scenic vistas. See Section 2.1.5.

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

Less Than Significant Impact—The project is on a State Scenic Highway within the Coastal Zone. However, the implementation of avoidance and minimization measures would ensure that scenic resources would not be permanently damaged. Temporary impacts to the visual environment are expected during the construction period. See Section 2.1.5 for more information.

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—The project would be consistent with aesthetic and coastal resource protection goals for U.S. 101 and would not adversely affect the visual environment with the incorporation of avoidance and minimization measures. See Section 2.1.5 for further discussion.

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

Less Than Significant Impact—The degraded lighting system throughout the project limits would be replaced. Replacement luminaires would be installed with glare-blockers. See Section 2.1.5.

3.3.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

In determining if 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 if 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—No farmland would be converted as part of the project. A small parcel of grazing lands next to Refugio Road may be used for project access during construction, but this use would be temporary.

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

Less Than Significant—A small parcel of grazing lands next to Refugio Road may be used temporarily for project access during construction, but project activities are not expected to affect agricultural activities or conflict with the zoning of these lands.

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—No forest land or timberland occur near the project.

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

No Impact—No forest land occurs near the project.

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—The project involves replacement of an existing structure, therefore the use of the land surrounding the project would not change. No forest land or timberland occur near the project; no conversion of farmland is expected as part of the project.

3.3.3 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—No differences in long-term air quality would result from the project. See Section 2.2.5.

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—No difference in long-term air emissions would result from the project because no additional lanes or capacity are being added to U.S. 101. See Section 2.2.5.

c) Expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant With Mitigation Incorporated—Temporary construction activities could generate fugitive dust and airborne pollutants. A debris containment and collection plan would be implemented during construction to minimize impacts. See Section 2.2.5.

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

No Impact—Other emissions are not expected. See Section 2.2.5.

3.3.4 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 Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated—The project may effect several special-status species, but effects would be minimized through incorporation of avoidance, minimization, and mitigation measures. See Chapter 2 for more information.

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 Wildlife or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation Incorporated—The project may affect riparian habitat and several sensitive natural communities, but effects would be minimized through incorporation of avoidance, minimization, and mitigation measures, including compensatory mitigation planting. See Section 2.3.1 and Section 2.3.2 for further discussion.

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?

Than Significant With Mitigation Incorporated—The project may temporarily and permanently affect jurisdictional waters, but effects would be minimized through incorporation of avoidance, minimization, and mitigation measures, including compensatory mitigation planting. See Section 2.3.2 for further discussion.

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 With Mitigation Incorporated—The project would ultimately improve wildlife corridors through improving fish passage conditions and naturalizing the bottom of Cañada del Refugio Creek. Wildlife migration would be temporarily affected by construction activities, including diverting the creek for three seasons. See Sections 2.2.1, 2.2.2, and Chapter 2 for more information.

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

Less Than Significant Impact—The project complies with local policies and ordinances protecting biological resources. See Section 2.1.1 and Chapter 2 for more information.

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—No habitat conservation plans were identified near the proposed project.

3.3.5 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 Section15064.5?

Significant and Unavoidable Impact—CA-SBA-87 is considered a historic archaeological site that is eligible for the National Register of Historic Places and the California Register of Historical Resources. Earthwork during project construction would disturb the site and such disturbance cannot be avoided. Mitigation measures would be implemented to reduce impacts when feasible, but it is expected that site disturbance would further alter the qualities for which it is eligible to the National Register and California Register. See Section 2.1.6 and Section 3.1 for further discussion.

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

Significant and Unavoidable Impact—See explanation above for part a.) and Section 2.1.6 and Section 3.1 for further discussion.

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

Less Than Significant With Mitigation Incorporated—Human remains could be unearthed within archaeological site CA-SBA-87 during project construction. Mitigation measures included with the project outline the appropriate protocol to be followed should human remains be discovered. See Section 2.1.6 for further discussion.

3.3.6 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?

Less Than Significant Impact—Caltrans incorporates energy efficiency into the design, construction, and maintenance of all transportation projects. Construction of the project would incorporate energy efficiency measures and product recycling wherever feasible. The project is not capacity increasing so operation would not increase energy usage.

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

No Impact—The project would replace existing bridges on U.S. 101 and therefore would not substantially change energy usage. Therefore, the project would comply with relevant policies.

3.3.7 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:

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.

Less Than Significant Impact—No fault lines cross the project site, but California is subject to earthquakes. The project would be designed to meet Caltrans seismic standards. See Section 2.2.3 for further discussion.

ii) Strong seismic ground shaking?

Less Than Significant Impact—The project would be designed and constructed to withstand ground shaking from the maximum credible earthquake event predicted for the site, following Caltrans seismic standards. See Section 2.2.3 for further discussion.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant Impact—Possibly liquefiable soils are present at the project site, but the project would be designed and constructed to withstand the effects of liquefaction. See Section 2.2.3 for further discussion.

iv) Landslides?

No Impact—The project would not create unstable slopes susceptible to landslide activity. See Section 2.2.3 for more information.

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

Less Than Significant Impact—The project site would be protected from erosion and scour by leaving concrete-grouted rock slope protection on the banks of Cañada del Refugio Creek and lining the creek bed with non-grouted rock slope protection sized to resist the base flood shear stress. Implementation of standard best management practices during construction would minimize construction period soil erosion. See Section 2.2.1 and 2.2.3 for further discussion.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable because of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

No Impact—The replacement bridge foundations would be designed and constructed to be anchored into competent, stable bedrock, and would avoid future instability. See Section 2.2.3 for further discussion,

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?

Less Than Significant Impact—A final geotechnical report determining the expansion index of the soils underlying the project site would be completed after certification of the final environmental document. Preliminary data suggests the soils are not expansive. The bridge foundations and all other project elements would be designed using geotechnical data and following Caltrans bridge design specifications. See Section 2.2.3.

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—No septic tanks or waste water disposal systems are proposed for this transportation project. See Section 2.2.3.

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

Less Than Significant Impact— Earthwork is expected to occur in areas that have been previously disturbed or are too young to contain scientifically important fossils. Inadvertent fossil discoveries would be assessed by a qualified paleontologist.

3.3.8 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?

Less Than Significant Impact—Temporary increases in greenhouse gas emissions during project construction would be minimized through implementation of best management practices. Climate Change Guidance developed by the Caltrans Division of Environmental Analysis indicates that certain types of projects would have minimal or no increase in operational greenhouse gas emissions. Roadway improvement projects, such as this one, are included in that list. See Section 3.5.4.

b) Conflict with an applicable plan, policy or regulation adopted to reduce the emissions of greenhouse gases?

Less Than Significant Impact—The project would not conflict with any known plan, policy, or regulation relative to reducing greenhouse gas emissions. See Section 3.5.4.

3.3.9 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?

Less Than Significant Impact—Implementation of standard measures to handle, reuse, and dispose of hazardous materials encountered during project construction would avoid and minimize impacts from hazardous waste. See Section 2.2.4 for further discussion.

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?

Less Than Significant Impact—Standard measures would be implemented to handle and dispose of hazardous waste. See Section 2.2.4 for further discussion.

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—No schools are near the project.

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—The project is not located on a known hazardous materials site. See Section 2.2.4.

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—The project is not near an airport.

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

Less Than Significant Impact—Traffic at the U.S. 101 and Refugio Road interchange would be temporarily affected during project construction, but the traffic management plan would account for emergency evacuation. See Section 2.1.3 and Section 2.1.4.

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

Less Than Significant Impact—Certain project-related construction activities have the potential to ignite a wildfire. Avoidance and minimization measures would be incorporated to reduce wildfire risk. See Section 3.4 for further discussion.

3.3.10 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?

Less Than Significant Impact—Short-term construction-related water quality impacts would be minimized with implementation of appropriate best management practices. See Section 2.2.2.

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—The project would not involve excavation work extensive enough to impact groundwater resources. Groundwater recharge may be improved due to removal of concreted rock slope protection from the creek bed. See Section 2.2.2.

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-site or off-site;

Less Than Significant Impact—Standard best management practices would reduce construction-period erosion and siltation. Long-term changes in erosion or siltation are not expected. See Sections 2.2.1 and 2.2.2.

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

Less Than Significant Impact—The project would ultimately reduce the amount of impervious surface area due to the removal of concrete-grouted rock slope protection from Cañada del Refugio Creek. The net new impervious area is estimated to be -0.3 acre. See Section 2.2.1 and 2.2.2

iii) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or

Less Than Significant Impact—Though an increase of 0.3 acre of new impervious surface area associated with widening of the bridge shoulders is expected for the project, this would be offset by the removal of 0.6 acre of impervious surface area from Cañada del Refugio Creek. The net new impervious area is estimated to be -0.3 acre. See Section 2.2.1 and Section 2.2.2

iv) Impede or redirect flood flows?

No Impact—The project would be designed to accommodate 100-year flood events and would not create flood barriers. Existing drainage patterns would be maintained, and flood flows would not be redirected. See Section 2.2.1

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

Less Than Significant Impact—The southern limits of the project are within the 100-year Zone “A” floodplain, but the project does not contain pollutants that would damage the environment if inundated. The project is not in a tsunami or seiche zone. See Section 2.2.1.

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

No Impact—The project would not substantially alter the flow of surface water or groundwater. Short-term construction-related water quality impacts would be minimized with implementation of appropriate best management practices. See Section 2.2.2.

3.3.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:

a) Physically divide an established community?

No Impact—The project is replacing an existing structure in a rural area.

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—The project is replacing an existing structure so there would be no conflicts with land use.

3.3.12 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—Known mineral resources do not occur near the project.

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—Known locally important mineral resources do not occur near the project.

3.3.13 Noise

CEQA Significance Determinations for Noise

Would the project result in:

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

Less Than Significant Impact—Short-term intermittent noise impacts are expected during project construction but would be minimized by following Caltrans Standard Specifications. See Section 2.2.6

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

Less Than Significant Impact—Construction of the project would require daytime pile driving lasting up to a few weeks, but noise levels are not expected to exceed Caltrans specifications or be considered excessive. See Section 2.2.6.

c) For a project near 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—The project is not within two miles of a public airport or private airstrip.

3.3.14 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—The project is not capacity increasing and therefore would not induce growth.

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

No Impact—The project would not require relocation of residences.

3.3.15 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, to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

Less Than Significant Impact—No long-term changes in emergency access would result from the project. Temporary increases in emergency response time to Refugio State Beach and northbound Refugio Road may occur during intermittent closures of Refugio Road, but would be accounted for in a traffic management plan. See Section 2.1.3 and Section 2.1.4.

Police protection?

Less Than Significant Impact—No long-term changes in emergency access would result from the project. Temporary increases in emergency response time to Refugio State Beach and northbound Refugio Road may occur during intermittent closures of Refugio Road, but would be accounted for in a traffic management plan. See Section 2.1.3 and Section 2.1.4.

Schools?

Less Than Significant Impact—No schools are near the project. A school bus serving the rural Vista Del Mar Union School District maintains a pick up/drop off at Refugio Road and U.S. 101. Intermittent closures of Refugio Road during project construction could impact the schedule or change the bus stop location. See Section 2.1.4.

Parks?

Less Than Significant Impact—Access to Refugio State Beach would be temporarily affected during project construction. See Section 2.1.2.

Other public facilities?

Less Than Significant Impact—The project may require relocation of several utilities. See Section 2.1.3 for further discussion.

3.3.16 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?

Less Than Significant Impact—The project would not increase the capacity or change the configuration of U.S. 101 and therefore would not increase the use of Refugio State Beach. Improvements to the pedestrian path beneath

the bridges would improve pedestrian access to the state beach. See Section 2.1.2

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?

Less Than Significant Impact With Mitigation Incorporated—The project includes reconstruction of an existing pedestrian path servicing Refugio State Beach to meet Americans with Disabilities Act standards, which may require removal of existing riparian vegetation. On-site and in-kind compensatory mitigation planting would reduce impacts. See Section 2.3.2.

3.3.17 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—The project is replacing an existing structure. The project is expected to improve the circulation system by replacing deteriorating bridges on U.S. 101, improving bicycle facilities, and reconstructing a pedestrian pathway that provides coastal access to current Americans with Disabilities Act standards.

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

Less Than Significant Impact—The project is not capacity increasing because it involves replacement of existing bridges with bridges of the same configuration. Therefore, the project would not increase the number of vehicle miles traveled.

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—The project would replace existing bridges with bridges of the same configuration.

d) Result in inadequate emergency access?

Less Than Significant Impact—No long-term changes in emergency access would result from the project. Temporary increases in emergency response time to Refugio State Beach and northbound Refugio Road may occur during

intermittent closures of Refugio Road, but would be accounted for in a traffic management plan. See Section 2.1.3 and Section 2.1.4.

3.3.18 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

Significant and Unavoidable Impact—Project earthwork would disturb an archaeological site (CA-SBA-87) that is eligible for listing in the California Register of Historical Resources. Disturbance of the site cannot be avoided for this project. See Section 2.1.6 for further discussion.

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 will consider the significance of the resource to a California Native American tribe.

Less Than Significant with Mitigation—Project earthwork would disturb an archaeological site (CA-SBA-87) of cultural significance to Chumash tribal groups, particularly the local Chumash including the Coastal Band of the Chumash Nation, the Santa Ynez Band of Chumash Indians, and the Barbareño/Ventureño Band of Mission Indians. Disturbance of the site cannot be avoided for this project. However, during consultation with the tribes, their representatives have indicated they are very interested in the information that can be obtained from the existing archaeological collections from the 1960s excavations as well as any additional data that may be collected during construction. See Section 2.1.6 for further discussion.

3.3.19 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?

Less Than Significant Impact—The project may require relocation of several utilities. See Section 2.1.3 for further discussion.

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

No Impact—No additional water services would be needed because the project is not capacity increasing. See Section 2.1.3.

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—The project would generate minimal wastewater that would primarily be sanitary waste generated by construction workers, which would be transported and treated off-site. See Section 2.1.3.

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—Generated solid waste would be recycled when possible and would not exceed standards or local landfill capacities. See Section 2.1.3 for further discussion

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

No Impact—As much as possible, solid waste from bridge demolition would be recycled as base materials for the new concrete structures. See Section 2.1.3 for further discussion.

3.3.20 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?

Less Than Significant Impact—Access to and from Refugio State Beach from northbound U.S. 101 would require detours during closures of Refugio

Road. Emergency response and evacuation would be factored into the construction-period traffic management plan. See Section 2.1.3 and Section 2.1.4 for more information.

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

No Impact—The project involves replacement of existing bridges on U.S. 101 and therefore does not have any project occupants.

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

Less Than Significant Impact—The project would require replacement of and possible relocation of several utilities. Coordination with the utility owners and implementing wildfire avoidance and minimization measures would avoid worsening wildfire risk. See Section 2.1.3 and Section 3.4 for further discussion.

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

No Impact—The project involves replacement of existing bridges on U.S. 101. The new bridges would be designed to avoid hazards from landslides and flooding. See Section 2.2.1 and Section 2.2.3 for further discussion.

3.3.21 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?

Significant and Unavoidable Impact—The project cannot be constructed without further impacting the national historic register eligible archaeological site identified as CA-SBA-87. Most of the damage to this site occurred during construction of the original bridge in the early 1970s. However, further

damage is likely to occur with the bridge replacement work. See explanation in Section 2.1.6 and Section 3.1 for further discussion.

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.)

Significant and Unavoidable Impact—As discussed above, the project cannot be constructed without further impacting the archaeological site identified as CA-SBA-87. The significant impact to cultural resources is considered both an individual impact as well as a cumulative impact. Although mitigation would be applied, further damage would occur to this archaeological site. Other projects considered within the Cultural Resources resource study area would also result in further degradation of historic properties. See explanation in Section 2.4.

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

Less Than Significant Impact—The project is replacing an existing structure and no adverse impacts to human beings including hazards or environmental justice issues have been identified.

3.4 Wildfire

3.4.1 Regulatory Setting

Senate Bill 1241 required the Office of Planning and Research, the Natural Resources Agency, and the California Department of Forestry and Fire Protection to develop amendments to the "CEQA Checklist" for the inclusion of questions related to fire hazard impacts for projects located on lands classified as very high fire hazard severity zones. The 2018 updates to the CEQA Guidelines expanded this to include projects "near" these very high fire hazard severity zones.

3.4.2 Affected Environment

The project is located on coastal bluffs of the Pacific Ocean next to Refugio State Beach, railroad tracks, and a creek drainage. The project is in a high fire hazard severity zone as mapped by the California Department of Forestry and Fire Protection and is outside of the very high fire hazard severity zone. The project would not permanently worsen wildfire risk because it involves replacing existing structures. Instead, the project is expected to benefit the greater Gaviota Coast region because it would ensure the safety and the

reliability of the U.S. 101 corridor, which would be a critical evacuation route should a wildfire event occur locally. Widening the shoulders of the bridge would provide additional room for the movement of emergency response vehicles and areas for emergency vehicle staging. Project elements include replacement of wood guardrail posts with steel posts and vegetation control beneath guardrails, which could make the bridge less susceptible to fire.

3.4.3 Environmental Consequences

Temporary (Construction) Impacts

Because U.S. 101 is the primary travel corridor in the region it would be a critical evacuation route should a wildfire occur on the Gaviota Coast. As discussed in Section 2.1.3 and Section 2.1.4, emergency response and evacuation plans would be accounted for in the traffic management plan and implemented for the project. Project construction would not disrupt travel on U.S. 101 because two lanes of traffic in each direction would be maintained.

Certain types of construction work have the potential to ignite a wildfire, such as grinding which creates sparks, or work involving electrical utilities. Precautions would be taken to reduce fire risk from construction work as much as possible, and an emergency water supply would be kept on-site throughout the duration of the project. Prior to construction, vegetation would be cleared in a manner that would minimize fire risk while avoiding harm to the biological environment.

3.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would be implemented during project construction to reduce the risk of igniting a wildfire. Additionally, a traffic management plan (measure TRA-1) would address emergency access and emergency evacuation in the event of a wildfire near the project.

WF-1: An emergency water supply for use if a fire is ignited will be maintained on the project site for the duration of project construction.

WF-2: Prior to the start of project construction, clearing and grubbing within areas of direct impact to reduce the potential of igniting a wildfire. Vegetation clearing should occur in coordination with the Caltrans biologist to avoid impacts to sensitive habitats or plant species.

3.5 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes

to greenhouse gas emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gases generated by human activity, including carbon dioxide, methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, and various hydrofluorocarbons. Carbon dioxide is the most abundant greenhouse gas; while it is a naturally occurring component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated carbon dioxide.

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 limit 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). This analysis will include a discussion of both.

3.5.1 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 (42 U.S. Code Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to deciding 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. 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 (Federal Highway Administration

2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability" (Federal Highway Administration n.d.). 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.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 U.S. Code Section 6201) and Corporate Average Fuel Economy 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 program based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

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.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) is responsible for setting greenhouse gas emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence greenhouse gas emissions.

State

California has been innovative and proactive in addressing greenhouse gas emissions and climate change by passing multiple Senate and Assembly bills and executive orders including, but not limited to, the following:

Executive Order S-3-05 (June 1, 2005): The goal of this Executive 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 Senate Bill 32 in 2016.

Assembly Bill 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: Assembly Bill 32 codified the 2020 greenhouse gas emissions reduction goals outlined in Executive Order S-3-

05, while further mandating that the California 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 California 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 sets forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. The California Air Resources Board re-adopted the low carbon fuel standard 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 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization 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, Chapter 585, 2009, California Transportation Plan: This bill requires the state's long-range transportation plan to identify strategies to address California's climate change goals under Assembly Bill 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor, including the California 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) establishes an interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030 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 California 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. [Greenhouse gases differ in how much heat each one traps in the atmosphere (or, their

global warming potential). Carbon dioxide is the most important greenhouse gas, so amounts of other gases are expressed relative to carbon dioxide, using a metric called "carbon dioxide equivalent." The global warming potential of carbon dioxide is assigned a value of one, and the global warming potential of other gases is assessed as multiples of carbon dioxide.] Finally, Executive Order B-30-15 requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every three years, and to ensure that its provisions are fully implemented.

Senate Bill 32, Chapter 249, 2016, 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.

Senate Bill 1386, Chapter 545, 2016, declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

Assembly Bill 134, Chapter 254, 2017, allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration /pilot projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

Senate Bill 743**,** Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled, to promote the state's goals of reducing greenhouse gas emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

Senate Bill 150**,** Chapter 150 2017, Regional Transportation Plans: This bill requires the California Air Resources Board to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

Executive Order B-55-18, (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing greenhouse gas emissions.

Executive Order N-19-19 (September 2019) advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce greenhouse gas emissions from the transportation sector. It orders a focus on transportation investments near housing,

managing congestion, and encouraging alternatives to driving. This Executive Order also directs the California Air Resources Board to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

3.5.2 Environmental Setting

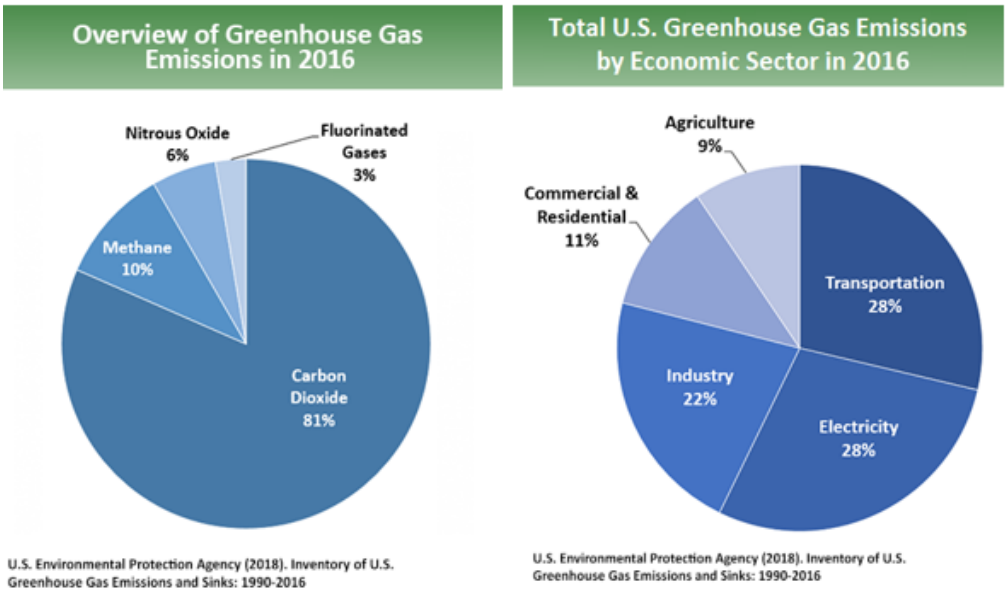
The project sits along the Gaviota Coast of Santa Barbara County on U.S. 101 at Refugio State Beach. The region is sparsely populated and mostly undeveloped. U.S. 101 is the main travel corridor through Santa Barbara County and along the Central Coast of California. It links the dispersed towns and cities throughout the region and is a vital north-south connection between Northern and Southern California. U.S. 101 is also a Class 3 bicycle facility near the project.

A greenhouse gas emissions inventory estimates the amount of greenhouse gases discharged into the atmosphere by specific sources over time, such as a calendar year. Tracking annual greenhouse gas emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. The U.S. Environmental Protection Agency is responsible for documenting greenhouse gas emissions nationwide, and the California Air Resources Board does so for the state, as required by Health and Safety Code Section 39607.4.

National Greenhouse Gas Inventory

The U.S. Environmental Protection Agency prepares a national greenhouse gas inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change. The inventory provides a comprehensive accounting of all human-produced sources of greenhouse gases in the United States, reporting emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride. It also accounts for emissions of carbon dioxide that are removed from the atmosphere by “sinks” such as forests, vegetation, and soils that uptake and store carbon dioxide (carbon sequestration). The 1990–2016 inventory found that of 6,511 million metric tons of carbon dioxide equivalent greenhouse gas emissions in 2016, 81 percent consist of carbon dioxide, 10 percent are methane, and 6 percent are nitrous oxide; the balance consists of fluorinated gases (EPA 2018). In 2016, greenhouse gas emissions from the transportation sector accounted for nearly 28.5 percent of United States greenhouse gas emissions (see Figure 3-1).

Figure 3-1 Overview of U.S. Greenhouse Gas Emissions in 2016



State Greenhouse Gas Inventory

The California Air Resources Board collects greenhouse gas emissions data for transportation, electricity, commercial and residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its greenhouse gas reduction goals.

The 2019 edition of the greenhouse gas emissions inventory found total California emissions of 424.1 million metric tons of carbon dioxide equivalent for 2017, with the transportation sector responsible for 41 percent of total greenhouse gases (see Figure 3-2). It also found that overall statewide greenhouse gas emissions declined from 2000 to 2017 despite growth in population and state economic output (ARB 2019a). See Figure 3-3.

Assembly Bill 32 required the California 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, and to update it every five years. The California Air Resources Board adopted the first scoping plan in 2008. The second updated plan, California's 2017 Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target established in Executive Order B-30-15 and SB 32. The Assembly Bill 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce greenhouse gas emissions.

Figure 3-2 California 2017 Greenhouse Gas Emissions

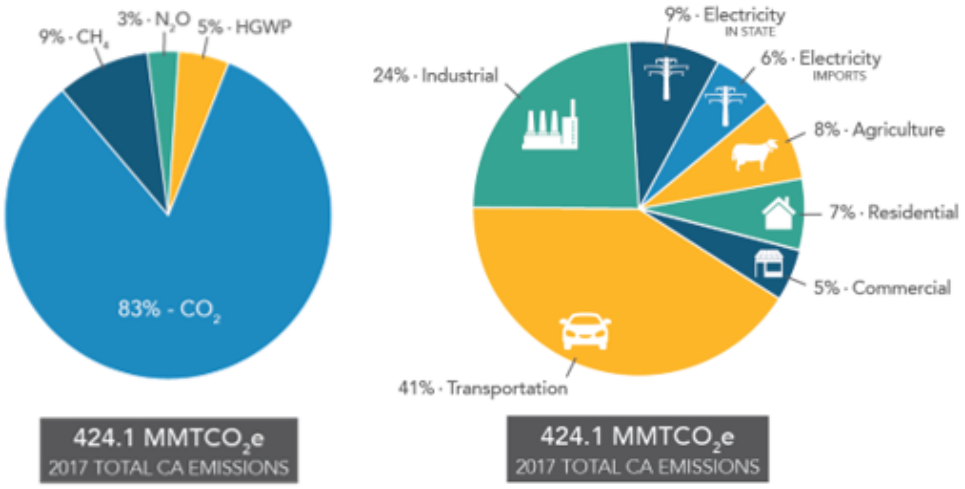
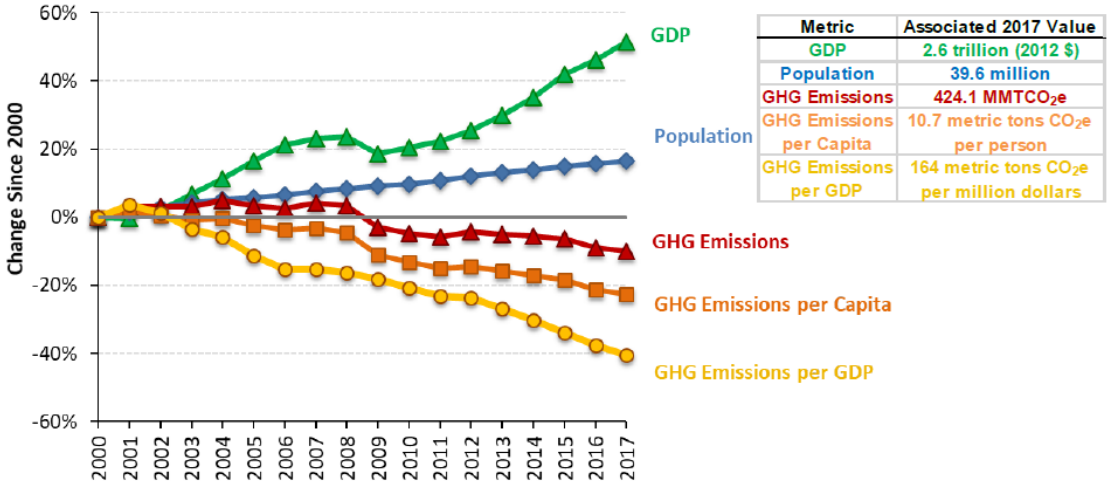


Figure 3-3 Change in California Gross Domestic Product (GDP), Population, and Greenhouse Gas Emissions Since 2000 (ARB 2019b)



Regional Plans

The California Air Resources Board sets regional targets for California's 18 Metropolitan Planning Organizations to use in their regional transportation plan and sustainable community strategy to plan future projects that will cumulatively achieve greenhouse gas reduction goals. Targets are set at a percent reduction of passenger vehicle greenhouse gas emissions per person from 2005 levels. The project is within the jurisdiction of the Santa Barbara County Association of Governments and is included in the 2013 regional transportation plan and sustainable community strategy for Santa Barbara County. The regional per-capita greenhouse gas reduction target for Santa

Barbara County Association of Governments is 13 percent by 2020 and 17 percent by 2035, relative to 2005 (ARB 2019c).

The 2013 regional transportation plan and sustainable community strategy identifies increasing biking and walking mode shares to help meet the goals of optimizing accessibility to jobs, schools and services; improving public health and safety; and reducing greenhouse gas emissions.

Santa Barbara County's local coastal program's Coastal Land Use Plan, the Gaviota Coast Plan, and the Santa Barbara County Comprehensive Plan guide activities and development that could affect greenhouse gas emissions in the coastal zone. These plans are discussed in Section 2.1.1, Coastal Zone.

3.5.3 Project Analysis

Greenhouse gas emissions from transportation projects can be divided into those produced during operation of the state highway system and those produced during construction. The main greenhouse gases produced by the transportation sector are carbon dioxide, methane, nitrous oxide, and various hydrofluorocarbons. Carbon dioxide emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of methane and nitrous oxide are emitted during fuel combustion. In addition, a small amount of hydrofluorocarbon emissions is included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code, Section 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (Cleveland National Forest Foundation *v.* San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512.) In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

A purpose of this project is to maintain multi-modal continuity through the U.S. 101 corridor of the Gaviota Coast by replacing the Refugio Road Bridges. The replacement bridges would be similar in design to the original bridges and

would not add lanes or increase vehicle miles traveled. This type of project generally causes minimal or no increase in operational greenhouse gas emissions. Because the project would not increase the number of travel lanes on U.S. 101, no increase in vehicle miles traveled would occur as result of project implementation. While some greenhouse gas emissions during the construction period would be unavoidable, the proposed project once completed would not lead to an increase in operational greenhouse gas emissions.

It is expected that the project would result in long-term greenhouse gas benefits. The project would improve traffic flow and provide smoother pavement surfaces with increased pavement lifespans, which allows for longer intervals between pavement maintenance and rehabilitation activities. The project would also reduce the frequency of maintenance activities required to repair deteriorating alkali-silica reactive concrete. These elements may contribute to reducing operational greenhouse gas emissions.

Construction Emissions

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

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

Construction-generated greenhouse gas emissions were quantified based on project-specific construction data provided for the project, using the Caltrans Construction Emissions Tool with default settings for a bridge replacement project. Greenhouse gas emissions would total about 465 metric tons of carbon dioxide equivalents over a 12-month time frame, or 1,163 metric tons over the expected two-and-a-half-year duration of the project. Note that this estimate is based on assumptions made during the environmental planning phase of the project and is considered a “ballpark” estimate of carbon dioxide equivalent emissions, relying on limited data inputs and default modeling.

Caltrans would reduce construction greenhouse gas emissions whenever feasible. All construction contracts include Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all California Air Resources Board emission reduction regulations; and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations,

ordinances, and statutes. Certain common regulations that reduce construction vehicle emissions, such as equipment idling restrictions and properly tuned and maintained engines, also help reduce greenhouse gas emissions. Construction traffic control measures and a construction staging plan would help minimize construction-related traffic delays and idling.

CEQA Conclusion

While the project would result in greenhouse gas emissions during construction, it is expected that the project would not result in any increase in operational greenhouse gas emissions. Instead, it is expected that the operational improvements of the project would ultimately provide long-term greenhouse gas benefits. The project does not conflict with any applicable plan, policy, or regulation adopted to reduce emissions of greenhouse gases. With the implementation of construction greenhouse gas-reduction measures, the impact would be less than significant.

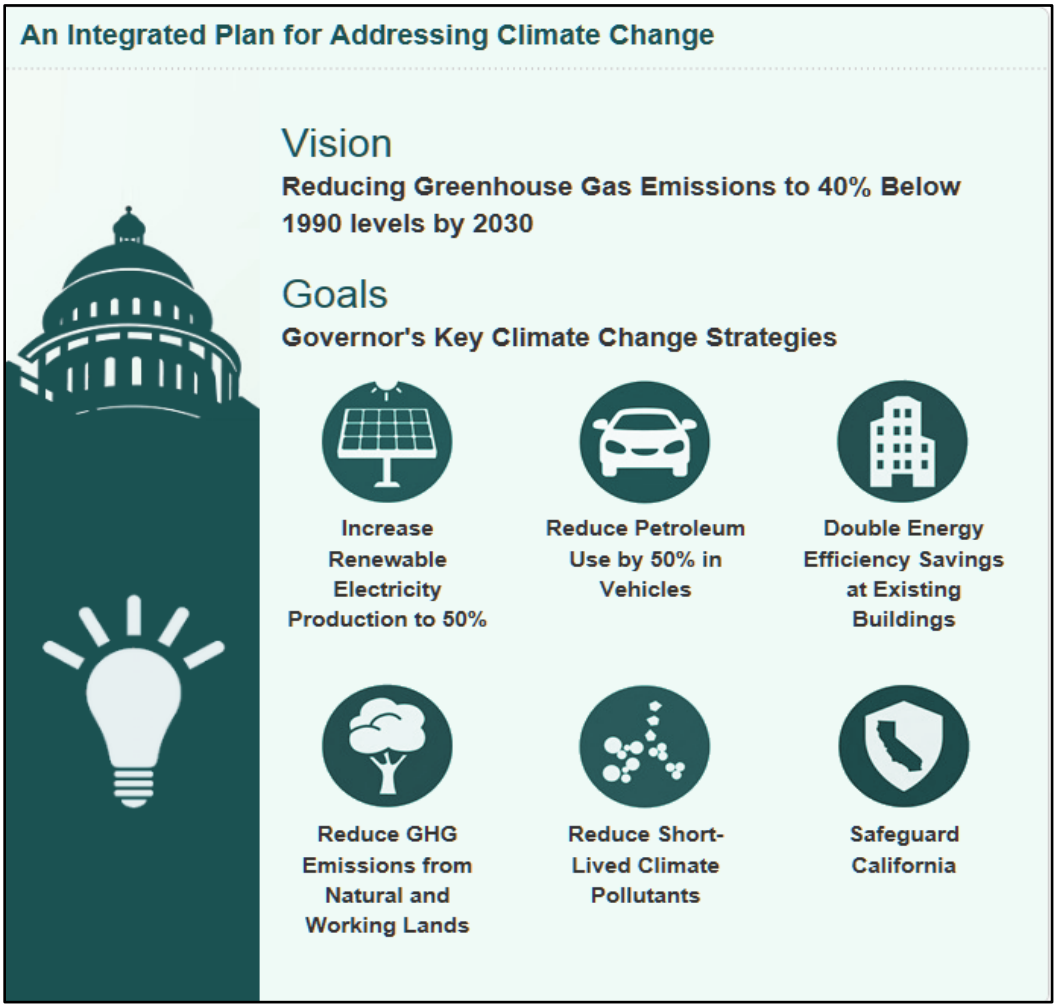
Caltrans is firmly committed to implementing measures to help reduce greenhouse gas emissions. These measures are outlined in the following section.

3.5.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 greenhouse gas emissions targets. Former Governor Edmund G. Brown promoted greenhouse gas reduction goals that involved (1) reducing today’s petroleum use in cars and trucks by up to 50 percent; (2) increasing electricity derived from renewable sources from one-third to 50 percent; (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 farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California.* See Figure 3-4.

Figure 3-4 California Climate Strategy



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. A key state goal for reducing greenhouse gas emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030 (State of California 2019).

In addition, Senate Bill 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above ground and below ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in Assembly Bill 32. Executive Order B-30-15, issued in April 2015, and Senate Bill 32 (2016), set an 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 2040

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. In 2016, Caltrans completed the *California Transportation Plan 2040*, which establishes a new model for developing ground transportation systems, consistent with carbon dioxide reduction goals. It serves as an umbrella document for all the other statewide transportation planning documents. Over the next 25 years, California will be working to improve transit and reduce long-run repair and maintenance costs of roadways and will be developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways.

Senate Bill 391 (Liu 2009) requires the California Transportation Plan to meet California's climate change goals under Assembly Bill 32. Accordingly, the California Transportation Plan 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, California Transportation Plan 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
- 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 sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's regional transportation plan and sustainable communities strategy; contribute to the state's greenhouse gas reduction targets and advance transportation-related greenhouse gas emission reduction project types and strategies; and support other climate adaptation goals (e.g., *Safeguarding California*).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 on Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities. *Caltrans Activities to Address Climate Change* (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce greenhouse gas emissions resulting from agency operations.

Project-Level Greenhouse Gas Reduction Strategies

The following measures would be implemented in the project to reduce greenhouse gas emissions and potential climate change impacts from the project.

Operational Emissions Reduction Measures

GHG-1: To improve water efficiency, vegetation will be replaced with native and drought tolerant plants. Low-flow drip irrigation will be used during the plant establishment period to minimize emissions that result from energy consumed for water transport.

GHG-2: The project will incorporate the following Complete Streets component: The existing trail will be replaced with a new trail that is compliant with the standards of the Americans with Disabilities Act.

GHG-3: The project will Incorporate native plants and vegetation, which includes replacing more vegetation than was removed, into the project design to increase carbon sequestration. Trees will be replaced at a ratio of at least 3:1.

GHG-4: The project will include landscaping components such as mulch and compost application to improve carbon sequestration rates in soils and reduce organic waste.

GHG-5: The project will incorporate green infrastructure (planted areas) instead of gray (concrete) storm water facilities with the use of vegetated

swales at the flow line and in the median following removal of the median crossover paving.

Construction Emissions Reduction Measures

GHG-6: During project construction idling will be limited to 5 minutes for delivery and dump trucks and other diesel-powered equipment per Caltrans standard specifications.

GHG-7: Recycled materials (e.g., tire rubber) will be used where appropriate during project construction. Rubberized asphalt will be used where applicable. Excavated material can be used in embankment.

GHG-8: The project will lower the rolling resistance of highway surfaces by removing the open grade asphalt and replacing it with rubberized asphalt for a smoother surface.

GHG-9: The project will attempt to balance earthwork by balancing cut and fill quantities to the maximum extent feasible. This effort minimizes transporting material off-site or on-site.

Additionally, a transportation management plan (measure TRA-1) would be implemented during construction to minimize traffic delays and associated greenhouse gas emissions.

3.5.5 Adaptation

Reducing greenhouse gas emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfires can directly burn facilities and indirectly cause damage when rain falls on bare slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and Federal Highway Administration NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program delivers a report to Congress and the president every four years, in accordance with the Global Change Research Act of 1990 (15 U.S. Code Chapter 56A Section 2921 et seq). The

Fourth National Climate Assessment, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12, "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime" (USGCRP 2018).

U.S. Department of Transportation Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of Department of Transportation 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" (U.S. DOT 2011).

Federal Highway Administration order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events,* December 15, 2014) established Federal Highway Administration policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems.

Federal Highway Administration has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (Federal Highway Administration 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. The 2018 *California's Fourth Climate Change Assessment* is the state's latest effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales (State of California, 2018). It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."

- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity—an individual, a community, an organization, or a natural system—to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience". Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factors. These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

Executive Order S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

Executive Order S-13-08 also led to the publication of a series of sea level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea Level Rise Interim Guidance Document* (referred to as Sea Level Rise Guidance) in 2010, with instructions for how state agencies could incorporate "sea level rise projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California–An Update on Sea Level Rise Science* was published in 2017 and its updated projections of sea level rise and new understanding of processes and potential impacts in California were incorporated into the State of California Sea Level Rise Guidance Update in 2018.

Executive Order B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This Executive Order recognizes that effects of climate change other than sea

level rise also threaten California's infrastructure. At the direction of Executive Order B-30-15, the Office of Planning and Research published Planning and Investing for a Resilient California: A Guidebook for State Agencies in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

Assembly Bill 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California.* The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and expected climate change impacts.

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the state highway system vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure*—Identify Caltrans' assets exposed to damage or reduced service life from expected future conditions.
- *Consequence*—Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization*—Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts in federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the state highway system, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

As noted above, it is expected that California may be vulnerable to climate change effects that relate to temperature, wildfire, precipitation, storm surge,

and sea level rise. Given the 75-year lifespan of the Refugio Road replacement bridges, climatic conditions have been considered during project planning and incorporated into the design of the bridges, whenever feasible. Such planning strategies are consistent with the Energy and Climate Action Plan of the County of Santa Barbara, the Gaviota Coast Plan, and the Santa Barbara County Association of Governments' 2040 Regional Transportation Plan.

Although the analysis of climate change risk involves a degree of uncertainty relating to the timing and intensity of potential risks, it is not expected that the Refugio Road Bridges would be particularly vulnerable to the effects of climate change, and construction of the project itself is not expected to locally worsen the effects of climate change.

A comprehensive discussion of sea level rise and storm surge is provided below in Section 3.5.6. See Sections 2.2.1, 2.2.3, and 3.5.6 for further discussion relating to precipitation and storm surge. Wildfire risk is discussed in Section 3.4.

Temperature

California's Fourth Climate Change Assessment Central Coast Summary Report notes that maximum and minimum temperatures in this region are expected to increase through the next century. In Santa Barbara County, under a business-as-usual scenario (Representative Concentration Pathway 8.5 scenario), temperatures are projected to increase from the historical (1961–1990) average maximum of 68.6 degrees Fahrenheit to 71 degrees Fahrenheit by 2039, and to 75 degrees Fahrenheit by 2100. Maximum average annual temperature in the county is projected to reach 87.5 degrees Fahrenheit (Langridge 2018). Minimum temperatures could rise from historical average of 43 degrees Fahrenheit to 45.3 Fahrenheit by 2039 and 50.2 Fahrenheit by 2099.

The projected range of temperature change is within the temperature tolerances of pavement materials likely to be used for the replacement bridges.

3.5.6 Sea Level Rise

This project is in the portion of the Coastal Zone that is managed by the Gaviota Coast Plan of the County of Santa Barbara Local Coastal Program, and thus has been analyzed for potential vulnerabilities to the effects of global sea level rise. Near the project, U.S. 101 crosses elevated coastal bluffs that are dissected by several creeks draining water from the Santa Ynez Mountains into the Pacific Ocean. The project site spans the Cañada del Refugio Creek drainage, which flows into Refugio Lagoon within Refugio State Beach. The state beach sits along a small protected bay of the Pacific

Ocean. At the project location, U.S. 101 is about 1,000 feet from the ocean and at an elevation of about 80 feet above mean sea level. The footings of the central columns for the existing Refugio Road Bridges are about 25 feet above mean sea level.

The State of California 2018 Sea Level Rise Guidance Document provides probabilistic projections for the height of sea level rise along the California Coast using the most current data from the Ocean Protection Council. The guidance document outlines a five-step approach for evaluating the risks associated with sea level rise at a given location. The first step is identifying the nearest tide gauge, which is Santa Barbara for the Refugio Road Bridges. The second and third steps involve estimating the projection year that should be used in the analysis, which is year 2100 for the project given an estimated 75-year life span of the replacement Refugio Road Bridges and a construction year of 2025. The fourth and fifth steps involve assigning the risk and tolerance for the site. Caltrans' adopted policies are to use the high emissions scenario and a 1-in-200 chance (0.5 percent probability). At the Santa Barbara tide gauge under a high-emissions scenario, there is 0.5 percent probability that sea level rise will meet or exceed 6.6 feet by the year 2100. Also considered is the H++ climate scenario, which has no associated probability, but is an extreme climate change scenario. Under the H++ scenario, sea level rise is predicted to rise 9.8 feet at the Santa Barbara tide gauge. Sea level rise projections for the Santa Barbara tide gauge are shown in Table 3-1.

The project is not expected to be vulnerable to the effects of sea level rise including inundation, cliff retreat, wave impacts, and coastal flooding. See the floodplain discussion, below, for further discussion about coastal flooding. The highway itself crosses tall coastal bluffs (about 80 feet above mean sea level) and the project elements below the bridges including the bridge foundations, fish passage improvements, and pathway reconstruction, are at a high enough elevation (about 15 to 25 feet above mean sea level), that they are not expected to be inundated under even the extreme H++ climate scenarios.

As modeled by the National Oceanic and Atmospheric Administration sea level rise viewer, (NOAA, 2019) 6.6 feet of sea level rise at Refugio State Beach would cause the Pacific Ocean to encroach on the low-elevation, sandy regions of the state beach and infill portions of the Refugio Lagoon. With this level of sea level rise, the shoreline would be over 350 feet south of the bridges. With 10 feet of sea level rise, the ocean would encroach laterally into the state beach, inundating many of the campsites, but would not extend north of the railroad tracks.

Figure 3-5 shows sea level rise under the medium-risk aversion scenario with a rise of 6 feet and Figure 3-6 shows sea level rise under the H++ scenario with a rise of 10 feet.

As described above, Caltrans is in the process of conducting Climate Change Vulnerability Assessments for each of its 12 districts. The assessment for District 5, which includes Santa Barbara County, is expected to be released in winter 2019. Based on preliminary data from the assessment, the Refugio Road Bridges are not expected to be affected by cliff retreat. However, cliff retreat may affect U.S. 101 elsewhere along the Gaviota Coast. A more precise description of the potential effects of cliff retreat will be included in this document following release of the District 5 Climate Change Vulnerability Assessment.

Table 3-1 Projected Levels of Sea Level Rise at Project Site for Year 2100 Under a High Emission Scenario, as Reported in the *State of California Sea Level Rise Interim Guidance Document*

Probability	Risk Level	Year 2100 High Emission Scenario at the Santa Barbara Tidal Gauge
Upper limit of "likely range" (66% probability)	Low	3.1 feet
1-in-200 chance (0.5% probability)	Medium-High	6.6 feet
H++ Scenario (no associated probability)	Extreme	9.8 feet

Floodplain

The southernmost extent of fish passage improvements for the project occurs within a Federal Emergency Management Agency Zone "A" floodplain, which may be inundated during a 100-year flood event.

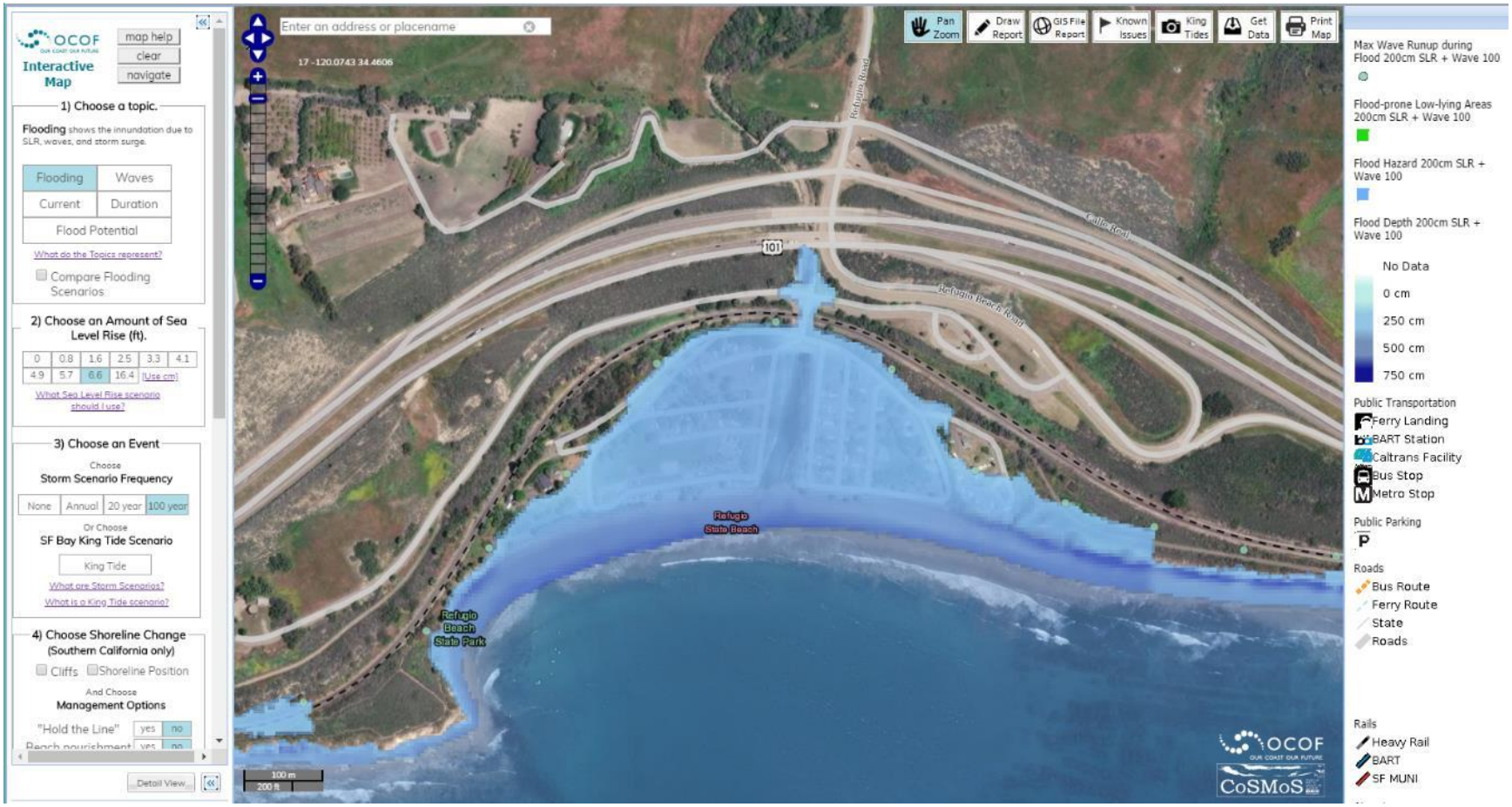
The Our Coast Our Future Flood Map mapping tool (Point Blue, 2019) provides visualizations for projected coastal flooding under a variety of sea level rise and water variability scenarios. A projected sea level rise of 6.6 feet combined with an annual storm or a 20-year storm would not result in coastal flooding within the project limits. Under 6.6 feet of sea level rise and a 100-year storm scenario the viewer suggests that the northern limit of coastal flooding would flow up Refugio Lagoon, beneath the railroad bridges and up Cañada del Refugio Creek to beneath the southern Refugio Road bridge. However, coastal flooding north of the railroad bridge is expected to be short-lived (less than three hours in a tidal cycle), with low velocity waves that are less than 1.5 feet tall. Therefore, it is not expected that coastal flooding would affect the proposed facilities because they are already being designed to withstand high-water conditions and high flow velocities expected during riverine flooding from a 100-year storm on Cañada del Refugio Creek.

Figure 3-7 shows coastal flooding as modeled with 6.6 feet of sea level rise and a 100-year storm.

Figure 3-5 NOAA Sea Level Rise Viewer Showing Expected Coastal Inundation with 6 Feet of Sea Level Rise

Figure 3-6 NOAA Sea Level Rise Viewer Showing Expected Coastal Inundation with 10 Feet of Sea Level Rise

Figure 3-7 Our Coast Our Future Coastal Flooding Map Showing Projected Flooding for a 100-year Storm with 6.6 Feet of Sea Level Rise.



3.5.7 References Cited in Climate Change Section

California Air Resources Board (ARB). 2019a. *California Greenhouse Gas Emissions Inventory–2019 Edition*. https://ww3.arb.ca.gov/cc/inventory/data/data.htm. Accessed: August 21, 2019.

California Air Resources Board (ARB). 2019b. *California Greenhouse Gas Emissions for 2000 to 2017. Trends of Emissions and Other Indicators.* https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf. Accessed: August 21, 2019.

California Air Resources Board (ARB). 2019c. *SB 375 Regional Plan Climate Targets*. https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets. Accessed: August 21, 2019.

Federal Highway Administration. 2019. *Sustainability*. https://www.fhwa.dot.gov/environment/sustainability/resilience/. Last updated February 7, 2019. Accessed: August 21, 2019.

Federal Highway Administration. No date. *Sustainable Highways Initiative*. https://www.sustainablehighways.dot.gov/overview.aspx. Accessed: August 21, 2019.

Langridge, Ruth. (University of California, Santa Cruz). 2018. *Central Coast Summary Report. California's Fourth Climate Change Assessment.* Publication number: SUM-CCCA4-2018-006. http://www.climateassessment.ca.gov/regions/. Accessed September 16, 2019.

National Oceanic and Atmospheric Administration (NOAA), 2019. *Sea Level Rise Viewer.* https://coast.noaa.gov/digitalcoast/tools/slr.html. Accessed September 16, 2019.

Our Coast Our Future (OCOF). 2019. *Flood Map.* http://data.pointblue.org/apps/ocof/cms/. Accessed September 16, 2019.

State of California. 2018. *California's Fourth Climate Change Assessment*. http://www.climateassessment.ca.gov/. Accessed: August 21, 2019.

State of California. 2019. *California Climate Strategy*. https://www.climatechange.ca.gov/. Accessed: August 21, 2019.

U.S. Department of Transportation (U.S. DOT). 2011. *Policy Statement on Climate Change Adaptation*. June 2011. https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm. Accessed: August 21, 2019.

U.S. Environmental Protection Agency (U.S. EPA). 2009. *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Section 202(a) of the Clean Air Act*. https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-section-202a-clean. Accessed: August 21, 2019.

U.S. Environmental Protection Agency (U.S. EPA). 2018. *Inventory of U.S. Greenhouse Gas Emissions and Sinks.* https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks. Accessed: August 21, 2019.

U.S. Global Change Research Program (USGCRP). 2018. *Fourth National Climate Assessment*. https://nca2018.globalchange.gov/. Accessed: August 21, 2019.

Chapter 4 Comments and Coordination

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

4.1 Notice of Preparation

A Notice of Preparation for this project was circulated for 30 days, from January 22, 2019, and mailed directly to the State Clearinghouse and responsible agencies. See Chapter 6 for a distribution list and Appendix E for the Notice of Preparation.

Preparing and circulating a Notice of Preparation is typically the first step in the process of preparing an Environmental Impact Report. This process is completed to receive initial comments and feedback on the project and its potential environmental impacts from appropriate public agencies and the public. For this project, the Notice of Preparation was circulated partway through the environmental document preparation phase because the environmental document was initially scoped as a CEQA Initial Study. A Notice of Preparation is generally not prepared for a CEQA Initial Study. It was originally believed that potential impacts to cultural resources (see Section 2.1.6) could be reduced below the threshold of significance through implementation of a mitigation and monitoring program; however, preliminary results of the cultural resources studies indicated that impacts may be more substantial than originally believed. The project development team therefore elevated the document level from a CEQA Initial Study to a CEQA Environmental Impact Report in November 2018, and the Notice of Preparation was prepared and circulated as soon as possible after this determination was made.

4.2 Public Meetings

Caltrans coordinated with appropriate public agencies early in the project development phase, and throughout the environmental process. A Public Information Meeting was held on March 11, 2019, in conjunction with the

circulation of the Notice of Preparation. A summary of meetings with agencies and the public is provided below.

Field Meeting with Public Agencies—March 16, 2017

Caltrans hosted a field meeting at the Refugio Bridge project site with several regulatory agencies. In attendance were Barbara Tejada, Danita Rodriguez, Eric Hjelstrom, Kate Wilson, and Oscar Rodriguez (California Department of Parks and Recreation); David Lackie and J. Ritterbeck (County of Santa Barbara); Jay Ogawa (National Marine Fisheries Service); Paula Richter (Regional Water Quality Control Board); Theresa Stevens (U.S. Army Corps of Engineers); Deanna Christenson and Megan Sincula (California Coastal Commission); and eight Caltrans project development team members. The purpose of the meeting was to introduce the project, discuss design options, potential environmental impacts, and potential permitting implications.

Field Meeting with Public Agencies—July 25, 2018

Caltrans hosted a field meeting to discuss fish passage modifications with the appropriate regulatory agencies. In attendance were Jessica Adams (National Marine Fisheries Service), Rick Macala (California Department of Fish and Wildlife), and five Caltrans project development team members. The purpose of the meeting was to show the on-site conditions, discuss design options, potential environmental impacts, and fish passage remediation strategies.

Field Meeting with Public Agencies—January 30, 2019

Caltrans hosted a field meeting to review existing conditions and discuss fish passage improvements and modifications to the Cañada del Refugio creek bed. In attendance were Matt Chirdon and Rick Macala (California Department of Fish and Wildlife), Theresa Stevens (U.S. Army Corps of Engineers), Mark Cassady (Regional Water Quality Control Board), 10 Caltrans project development team members, and several new Caltrans staff members that were visiting the project site for training purposes. The purpose of the meeting was to discuss stream diversion and dewatering strategies, removal of concrete-grouted rock slope protection, and revegetation. The regulatory agencies in attendance provided feedback on the project.

Public Information Meeting—March 11, 2019

A Public Information Meeting for the Replace Refugio Road Bridges Project was held to provide the public with an opportunity to learn more about the project, and to get involved in the scoping process by providing comments and feedback. The meeting was held from 5:30 p.m. to 7:30 p.m. on Monday, March 11, 2019 in Goleta, California. The meeting location was Classroom 2 of the Goleta Valley Community Center at 5679 Hollister Avenue, Goleta, CA 93117. The meeting was hosted by Caltrans and conducted in an open house format. The open house format included placement of informational display boards and exhibits, with Caltrans personnel available to answer questions and provide additional information.

4.3 Biological Coordination

The following summarizes the coordination efforts between Caltrans biologists and relevant public agencies.

May 24, 2016: A formal request letter was sent by Caltrans biologist consultant John Moule through U.S. mail to Jay Ogawa (National Marine Fisheries Service) for an official National Marine Fisheries Service species list for the project.

May 24, 2016: John Moule submitted a request online through the U.S. Fish and Wildlife Service's Information for Planning and Consultation website for an official U.S. Fish and Wildlife Service species list for the project. Information for Planning and Consultation generated a list the same day.

May 31, 2016: An official species list letter from National Marine Fisheries Service was received. The letter indicated that the action area is within the federally endangered Southern California Distinct Population Segment of Steelhead trout. The letter went on to state that while there is no recent documentation of steelhead trout in Refugio Creek, based on the current marginal habitat at the project site, the likelihood for steelhead trout to be present in the project area is low, and that Refugio Creek is designated critical habitat for endangered steelhead trout.

March 15, 2016: John Moule submitted a request online through the U.S. Fish and Wildlife Service's Information for Planning and Consultation website for an updated U.S. Fish and Wildlife Service species list. The Information for Planning and Consultation website generated a list the same day.

March 16, 2017: Caltrans hosted a field meeting at the Refugio Bridge project site with several regulatory agencies (see above).

October 19, 2017: John Moule submitted a request online through the U.S. Fish and Wildlife Service's Information for Planning and Consultation website for an updated U.S. Fish and Wildlife Service species list. The Information for Planning and Consultation website generated a list the same day.

January 18, 2018: John Moule submitted a request online through the U.S. Fish and Wildlife Service's Information for Planning and Consultation website for an updated U.S. Fish and Wildlife Service species list. The Information for Planning and Consultation website generated a list the same day.

January 24, 2018: John Moule generated an official National Marine Fisheries Service species list from the National Oceanic and Atmospheric Administration's California Species List Tool for the project area and the official National Marine Fisheries Service species list was received via email the same day.

June 12, 2018: John Moule contacted Theresa Stevens (U.S. Army Corps of Engineers) via email to inquire about interpreting wetland parameters over a human-made hardened creek channel.

June 13, 2018: Caltrans Biologist Geoff Hoetker contacted Theresa Stevens (U.S. Army Corps of Engineers) via email to follow up on the discussion of wetland parameters over a human-made hardened creek channel.

July 10, 2018: John Moule updated both the U.S. Fish and Wildlife Service and California Natural Diversity Database species lists for the project.

July 25, 2018: Caltrans hosted a field meeting to discuss fish passage modifications with the appropriate regulatory agencies (see above).

August 30, 2018: John Moule updated the official National Marine Fisheries Service species list from the National Oceanic and Atmospheric Administration's California Species List Tool for the project area.

September 20, 2018: John Moule contacted Jessica Adams (National Marine Fisheries Service) via email to inquire about suitable dates for dewatering Refugio Creek.

January 30, 2019: Caltrans hosted a field meeting to review existing conditions and discuss fish passage improvements and modifications to the Cañada del Refugio creek bed (see above).

June 25, 2019: Connor Ritchie updated the official National Marine Fisheries Service species list from the National Oceanic and Atmospheric Administration's California Species List Tool for the project area, and the U.S. Fish and Wildlife Service species list from the Information for Planning and Consultation website.

November 14-15, 2019: Connor Ritchie updated the official National Marine Fisheries Service species list from the National Oceanic and Atmospheric Administration's California Species List Tool for the project area, and the U.S. Fish and Wildlife Service species list from the Information for Planning and Consultation website.

4.3.1 Species lists

The following pages contain the species lists acquired from both U.S. Fish and Wildlife Services on November 15, 2019 and the National Marine Fisheries Services on November 14, 2019.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
Phone: (805) 644-1766 Fax: (805) 644-3958

In Reply Refer To:
Consultation Code: 08EVEN00-2019-SLI-0597
Event Code: 08EVEN00-2020-E-00164
Project Name: Refugio Bridge Replacement Project

November 15, 2019

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

To Whom It May Concern:

The enclosed list identifies species listed as threatened and endangered, species proposed for listing as threatened or endangered, designated and proposed critical habitat, and species that are candidates for listing that may occur within the boundary of the area you have indicated using the U.S. Fish and Wildlife Service's (Service) Information Planning and Conservation System (IPaC). The species list fulfills the requirements under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the species list should be verified after 90 days. We recommend that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists following the same process you used to receive the enclosed list. Please include the Consultation Tracking Number in the header of this letter with any correspondence about the species list.

Due to staff shortages and excessive workload, we are unable to provide an official list more specific to your area. Numerous other sources of information are available for you to narrow the list to the habitats and conditions of the site in which you are interested. For example, we recommend conducting a biological site assessment or surveys for plants and animals that could help refine the list.

If a Federal agency is involved in the project, that agency has the responsibility to review its proposed activities and determine whether any listed species may be affected. If the project is a major construction project*, the Federal agency has the responsibility to prepare a biological assessment to make a determination of the effects of the action on the listed species or critical habitat. If the Federal agency determines that a listed species or critical habitat is likely to be adversely affected, it should request, in writing through our office, formal consultation pursuant to section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to threatened or endangered species or their critical habitat prior to a

written request for formal consultation. During this review process, the Federal agency may engage in planning efforts but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of section 7(d) of the Act.

Federal agencies are required to confer with the Service, pursuant to section 7(a)(4) of the Act, when an agency action is likely to jeopardize the continued existence of any proposed species or result in the destruction or adverse modification of proposed critical habitat (50 CFR 402.10(a)). A request for formal conference must be in writing and should include the same information that would be provided for a request for formal consultation. Conferences can also include discussions between the Service and the Federal agency to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat early in the decision-making process. The Service recommends ways to minimize or avoid adverse effects of the action. These recommendations are advisory because the jeopardy prohibition of section 7(a)(2) of the Act does not apply until the species is listed or the proposed critical habitat is designated. The conference process fulfills the need to inform Federal agencies of possible steps that an agency might take at an early stage to adjust its actions to avoid jeopardizing a proposed species.

When a proposed species or proposed critical habitat may be affected by an action, the lead Federal agency may elect to enter into formal conference with the Service even if the action is not likely to jeopardize or result in the destruction or adverse modification of proposed critical habitat. If the proposed species is listed or the proposed critical habitat is designated after completion of the conference, the Federal agency may ask the Service, in writing, to confirm the conference as a formal consultation. If the Service reviews the proposed action and finds that no significant changes in the action as planned or in the information used during the conference have occurred, the Service will confirm the conference as a formal consultation on the project and no further section 7 consultation will be necessary. Use of the formal conference process in this manner can prevent delays in the event the proposed species is listed or the proposed critical habitat is designated during project development or implementation.

Candidate species are those species presently under review by the Service for consideration for Federal listing. Candidate species should be considered in the planning process because they may become listed or proposed for listing prior to project completion. Preparation of a biological assessment, as described in section 7(c) of the Act, is not required for candidate species. If early evaluation of your project indicates that it is likely to affect a candidate species, you may wish to request technical assistance from this office.

Only listed species receive protection under the Act. However, sensitive species should be considered in the planning process in the event they become listed or proposed for listing prior to project completion. We recommend that you review information in the California Department of Fish and Wildlife's Natural Diversity Data Base. You can contact the California Department of Fish and Wildlife at (916) 324-3812 for information on other sensitive species that may occur in this area.

[*A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.]

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Ventura Fish And Wildlife Office
2493 Portola Road, Suite B
Ventura, CA 93003-7726
(805) 644-1766

Project Summary

Consultation Code: 08EVEN00-2019-SLI-0597

Event Code: 08EVEN00-2020-E-00164

Project Name: Refugio Bridge Replacement Project

Project Type: TRANSPORTATION

Project Description: Replacing both State Route 101 Bridges over Refugio Creek, near Refugio State Park, CA. Construction anticipated for year 2025.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/34.46483329117298N120.06515606356726W

Counties: Santa Barbara, CA

Endangered Species Act Species

There is a total of 11 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 Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Birds

NAME	STATUS
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo *Vireo bellii pusillus* 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 *Brachyramphus marmoratus* 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 *Empidonax traillii extimus* 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 *Charadrius nivosus nivosus* 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

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* 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

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Gambel's Watercress *Rorippa gambellii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4201	Endangered
Marsh Sandwort *Arenaria paludicola* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2229	Endangered
Salt Marsh Bird's-beak *Cordylanthus maritimus ssp. maritimus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6447	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final

From: Ritchie, Connor@DOT
To: nmfswcrca.specieslist@noaa.gov
Subject: Caltrans Refugio Bridge Replacement Project 05-1C950
Date: Thursday, November 14, 2019 3:43:00 PM

Hello,

I am requesting an official ESA species list for those species under NMFS purview in California in the following quads.

Agency Name and Address:
California Department of Transportation
50 Higuera St.
San Luis Obispo, CA 93401

Point of Contact:
Connor Ritchie
Environmental Planner(Natural Sciences)
Caltrans, District 5
connor.ritchie@dot.ca.gov
(805) 549-3490

Quad Name **Tajiguas**
Quad Number **34120-D1**

ESA Anadromous Fish

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

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -

NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat - X
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) - X
Range White Abalone (E) - X

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

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 -
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

Connor Ritchie
Environmental Planner/Biologist
Caltrans, District 5
805-549-3490

From: NMFSWCRCA Specieslist - NOAA Service Account
To: Ritchie, Connor@DOT
Subject: Re: Caltrans Refugio Bridge Replacement Project 05-1C950
Date: Thursday, November 14, 2019 3:44:02 PM

Receipt of this message confirms that NMFS has received your email to nmfswcrca.specieslist@noaa.gov. If you are a federal agency (or representative) and have followed the steps outlined on the California Species List Tools web page (http://www.westcoast.fisheries.noaa.gov/maps_data/california_species_list_tools.html), you have generated an official Endangered Species Act species list.

Messages sent to this email address are not responded to directly. For project specific questions, please contact your local NMFS office.

Northern California/Klamath (Arcata) 707-822-7201

North-Central Coast (Santa Rosa) 707-387-0737

Southern California (Long Beach) 562-980-4000

California Central Valley (Sacramento) 916-930-3600

4.4 Cultural Resources Coordination

4.4.1 State Historic Preservation Officer Coordination

Caltrans has coordinated extensively with the State Historic Preservation Officer per Section 106 of the National Historic Preservation Act.

April 30, 2018: Caltrans initiated Section 106 Consultation with the State Historic Preservation Officer through submittal of the Historic Property Survey Report with a Determination of Eligibility. Caltrans identified four cultural resources near the area of potential effect: one archaeological site and three bridges. The archaeological site was determined by Caltrans to be eligible for listing in the National Register of Historic Places under Criterion A and Criterion D. The bridges have been previously evaluated and determined to be Category 5 Bridges that are ineligible for listing in the National Register of Historic Places.

May 30, 2018: The State Historic Preservation Officer responded to the April 30, 2018 letter submitted by Caltrans indicating they did not concur with Caltrans' determination of eligibility for the archaeological site under Criterion A or Criterion D of the National Register of Historic Places.

June 14, 2018: Caltrans submitted a reply to the State Historic Preservation Officer with responses to the comments in the May 30, 2018 letter from the Officer and additional supporting information for why the archaeological site is eligible for the National Register of Historic Places. Caltrans requested that the State Historic Preservation Officer further review and consider the eligibility of the site.

June 29, 2018: The State Historic Preservation Officer responded to Caltrans' June 14, 2018 reply indicating that the additional information submitted by Caltrans adequately clarified the questions outlined in their May 30, 2018 letter. The California State Historic Preservation Officer concurs with the eligibility for listing of the archaeological site on the National Register of Historic Places under Criterion A and Criterion D.

4.4.2 Native American Heritage Commission and Native American Consultation

There has been substantial Native American consultation during all aspects of the project including monitoring during survey and excavation, reviewing and commenting on all draft and final technical reports, and participating in two field meetings. Native American consultation was initiated with local Chumash individuals and groups, and interested Native American representatives, individuals, and groups that were identified by the Native American Heritage

Commission. The consultation list was also expanded to include members who contacted Caltrans and asked to be kept informed about the project.

A summary of consultation is provided below.

October 18, 2016: Caltrans Archaeologist Christina MacDonald sent an Initial Section 106 and Assembly Bill 52 Consultation Project Letter to Michael Cordero (Coastal Band of the Chumash Nation), Kenneth Kahn (Santa Ynez Band of Chumash Indians), and Julie Lynn Tumamait-Stennslie (Barbareño/ Ventureno Band of Mission Indians). No comments were received.

January 13, 2017: Caltrans Archaeologist Christina MacDonald sent a letter to Katy Sanchez of the Native American Heritage Commission requesting comment. Gayle Totten of the Native American Heritage Commission replied on January 19, 2017 with a negative result for the Sacred Lands file, and a consultation list of tribes.

February 3, 2017: Christina MacDonald sent Section 106 and Assembly Bill 52 Consultation Project Letter and Project Field Meeting Request to Kenneth Kahn, Freddie Romero, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Gilbert Unzueta, Jr., and Qun-Tan Shup. No responses were received.

February 22, 2017: Christina MacDonald sent a follow-up email to select a field meeting date. Individuals contacted: Kenneth Kahn, Freddie Romero, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Gilbert Unzueta, Jr., Qun-Tan Shup. A date was selected for the meeting.

March 15, 2017: A Project Introduction and Field Meeting was held on-site with tribal members. Meeting attendees included Christina MacDonald, Kari Bhana, and Ron Kramer of Caltrans, Clay Lebow and Erin Enright of Applied Earthworks, Inc., and Freddie Romero, Frank Arredondo, Tawnee Garcia, Marc Garcia, Gil Unzueta, Jr., and Ernestine De Soto of the consultation list. Freddie Romero deferred to the Barbareño and recused himself from further consultation.

April 13, 2017: A Native American monitor, Gilbert Unzueta, Jr., was selected from the list of the consultation group for Phase 1 Surveys.

April 20, 2017: A Phase 1 archaeological survey was conducted by Ryan Wendel of Applied Earthworks, Inc. (Caltrans consultant). Gilbert Unzueta, Jr., member of the Barbareño Chumash Tribe was present for the survey.

May 30, 2017: The Draft Archaeological Survey Report was sent by Christina MacDonald to the consultation group asking for comments back by June 21, 2017. The report was sent to Ed Morello, Sharon Ebel, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, and Frank Arredando.

June 19, 2017: A reminder email was sent by Christina MacDonald to the consultation group to send comments on the Draft Archaeological Survey Report by June 21, 2017. The reminder email was sent to Ed Morello, Sharon Ebel, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, and Frank Arredando. Comments were received from Marc Garcia, Pat Tumamait, Frank Arredando, and Gil Unzueta.

August 14, 2017: The Final Archaeological Survey Report was sent by Christina MacDonald to the consultation group (Ed Morello, Sharon Ebel, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, and Frank Arredando).

August 14, 2017: Christina MacDonald contacted Freddie Romero to report that the Archaeological Survey Report revealed a connection between Refugio and interior Santa Ynez Valley. Freddie Romero was asked to return to the consultation group and was added back to the consultation list.

September 20, 2017: The Draft Extended Phase 1/Phase 2 Testing proposal was sent to the consultation group (Ed Morello Sharon Ebel, Julie Lynn, Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, Frank Arredando, and Freddie Romero).

September 26, 2017: Responses to Draft Testing Proposal were received by Terry Joslin, District 5 Native American Coordinator, and Christina MacDonald. Freddie Romero communicated to Christina MacDonald that there is a deposit of cultural material he monitored near the project area. He also recommended adding Janet Garcia to the consultation list. Freddie's comments were incorporated into the testing proposal; Janet Garcia was added to the consultation list.

October 4, 2017; October 13, 2017: Christina MacDonald emailed the consultation list to set up a field meeting prior to Extended Phase 1 archaeological investigations, and follow-up phone calls were made. Individuals contacted: Janet Darlene Garcia, Eddy Morello, Sharon Ebel, Mia Lopez, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Qun-Tan Shup, Tawnee Garcia, Marc Garcia, Gilbert Unzueta Jr., Ernestine de Soto, Frank Arredando, and Freddie Romero.

October 24, 2017: A pre-Extended Phase 1 excavation meeting was held at Refugio State Beach to discuss testing. Attendees included Christina MacDonald of Caltrans, Erin Enright of Applied Earthworks, and Patrick Tumamait, Marc Garcia, and Janet Garcia of the consultation list.

October 25, 2017: Christina MacDonald made phone calls to all those on the consultation list who could not attend the field meeting with a meeting update. The individuals called were Ed Morello, Sharon Ebel, Mia Lopez, Julie Lynn Tumamait Stennslie, Qun-Tan Shup, Tawnee Garcia, Gilbert Unzueta Jr., Ernestine de Soto, Frank Arredando, and Freddie Romero. Freddie Romero asked why we were not testing at the valve location he mentioned September 26, 2017; Caltrans responded that this area is 65 meters outside of the study area.

December 4-7, 2017: Applied Earthworks, Inc. (Caltrans consultant) conducted Extended Phase 1 excavations. Native American Monitor Gilbert Unzueta, Jr. was present during all field work and kept daily logs of his observations.

February 9, 2018: The Final Extended Phase 1 and Phase 2 testing proposal and a Draft Extended Phase 1/Archaeological Evaluation Report were sent by U.S. mail to the consultation list (Ed Morello, Sharon Ebel, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Freddie Romero, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, Janet Garcia, Frank Arredando, and Eleanor Fishburn).

February 27, 2018: An email was sent to confirm receipt of the Final Extended Phase 1 and Phase 2 testing proposal and a Draft Extended Phase 1/Archaeological Evaluation Report, and to ask for comments by early March. The email was sent to the consultation list (Ed Morello, Sharon Ebel, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Freddie Romero, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, Janet Garcia, Frank Arredando, and Eleanor Fishburn).

April 30, 2018: Copies of the Final Extended Phase 1/Archaeological Evaluation Report were sent out to the consultation list (Ed Morello, Sharon Ebel, Julie Lynn Tumamait-Stennslie, Patrick Tumamait, Mia Lopez, Ernestine De Soto, Freddie Romero, Gilbert Unzueta, Jr., Qun-Tan Shup, Tawnee Garcia, Marc Garcia, Janet Garcia, Frank Arredando, and Eleanor Fishburn).

September 10, 2019: Christina MacDonald sent out the draft version of the Memorandum of Agreement, which included the draft Archaeological Treatment Plans as an attachment. Responses to the Memorandum of Agreement included ideas for mitigation, including museum displays, recommendations for monitoring during construction, controlled access for vehicles and equipment staging during construction.

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Chapter 5 List of Preparers

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

Lara Bertaina, Environmental Branch Chief. B.A., Environmental Studies and Planning, Sonoma State University; 2 years of urban planning and 19 years of environmental planning experience. Contribution: oversight of the Environmental Impact Report/Environmental Assessment.

Paula Juelke Carr, Associate Environmental Planner (Architectural History). M.A., Independent Studies: History, Art History, Anthropology, Folklore and Mythology, University of California, Santa Barbara; B.A., Cultural Anthropology, University of California, Santa Barbara; more than 30 years of experience in California history. Contribution: Prepared Historic Resource Evaluation Report.

Robert Carr, Associate Landscape Architect. B.S., Landscape Architecture, California Polytechnic State University, San Luis Obispo; 29 years of experience preparing Visual Impact Assessments. Contribution: preparation of the Visual Impact Assessment.

Shelly Donohue, Associate Environmental Planner. M.S., Earth and Environmental Sciences, Vanderbilt University; B.S., Biology, B.S. Earth Sciences, University of Washington; 7 years of experience in environmental planning. Contribution: preparation of the Environmental Impact Report/Environmental Assessment.

Benedict Erchul, P.E. Civil Engineer. B.S., Civil Engineering; 14 years of experience in Caltrans hydraulics/floodplain/fish passage studies. Contribution: preparation of the Fish Passage Analysis and the Location Hydraulic Study.

Yvonne Hoffmann, Associate Environmental Planner. B.S., Natural Resources Planning, Humboldt State University; 20 years of experience preparing environmental documentation and 13 years of experience in city planning. Contribution: preparation and oversight of the Environmental Impact Report/Environmental Assessment.

Raymond Gomez, Transportation Engineer (Civil). B.S. Environmental Engineering, Carroll College; 1 year of environmental engineering experience. Contribution: preparation of Water Quality Assessment Report.

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: preparation of Hazardous Waste Studies.

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; 9 years of experience in historical and architectural documentation, historic preservation, and cultural resource management. Contribution: preparation of Architectural Survey Report.

Isaac Leyva, Engineering Geologist. B.S., Geology; 29 years of experience in petroleum geology, environmental, and geotechnical engineering. Contribution: preparation of Paleontology Report.

Joseph Llanos, Graphic Designer III. B.A., Graphic Design, California State University, Fresno; 20 years of visual design and public participation experience. Contribution: preparation of project maps.

Christina MacDonald, Associate Environmental Planner (Arch). M.A., Cultural Resources Management, Sonoma State University; B.A., Anthropology, University of California, Los Angeles; 16 years of experience in California prehistoric and historical archaeology. Contribution: oversight and preparation of the Historic Property Survey Report.

Karl Mikel, Transportation Engineer. B.S., Environmental Engineering; California Polytechnic University, San Luis Obispo; M.S., Civil and Environmental Engineering, California Polytechnic University, San Luis Obispo; 11 years of experience in environmental engineering. Contribution: preparation of Air Quality, Noise, Green House Gas, and Water Quality Reports.

John Moule, Consultant Associate Biologist/Environmental Planner. B.S., Biology, Humboldt State University; 24 years of natural resource and biology experience. Contribution: preparation of Natural Environment Study.

Alexandra Bevk Neeb, Senior Environmental Planner, Section 106 Coordinator. M.S., Historic Preservation, University of Pennsylvania; B.A., Art History, University of Wisconsin-Madison; 14 years of professional experience with environmental review and historic resource evaluation in California. Contribution: preparation of the Historic Property Survey Report.

Pete Riegelhuth, National Pollutant Discharge Elimination System/Stormwater Coordinator, Landscape Associate. Bachelor of Landscape Architecture, California Polytechnic State University, San Luis Obispo;

12 years of experience as District Construction Stormwater Coordinator and 11 years as National Pollutant Discharge Elimination System/Stormwater Coordinator. Contribution: preparation of stormwater report.

Connor Ritchie, Environmental Planner (Natural Sciences). B.S., Biological Sciences, California Polytechnic State University, San Luis Obispo; 4 years of environmental planning experience. Contribution: preparation of Natural Environment Study.

Alvin S. Rosa-Figueroa, Environmental Planner (Archaeology). B.S., Anthropology, University of California, Riverside; 6 years of Prehistoric Central American and California Anthropology/Archaeology/Ethnology experience; 3 years of Cultural Resource Management and 1 year of environmental planning experience. Contribution: preparation of Supplemental Historic Property Survey Report.

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Chapter 6 Distribution List

- Joan Hartmann, Third District Supervisor, County of Santa Barbara Board of Supervisors
- Errin Briggs, Supervising Planner, County of Santa Barbara Planning and Development Division
- David Lackie, Supervising Planner, County of Santa Barbara, GavPAC
- Scott McGolphin, Public Works Director, County of Santa Barbara Public Works Department
- Fred Luna, Principal Transportation Engineer, Santa Barbara County Association of Governments
- Theresa Stevens, Senior Project Manager, U.S. Army Corps of Engineers
- Jessica Adams, Liaison Biologist, National Marine Fisheries Service, Southern CA Branch
- Mark Cassady, Permit Coordinator, Central Coast Regional Water Quality Control Board
- Baron Barrera, Caltrans Liaison, California Department of Fish and Wildlife
- Mary Larson, Senior Biologist Supervisor, California Department of Fish and Wildlife
- Deanna Christensen, District Supervisor, California Coastal Commission
- Michelle Kubran, Coastal Program Analyst, California Coastal Commission
- Steve Hudson, District Director, South Central Coast and Los Angeles County, California Coastal Commission
- Tami Grove, Transportation Program Manager, California Coastal Commission
- Sean Drake, Transportation Program Analyst, California Coastal Commission
- Brian Ketterer, Southern Field Division Chief, California Department of Parks and Recreation
- Tyson Butzke, Sector Superintendent, California Department of Parks and Recreation
- Nat Cox, Senior Environmental Scientist, California Department of Parks and Recreation
- Barbara Tejada, Associate State Archaeologist, California Department of Parks and Recreation
- Julie Colbert, Water Quality Specialist, Santa Ynez Chumash Environmental Office
- Kenneth Kahn, Chairperson, Santa Ynez Band of Chumash Indians

- Mauricio Gomez, Director, South Coast Habitat Restoration
- Bruce Reitherman, Conservation Director, Land Trust of Santa Barbara County
- Chet Work, Executive Director, The Land Trust for Santa Barbara County
- Anna Olsen, Executive Director, Cachuma Conservation District
- Janet Koed, Administrator, Gaviota Coast Conservancy
- William Banning, Interim District Superintendent, Vista Del Mar Union School District
- Salud Carbajal, U.S. Congressman–24th District, House of Representatives
- Hannah-Beth Jackson, California State Senator, District 19, Santa Barbara District Office
- Mark Morey, Board Chair, Surfrider Foundation, Santa Barbara Chapter
- Cherie Topper, Director, Santa Barbara Audubon Society
- Santa Barbara County Bicycle Coalition
- Jim Hines, Chair, Sierra Club Los Padres Chapter
- **Local property owners:** Alex Vargas Family Trust, Jeffrey Tautrim, Mark Tautrim, Leslie David Freeman, Rancho Guacamole

Appendix A Resources Evaluated Relative to the Requirements of Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S. Code 303, declares that “it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.”

This Appendix of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or next to the project area that do not trigger Section 4(f) protection because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, or 4) the project does not permanently use the property and does not hinder the preservation of the property.

Description of the Proposed Project

Caltrans proposes to remove the two existing two-span bridges at post mile R36.6 due to concrete deterioration caused by alkali-silica reaction. Replacement bridges would be constructed in about the same location that comply with current design standards, including California ST-75 or other approved Manual for Assessing Safety Hardware-compliant bridge railings. The existing bridge structures would be removed, along with the concrete-grouted rock slope protection along the bed of Cañada del Refugio Creek.

Additional project elements include upgrading the nonstandard bridge railings on the Cañada Del Refugio northbound on-ramp bridge to Manual for Assessing Safety Hardware-compliant railings, rehabilitating a pedestrian pathway beneath the bridge to make it compliant with the standards of the Americans with Disabilities Act, and improving fish passage and habitat conditions in Cañada del Refugio Creek. Other improvements to the interchange that would occur during project construction include replacing the degraded lighting system within the project limits, bringing metal beam guard railings affected by the project up to current standards, and applying contrasting surface treatment beyond the gore pavement to the southbound U.S. 101 off-ramp.

The project would take about two and a half years (three construction seasons) to complete, with the bridges reconstructed one at a time. Demolition of each bridge would occur during the dry season of each year, when the creek is low or not flowing. Fish passage improvements would be completed during the third work season.

During construction, two lanes of traffic in both the northbound and southbound directions would be located on one bridge separated by a barrier while the other bridge is being constructed. Intermittent closures of Refugio Road beneath the bridges would be required during certain construction activities. During these closure periods, detour routes for motorists and cyclists would be provided to maintain access to Refugio State Beach.

Parks, Recreational Facilities, Wildlife Refuges

Pedestrian Walkway

Beneath the Refugio Road Bridges is a pedestrian walkway that leads from the north side of the bridges to the entrance of Refugio State Beach. The walkway is about 590 feet in length and parallels Refugio Road, extending from the northbound U.S. 101 on-ramp to a private drive at the entrance to the state beach. Upon exiting the southern end of the path, pedestrians may continue across the private drive, beneath an undercrossing of the Union Pacific Railroad and into the state beach. The as-builts (construction plans) dated 1974 show the walkway as an asphalt concrete sidewalk that was installed when the bridges were constructed. Currently, the unmaintained path is primarily asphalt in varying stages of deterioration and has been encroached upon by side-slopes and vegetation. The path is not compliant with the standards of the Americans with Disabilities Act. The pedestrian walkway is almost entirely within Caltrans right-of-way except for the southern end (about 5 feet) which is on California Department of Parks and Recreation property. Rehabilitation work is proposed only for the portions of the pedestrian walkway that are located on Caltrans right-of-way because the southern end of the walkway is in good condition and would not be damaged by construction operations.

The primary use of the pedestrian walkway is as a north-south access point into Refugio State Beach. The path is generally used by visitors that drive to the U.S. 101–Refugio Road interchange, park their cars north of the interchange, and walk into the park to avoid paying the state park day use fee. There are very few pedestrians coming from nearby residences since the surrounding area is rural. The walkway may also be used by primary school students who are dropped off to the north of the Refugio Road Bridges, where a school bus serving the rural Vista Del Mar Union School District maintains a pick up/drop off location. As observed by Caltrans staff during a field meeting and confirmed by the state park ranger, most students dropped off at this location are picked up at the bus stop in vehicles by their parents or guardians.

The pedestrian walkway beneath the Refugio Road Bridges is not designated as a trail by the California Department of Parks and Recreation, as indicated

by its absence on the park brochure or campground map for Refugio State Beach. However, the walkway is shown as an existing trail in the Parks, Recreation and Trails Map of the Gaviota Coast Plan. The trail does not currently connect to any other trail networks. A nearby trailhead for the 2.5-mile Aniso Trail begins in Refugio State Beach and connects to El Capitán State Beach to the west. However, portions of the Aniso Trail are currently closed for storm damage repairs.

The Gaviota Coast Plan indicates that the pedestrian walkway may serve as a future trailhead for the California Coastal Trail. Currently, the California Coastal Trail is incomplete along the Gaviota Coast. The only segment of the California Coastal Trail between Goleta and Gaviota that is open is the Aniso Trail (described above), which connects Refugio State Beach and El Capitán State Beach. However, a portion of this trail is closed due to storm damage. To the west of Refugio State beach, the California Coastal Trail is closed due to bluff erosion. The bluff erosion combined with the location of the railroad have made repairs to this section challenging, therefore the segment of the California Coastal Trail between Refugio State Beach and the Mariposa Reina interchange may be realigned to the north side of U.S. 101. If this realignment occurs, the pedestrian walkway beneath the Refugio Road Bridges would become an important link to the California Coastal Trail. The Refugio Bridge Replacement project is likely to be constructed before the California Coastal Trail along the Gaviota Coast is opened, and therefore improving this pathway would be a benefit to the future California Coastal Trail.

Caltrans does not consider the pedestrian walkway beneath the Refugio Road Bridges to be a recreational trail for the purposes of Section 4(f) because it is located within Caltrans right-of-way and primarily functions as a transportation facility for pedestrians between a public road and Refugio State Beach. Therefore, the provisions of Section 4(f) do not apply.

Refugio State Beach and Campground

The proposed project is located next to Refugio State Beach and Campground, a popular public park owned and operated by the California Department of Parks and Recreation. The park contains a palm tree-lined sandy beach, picnic area and a campground that is located just south of the railroad from the project limits. The park is open year-round and offers water activities as well as day use access to the beach and overnight camping (63 standard campsites and several group camps). The sandy beach stretches the length of the park and is popular with surfers and families. The beach contains lifeguard towers that are staffed from Memorial Day weekend until Labor Day weekend.

The project would be constructed entirely within Caltrans and county public right-of-way except for fish passage improvements and associated planting within a permanent drainage and planting easement needed along the creek on private property. Neither easement involves state park property. During construction the park and associated facilities would remain open.

No construction would occur on state park property and the park would remain open during construction. Vehicle access would be provided throughout construction to ensure access to the beach and campground. These detours would require some out-of-direction travel (see Section 2.1.4). Pedestrian access to the park from the north side of U.S. 101 may be limited during bridge demolition and falsework construction because Refugio Road and an adjacent pedestrian path (see above) would be closed during certain construction activities. It should be noted that most pedestrians entering the park do so by driving to the U.S. 101 and Refugio Road interchange and parking a vehicle along Refugio Road. There are very few pedestrians coming from nearby residences since the surrounding area is rural.

Additional construction impacts that could affect users of the park are related primarily to noise and air quality. During the day loud equipment and backup devices would be ongoing. Construction work would be minimal during nighttime hours and would be restricted to construction staging activities that are not particularly noisy, such as lane striping and setting up temporary concrete barriers for detours. Caltrans would provide the California Department of Parks and Recreation ongoing project updates to ensure that the state beach and campground website could contain a notice indicating when there would be periods of ongoing construction.

In summary, Caltrans does not expect use of the state beach and campground property during construction of this project based on the following: 1) No portion of the public state park facility would be permanently incorporated into the transportation project; 2) no temporary occupancy would occur during construction as no encroachment onto state park property is necessary; and 3) there would be no constructive use of the state park facility. Any impacts related to air quality or loud noises would be temporary and minimized to the maximum extent feasible. Therefore, there would be no “use” of this Section 4(f) property and the provisions of Section 4(f) do not apply.

Historic Properties: Archaeological Resources

For archaeological resources, Section 4(f) applies to sites that are listed or eligible for listing in the National Register of Historic Places and that warrant preservation in place. Section 4(f) does not apply if after consultation with the State Historic Preservation Officer (or if on tribal lands, the Tribal Historic Preservation Officer), federally recognized Indian tribes, and the Advisory

Council on Historic places (if participating), it is determined that the archaeological resource is important chiefly because of what can be learned by data recovery; that it has minimal value for preservation in place; and that the State Historic Preservation Officer/Tribal Historic Preservation Officer and Advisory Council on Historic Preservation (if participating) does not object to this determination.

Caltrans has determined that there is one archaeological resource within the Section 106 Area of Potential Effects for the Refugio Bridge Replacement project that is eligible for the National Register of Historic Places: site CA-SBA-87. This site is a Chumash ethnographic and ethnohistoric village known as *Qasil.* The village of *Qasil* was noted by European travelers that passed through the Santa Barbara Channel region in the mid-1500s, writing descriptions of what they saw. Previous archaeological studies have dated the site to the Middle to late Period, about 2000 to 400 years before present. The site therefore records history of the Chumash people from the pre-contact period and possibly into the historic period including the Mission Period and beyond.

Site CA-SBA-87 would be affected by earthwork associated with reconstruction of the Refugio Road Bridges that is necessary for bridge construction and cannot be relocated around the site. There is also potential to encounter human remains during ground disturbance.

An archaeological evaluation of CA-SBA-87 was conducted using the catalog of curated archaeological materials and documentation from an earlier excavation in 1969, and an ethnographic and ethnohistoric study of *Qasil.* Through this evaluation analysis, it was determined that CA-SBA-87 is eligible to the National Register of Historic Places under Criteria A and D.

Under Criterion A, CA-SBA-87 is eligible as representative of an ethnohistoric village site associated with Chumash Native Americans' societal and economic complexity during the pre-contact period on the Santa Barbara Coast as evidenced through previous excavation and studies that revealed the site's well-preserved features, artifacts, and intra-site patterning. Under Criterion D, CA-SBA-87 is eligible for its ability to address important information regarding pre-contact Chumash life on the Santa Barbara Coast and coastal communities' connections to the interior and the island communities through its under-analyzed archaeological collection generated by Dr. James West in 1969. In addition, CA-SBA-87 was found eligible for its ability to address research questions as a partially excavated site still containing intact deposits which may yield additional information in the future.

During Section 106 analysis, it was determined that CA-SBA-87 does not warrant preservation in place. The resource is important chiefly because of what can be learned by data recovery and further processing of its previously excavated but incompletely analyzed archaeological collections. During the

coordination process that has occurred to date, no tribal members nor the State Historic Preservation Officer have made an argument for preservation in place.

As described above, the archaeological site found within the project's area of potential effect was determined eligible to the National Register of Historic Places under Criteria A and D but does not warrant preservation in place since the curated archaeological collection and documentation from an earlier site excavation in 1969 are what makes this site valuable.

Therefore, the archaeological site CA-SBA-87 is not a Section 4(f) property and the provisions of Section 4(f) do not apply.

Appendix B State Historic Preservation Officer Correspondence

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
CALTRANS DISTRICT 5
50 HIGUERA STREET
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Making Conservation a California Way of Life.

April 30, 2018

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

05-SB-101-R36.62
Refugio Bridges Replacement Project
EFIS: 05-1300-0018
EA: 05-1C9500

Attention: Alicia Perez

Re: Initiate Section 106 Consultation for the Refugio Bridges Replacement Project, Santa Barbara County

Dear Ms. Polanco:

The California Department of Transportation (Caltrans) is initiating consultation with the State Historic Preservation Officer (SHPO) regarding the Refugio Bridges Replacement Project in Santa Barbara County. This consultation is undertaken in accordance with the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation regarding compliance with Section 106 of the National Historic Preservation Act* (PA).

Caltrans proposes to replace two bridges along U.S. Route 101 (US 101) at Refugio Road, 22.4 miles west of Santa Barbara in Santa Barbara County, California. The Refugio Bridges Replacement Project is needed to address the issue of reactive aggregate in the concrete, which is affecting the structural integrity of the bridges. The project will replace the right and left Refugio Road Undercrossing Bridges (No. 51-0215R/L) along the existing alignment, which crosses Refugio Road on US 101 at PM 36.62. Additionally, the bridge rail on the Cañada del Refugio On-Ramp Bridge (No. 51-0030S), located on the northbound on-ramp at PM 36.65, will be upgraded to current standards as part of the project.

Enclosed you will find a Historic Property Survey Report (HPSR) with a Determination of Eligibility (DOE) for the proposed project. At the present time we are consulting with you under PA Stipulation VIII.C.6, which requires SHPO concurrence for DOE.

Native American consultation has been carried out throughout the project and is on-going. Native American consultants have participated in all aspects of the project, including monitoring during survey and excavation, reviewing and commenting on all draft and final technical reports, and participating in two field meetings. A summary of Native American consultation is included on p.3 in the HPSR, with a complete log of consultation found in Attachment F of the HPSR.

Cultural resources studies identified four cultural resources in the project Area of Potential Effects (APE). Three of the resources are bridges that have been previously evaluated and determined to be Category 5 Bridges (**ineligible** for listing in the National Register of Historic Places (NRHP)). These findings have been reviewed and remain valid:

- Refugio Road Undercrossing Bridges (No. 51-0215 R/L) (1974)
- Cañada del Refugio On-Ramp Bridge (No.51-0030S) (1974)

The fourth resource, CA-SBA-87, is a large ethnographic village site also known as *Qasil* that is located partially within the Caltrans right of way and is a state-owned resource. Studies conducted for the project evaluated the site and determined that CA-SBA-87 is **eligible** to the NRHP under Criteria A and D.

Caltrans is seeking your **concurrence** that CA-SBA-87 is **eligible** for the NRHP under Criteria A and D, and should be added to the Master List of Historical Resources.

Caltrans will be continuing consultation with SHPO on the assessment of effects (FOE) at a later date.

Please contact Caltrans District 5 Archaeologist Christina MacDonald (christina.macdonald@dot.ca.gov/(805) 549-3493) if you have any questions or comments regarding this notification.

Sincerely,

Krista Kiaha

KRISTA KIAHA
Caltrans District 5 Heritage Resources Coordinator

Enclosures: Historic Property Survey Report for the Refugio Bridges Replacement Project

cc: Caltrans Cultural Studies Office
Caltrans District 5 Cultural Resources Records

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State of California • Natural Resources Agency
Edmund G. Brown Jr., *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Lisa Ann L. Mangat, *Director*

Julianne Polanco, State Historic Preservation Officer
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calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

May 30, 2018

VIA ELECTRONIC MAIL

Reply in Reference To: FHWA_2018_0502_001

Ms. Krista Kiaha, Heritage Resources Coordinator
Caltrans, District 5
50 Higuera Street
San Luis Obispo, CA 93401-5415

Subject: Initiate Section 106 Consultation for the Refugio Bridges Replacement Project, Santa Barbara County (EA 05-1C9500, EFIS 05-1300-0018).

Dear Ms. Kiaha:

On May 2, 2018, the Office of Historic Preservation (OHP) received a letter from the California Department of Transportation (Caltrans) requesting review and comment with regard to the above-referenced undertaking. Caltrans is consulting with the State Historic Preservation Officer (SHPO) in accordance with the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Office, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Section 106 PA).

In accordance with Stipulation VIII.C.6 of the Section 106 PA, Caltrans is seeking SHPO concurrence on a determination of eligibility. Caltrans also submitted the *Historic Property Survey Report for the Refugio Bridges Replacement Project, Santa Barbara County, California (EA 05-1C9500, E-FIS 05-1300-0018)*. Attached to the Historic Property Survey Report (HPSR) are maps, an Archaeological Survey Report (ASR), an Extended Phase I and Archaeological Evaluation Report (XPI/AER), and Native American Consultation results.

Caltrans proposes to replace two bridges along US Route 101 (US 101), 22.4 miles west of Santa Barbara in Santa Barbara County. The Refugio Bridge Replacement Project is needed to address the issue of reactive aggregate in the concrete, which is affecting the structural integrity of the bridges. The undertaking will replace the right and left Refugio Road Undercrossing Bridges along the existing alignment. The bridge rail on the Canada del Refugio On-Ramp Bridge will also be upgraded to current standards as part of the undertaking. A complete description of the undertaking and Area of Potential Effects (APE) can be found on page one and two of the HPSR.

Caltrans' identification efforts for this undertaking are documented in the HPSR and included a record search, an archaeological pedestrian survey, implementation of an XPI and evaluation program, an ethnographic study, and consultation with Native American tribes, groups and individuals identified by the Native American Heritage Commission (NAHC) as having ancestral ties to the APE. Efforts resulted in the identification of one resource within the APE that required evaluation according to the National Register of Historic Places criteria: CA-SBA-87, a large ethnographic village site also known as *Qasil*.

Results of the pedestrian archaeological survey concluded that extensive landform modification, including substantial cut-and-fill episodes during construction of US 101 and the nearby Southern Pacific Railroad has obscured or destroyed any surface expression of the CA-SBA-87*Qasil*. As such, the purpose of the XPI testing was to investigate an area near the Canada del Refugio On-Ramp Bridge where local Native American representatives had observed archaeological materials possibly associated with CA-SBA-87*Qasil*. No intact sediments or archaeological material was identified during the archaeological pedestrian survey or the XPI testing.

The ethnohistorical and ethnographic archival research conducted by ethnographer David Earle (2018) focused on primary data sources and interviews of Native American consultants born at various missions or mission communities during the nineteenth century. Earle's study related to the Chumash occupation of the Refugio area, including the Spanish contact-era settlement of *Qasil*. Ethnographic information suggests that *Qasil* was a key element within a complex social, political, and economic trade system between Refugio descendants in the inland village of *Kalawashaq'* (Santa Ynez Valley) and the village of *Šawa* (on the south shore of Santa Cruz Island).

As a result of Caltrans' identification efforts, Caltrans has determined that CA-SBA-87*Qasil* represents a pattern of events that made a significant contribution to the local Chumash's social, economic, and political system from pre-contact to European contact. Caltrans also states that the significance of CA-SBA-87*Qasil* extends into modern times as a place important to Chumash descendant communities. As such, Caltrans has determined that CA-SBA-87*Qasil* is significant under Criterion A and retains integrity of location, setting, and association.

According to the National Register bulletin *How to Apply the National Register Criteria for Evaluation*, "a property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer." The National Register bulletin *Guidelines for Evaluating and Registering Archeological Properties* states "integrity of association is very important under Criterion A…the association between a property and its stated significance must be direct" under this criteria. On page 104 of the XPI/AER, it is argued that ethnohistoric information exists that are "important sources of data [that] can provide information on research themes critical to the understanding of CA-SBA-87/*Qasil*." Please explain how CA-SBA-87/*Qasil* has the ability to convey its association while it has been clearly argued that the site itself lacks well-preserved features and artifacts capable of answering the research themes presented in the XPI/AER. Furthermore, National Register bulletin *Guidelines*

for Evaluating and Documenting Traditional Cultural Properties states that a TCP must be rooted in the history of the group and must have an integral relationship to the Community's traditional cultural practices or beliefs. Please also explain what information the current Chumash descendants provided that supports the argument that CA-SBA-87/*Qasil* remains a place of significance to them. Without this information, the **SHPO does not concur** with Caltrans' determination that CA-SBA-87/*Qasil* is eligible for listing on the NRHP under Criterion A.

The presence of extensive fill and widespread landform modification precluded Phase II testing at CA-SBA-87/*Qasil* to evaluate the resource's significance under Criterion D. As such, Caltrans asserts that a substantial curated artifact collection associated with a 1969 archaeological investigation of CA-SBA-87/*Qasil* has the potential to address the research themes presented in the XPI/AER. Therefore Caltrans has determined that the artifact collection is eligible for listing on the NRHP under Criterion D.

Please note that in accordance with National Register terminology, an archaeological property can be a district, site, building, structure, or object. The National Register bulletin *Guidelines for Evaluating and Registering Archeological Properties* defines an archaeological property as "...the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. It is this physical evidence of the past and its patterning that is the archaeologist's data base." A curated archaeological collection is not an archaeological property.

Given the extensive previous ground disturbance that has occurred throughout CA-SBA-87/*Qasil*, it has not been adequately demonstrated how CA-SBA-87/*Qasil* has the potential to yield significant archaeological data capable of addressing the research themes presented in the XPI/AER. Based on information provided to date, the **SHPO does not concur** with Caltrans' determination of eligibility under Criterion D. Please refer to the National Register bulletin *How to Apply the National Register Criteria for Evaluation* for further information as to how to evaluate a partly excavated or disturbed property according to NRHP criteria.

If you require further information, please contact Alicia Perez of my staff at 916-445-7014 or at Alicia.Perez@parks.ca.gov

Sincerely,

Julianne Polanco
State Historic Preservation Officer

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

DEPARTMENT OF TRANSPORTATION
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Making Conservation a California Way of Life.

June 14, 2018

VIA ELECTRONIC MAIL

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

05-SB-101-R36.62
Refugio Bridges Replacement Project
EFIS: 05-1300-0018
EA: 05-1C9500
FHWA_2018_0502_001

Attention: Alicia Perez

Re: *Continued* Section 106 Consultation for the Refugio Bridges Replacement Project, Santa Barbara County

Dear Ms. Polanco:

On April 30, 2018 the California Department of Transportation (Caltrans) initiated consultation with the State Historic Preservation Officer (SHPO) for the undertaking known as the Refugio Bridges Replacement Project (05-1C950). This consultation is undertaken in accordance with the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation regarding compliance with Section 106 of the National Historic Preservation Act, as it pertains to the Administration of the Federal-Aid Highway Program in California* (PA). In accordance with Stipulation VIII.C.6 of the Section 106 PA, Caltrans submitted the *Historic Property Survey Report* (HPSR) *for the Refugio Bridges Replacement Project, Santa Barbara County, California* (EA 05-1C9500, E-FIS 05-1300-0018) seeking SHPO concurrence on an eligibility determination for CA-SBA-87, a large ethnographic village site, also known as *Qasil*, that is located in the project Area of Potential Effects (APE). Studies conducted for the project evaluated the archaeological site and determined that CA-SBA-87 is **eligible** to the NRHP under Criterion A, as representative of an ethnohistoric village site associated with pre-contact Chumash society and culture, and Criterion D, for its ability as a partially excavated site containing other intact deposits likely to yield important information and address research questions in the future and for the research potential of a thorough analysis of an extensive, existing archaeological collection and associated excavation records.

On May 30, 2018 Caltrans received a letter from you responding to our eligibility findings stating that you do not concur that CA-SBA-87 is eligible under Criterion A or D based on the information Caltrans provided. Caltrans would like to take this opportunity to thank you for your comments and address the topics you brought up in your letter by providing more information about the studies we conducted and the reasoning behind our support for CA-SBA-87's eligibility under both Criteria A and D.

Below, we list each of your four May 30, 2018 comments, followed by our responses, for your further review and consideration:

Comment #1 - *Please explain how CA-SBA-87/Qasil has the ability to convey its association [under Criterion A] while it has been clearly argued that the site itself lacks well-preserved features and artifacts capable of answering the research themes presented in the XPI/AER.*

- Caltrans' consultant mentioned on p. 65 of the Extended Phase I/Archaeological Evaluation Report (XPI/AER; Enright and Wendel 2018) that "the current study area lacks archaeological deposits suitable for Phase II testing…" We would like to clarify that this statement is referring to the fact that the portion of the site *within the project area* is covered in fill and Phase II testing was not possible for that reason. This statement was not intended to imply that the site completely lacks well-preserved features. Intact portions of CA-SBA-87 extend outside of the project area and onto Refugio State Beach property, as evidenced in previous studies conducted by Peak and Associates (1992) and Chambers Group (2000) (see XPI/AER Section 1.4.2, p 20). In addition, these previous studies and others of CA-SBA-87 demonstrate the wealth of features and artifacts associated with the site which convey the site's significance as an ethnographic village site and represents its importance within the pre-contact Chumash social, economic, and political system (see below).
- National Register Bulletin 15 states that "For archaeological sites, well-reasoned inferences drawn from data recovered at the site can be used to establish the association between the site and the events" (National Register Bulletin 15, p.12). Features discovered at the site include residential terraces, a canoe landing terrace, a cemetery, hearths, and remains of a temescal (sweat lodge)(See XPI/AER p. 18-21; p. 65-85). Many of CA-SBA-87's features were excavated by West in 1969, who identified intact deposits and recovered large volumes of artifacts found in association with the features that reveal intra-site patterns illustrating Chumash culture and social structures during the pre-contact period. The results of West's excavation are discussed in detail in Chapter 5 of the XPI/AER, including a description of each of the seven excavated features; the associated artifacts listed by artifact category and by excavation unit with associated volumetrics; and a plan map plotting West's excavation units and one plotting the analytical units used in the XPI/AER's analysis.
- Data recovered from CA-SBA-87 contain a strong association between those materials and activities that took place at the site. Both archaeological evidence and ethnographic research clearly demonstrate that *Qasil* played a key role in the pre-contact Chumash social, economic, and political system as the primary harbor facilitating trade between the mainland coast, the Santa Ynez Valley in the interior, and the northern Channel Islands. For example, *Qasil* was at the center point of trade between inland and island communities, as evidenced by such features as the canoe landing site and steatite bowls, which support *Qasil's* link with Santa Cruz Island, and large stone bowls, which support *Qasil's* link with Santa Ynez in the interior. The research value of West's excavation through the analysis of the features he recorded and the extensive, well-documented archaeological collection hold substantial data potential as they have not been fully analyzed. Not only do these features continue to be represented in the archaeological collection, along with West's extensive mapping, and field notes, but there are also unprocessed soil samples that can be evaluated using modern analytical methods (see Section 8.3, pp. 108-109). These features and their respective archaeological materials are data sets that provide an opportunity to address research questions outlined in Section 3.3 (pp. 48-53) and speak to the significance of the site as an ethnographic village, the analysis of which is found in Section 7.1 (pp. 101-105).

Comment #2 - *National Register Bulletin Guidelines for Evaluating and Documenting Traditional Cultural Properties states that a TCP must be rooted in the history of the group and must have an integral relationship to the Community's traditional cultural practices or beliefs. Please also explain what information the current Chumash descendants provided that supports the argument that CA-SBA-87/Qasil remains a place of significance to them.*

- Although the XPI/AER mentions that Refugio is still a place of importance to the local Chumash community (XPI/AER p. v, 102), Caltrans is not advocating for CA-SBA-87 to be interpreted as a Traditional Cultural Property (TCP). No tribal members, throughout the consultation process, identified Refugio as a TCP or as a place that plays a current role in their communities' historically rooted beliefs, customs, and/or practices. The XPI/AER does not address the concept of a TCP. Caltrans included the brief reference to Refugio as a place of continued importance to the local Chumash as support for these findings in a general sense, and not as a specific element of support for the site's significance under

Criterion A.

Comment #3 - *The presence of extensive fill and widespread landform modification precluded Phase II testing at CA-SBA-87/Qasil to evaluate the resource's significance under Criterion D. As such, Caltrans asserts that a substantial curated artifact collection associated with a 1969 archaeological investigation of CA-SBA-87/Qasil has the potential to address the research themes presented in the XPI/AER. Therefore Caltrans has determined that the artifact collection is eligible for listing on the NRHP under Criterion D. Please note that in accordance with National Register terminology, an archaeological property can be a district, site, building, structure, or object. The National Register bulletin Guidelines for Evaluating and Registering Archeological Properties defines an archaeological property as "...the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. It is this physical evidence of the past and its patterning that is the archaeologist's data base." A curated archaeological collection is not an archaeological property.*

- Caltrans has not evaluated the artifact collection itself as eligible for listing on the NRHP under Criterion D. However, the evaluation of an archaeological site relies on the documentation of the excavation and the methods used, as well as the analysis of the artifactual material collected from the site. Caltrans is asserting that the substantial curated artifact collection associated with West's 1969 archaeological investigation of CA-SBA-87/*Qasil* has the potential to address the research themes presented in the XPI/AER (Section 3.3, pp. 48-51). Furthermore, the ethnographic work done on *Qasil* as part of this project has generated new research avenues to be pursued regarding the connection of *Qasil* to the villages in Santa Ynez inland and Santa Cruz Island (Earle 2018). In addition to West's underreported collection, other deposits from CA-SBA-87 exist outside of the project area that have the potential to yield important research information about pre-contact Chumash culture, society, and economy. Therefore, there is an abundance of evidence to establish archaeological site CA-SBA-87 as eligible to the NRHP under Criterion D.

Comment #4 - *Given the extensive previous ground disturbance that has occurred throughout CA-SBA-87/ Qasil, it has not been adequately demonstrated how CA-SBA-87/Qasil has the potential to yield significant archaeological data capable of addressing the research themes presented in the XPI/AER. Based on information provided to date, the SHPO does not concur with Caltrans' determination of eligibility under Criterion D. Please refer to the National Register Bulletin How to Apply the National Register Criteria for Evaluation for further information as to how to evaluate a partly excavated or disturbed property according to NRHP criteria.*

- Though West's extensive salvage excavation took place in 1969 prior to the construction of the extant Refugio Undercrossing Bridges, unfortunately, CA-SBA-87 was never previously evaluated. Had the funds and the time been made available for processing West's collection, this site most certainly would have been determined eligible to the NRHP. (This scenario was common at a time when limited funding may have been available for excavation, but not for further processing, analysis, or publication of results. A similar recent reinvestigation of cultural materials recovered forty years ago during salvage excavations in the Cuyama Valley in the late 1960s and early 1970s demonstrated – through current analysis based on modern technologies – the inherent value of important, data-rich "legacy" collections.) CA-SBA-87 is a partially excavated site with associated data sets that allow for testing of hypotheses about the people and the events that created the site, about the coastal connections to the interior and island villages, and about the specific expression of the archaeological record at Refugio. Only an estimated 10% of the archaeological site was tested/excavated by West in 1969. Subsequently, the top level of soil was graded as part of the construction effort for the extant Refugio Bridge structures. The depth of the archaeological deposits extends to at least 180 cm. It is likely that there are intact deposits located within the project proposed footprint -- and bridge pilings are proposed to be driven 30 feet (9 meters) below the original ground. West encountered human remains during his excavations and it is entirely possible that human remains could be encountered as part of this current project or other projects dealing with the site. As a partially excavated site, CA-SBA-87 still retains remaining deposits that may

be small, but contain critical information on topics such as shell bead economy and trade between the interior, coast, and islands. Other intact portions of CA-SBA-87 extend outside of the project area and onto Refugio State Beach property, as evidenced in previous studies conducted by Peak and Associates (1992) and Chambers Group (2000) (see Section 1.4.2, p 20). These studies confirm the existence of intact portions of the site, including midden, and support our argument that CA-SBA-87 is eligible to the NRHP under Criterion D.

As previously stated, Caltrans has worked collaboratively with the Native American community concerned with the project area. Consultation has been carried out throughout the project and is on-going. Native American consultants have participated in all aspects of the project, including monitoring during survey and excavation, reviewing and commenting on all draft and final technical reports, and participating in two field meetings. A summary of Native American consultation is included on p.3 in the HPSR, with a complete log of consultation found in Attachment F of the HPSR.

Caltrans is seeking your **concurrence** that archaeological site CA-SBA-87 is **eligible** for the NRHP under:

- **Criterion A** as representative of an ethnohistoric village site associated with Chumash Native Americans' societal and economic complexity during the pre-contact period on the Santa Barbara Coast through its well-preserved features, artifacts, and intra-site patterning, and
- **Criterion D** for its ability to address, as a partially excavated site that contains other intact deposits which may yield information in the future and through the analysis of its archaeological collection generated by James West in 1969, important information regarding pre-contact Chumash life on the Santa Barbara Coast and coastal communities' connections to the interior and the island communities.

Caltrans will be continuing consultation with SHPO on the assessment of effects (FOE) at a later date.

Thank you for your time and consideration regarding this project. If you have any questions, please do not hesitate to contact us. You can contact me (krista.kiaha@dot.ca.gov or (805) 549-3669) or Caltrans District 5 Project Archaeologist Christina MacDonald (christina.macdonald@dot.ca.gov or (805) 549-3493) if you have any questions or comments regarding our studies for this project.

Sincerely,

Krista Kiaha

KRISTA KIAHA
Caltrans District 5 Heritage Resources Coordinator

cc: Caltrans Cultural Studies Office
Caltrans District 5 Cultural Resources Records

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

STATE OF CALIFORNIA—TRANSPORTATION AGENCY GAVIN NEWSOM, Governor

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Making Conservation a California Way of Life.

June 27, 2019

Julianne Polanco
State Historic Preservation Officer
1725 23rd Street, Suite 100
Sacramento, CA 95816

Attention: Alicia Perez

Re: Finding of Adverse Effect for the Refugio Bridges Replacement Project, Santa Barbara County, CA (FHWA_2018_0502_001)

Dear Ms. Polanco:

The Department of Transportation (Caltrans) is continuing consultation with the State Historic Preservation Officer (SHPO) regarding the above project. This consultation is undertaken in accordance with the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (the PA). Caltrans is transmitting this as part of its NEPA assignment of the Federal Highway Administration (FHWA) responsibilities pursuant to 23 USC 327.

Caltrans District 5 proposes to replace two bridges along U.S. Route 101 (US 101) at Refugio Road, 22.4 miles west of Santa Barbara in Santa Barbara County, California. The Refugio Bridges Replacement Project is needed to address the issue of reactive aggregate in the concrete, which is affecting the structural integrity of the bridges. The project will replace the right and left Refugio Road Undercrossing Bridges (No. 51-0215R/L) along the existing alignment, which crosses Refugio Creek and Refugio Road on US 101 at PM 36.62 – PM 37.0. The proposed new bridges will maintain the existing bridge lengths of approximately 330 feet and retain the same alignment and profiles; however, each proposed bridge will be approximately 7 feet wider than the existing bridges to accommodate current standards for inside shoulder width and upgraded railings. Additionally, the bridge rail on the Cañada del Refugio On-Ramp Bridge (No. 51-0030S), located on the northbound on-ramp at PM 36.65, will be upgraded to current standards as part of the project.

Identification and evaluation documents were previously submitted to the SHPO on April 30, 2018. Ethnographic village site CA-SBA-87/*Qasil* was found eligible for listing in the National Register of Historic Places. The SHPO concurred on June 29, 2018 that CA-SBA-87 is eligible for listing under Criterion A, as representative of an ethnohistoric village site associated with Chumash Native

Americans' societal and economic complexity during the pre-contact period on the Santa Barbara Coast through its well-preserved features, artifacts, and intra-site patterning; and Criterion D, for its ability to address, as a partially excavated site that contains other intact deposits which may yield information in the future and through the analysis of its archaeological collection generated by James West in 1969, important information regarding pre-contact Chumash life on the Santa Barbara Coast and coastal communities' connections to the interior and the island communities. Though CA-SBA-87 is an historic property eligible for the National Register, it is not considered a 4(f) property under Section 4(f) of the Department of Transportation Act (23 CFR 774).

Enclosed, please find a Finding of Adverse Effect (FOE) that documents the application of the Criteria of Adverse Effect to the Refugio Bridges Replacement Project. Caltrans proposes that a **Finding of Adverse Effect** is appropriate and is seeking the SHPO's concurrence on this finding, pursuant to Section 106 PA Stipulation X.C.1. Caltrans will continue to consult with the SHPO to resolve the adverse effect under PA Stipulation XI.A.

Members of multiple Chumash tribal groups have participated in on-going consultation throughout the project. They are aware of the proposed finding and have no additional comments beyond the request that a Native American advisor/consultant be retained during all phases of work to protect the interest of the tribe, which has been accommodated and will continue to do so throughout the project. Further consultation will continue regarding the resolution of adverse effects.

We look forward to receiving your response within 30 days of receipt of this submittal for the finding of effect in accordance with Stipulation X.C.1(b) of the PA. If no response is received at the end of that time, Caltrans will move forward with the project upon notification of its intentions to do so via email or other written communication. If you have any questions or comments regarding the proposed project, please contact me or project archaeologist Christina Macdonald at (805) 549-3493 or christina.macdonald@dot.ca.gov. Thank you for your assistance with this undertaking.

Sincerely,

ALEXANDRA BEVK NEEB
Section 106 Coordinator
Cultural Studies Office
Division of Environmental Analysis

Enclosures:
Finding of Adverse Effect for the Refugio Bridges Replacement Project, Santa Barbara County, CA

cc: CMacdonald

State of California • Natural Resources Agency
Edmund G. Brown Jr., *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Lisa Ann L. Mangat, *Director*

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
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calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

June 29, 2018

VIA ELECTRONIC MAIL

Reply in Reference To: FHWA_2018_0502_001

Ms. Krista Kiaha, Heritage Resources Coordinator
Caltrans, District 5
50 Higuera Street
San Luis Obispo, CA 93401-5415

Subject: Continued Section 106 Consultation for the Refugio Bridges Replacement Project, Santa Barbara County (EA 05-1C9500, EFIS 05-1300-0018).

Dear Ms. Kiaha:

On June 14, 2018, the Office of Historic Preservation (OHP) received a letter from the California Department of Transportation (Caltrans) continuing consultation with the State Historic Preservation Officer (SHPO) on the above referenced undertaking. Consultation is occurring in accordance with the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Office, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Section 106 PA).

Caltrans proposes to replace two bridges along US Route 101 (US 101), 22.4 miles west of Santa Barbara in Santa Barbara County. The Refugio Bridge Replacement Project is needed to address the issue of reactive aggregate in the concrete, which is affecting the structural integrity of the bridges. The undertaking will replace the right and left Refugio Road Undercrossing Bridges along the existing alignment. The bridge rail on the Canada del Refugio On-Ramp Bridge will also be upgraded to current standards as part of the undertaking.

On May 30, 2018, the SHPO submitted a letter to Caltrans stating that the SHPO does not concur with Caltrans' determination that CA-SBA-87/*Qasil* is eligible for listing on the National Register of Historic Places (NRHP) under Criteria A and D based on the information Caltrans provided.

Based on the SHPO's letter, Caltrans has submitted further information in support of Caltrans' determination that CA-SBA-87/*Qasil* is eligible under NRHP Criterion A as a representative of an ethnohistoric village site associated with pre-contact Chumash society and culture, and NRHP Criterion D for its potential to yield important information to address pertinent research

questions, and for the research potential of a thorough analysis of an existing, extensive archaeological collection and excavation records associated with CA-SBA-87/*Qasil*.

In general, Caltrans has provided clarification on the following:

- CA-SBA-87/*Qasil* does contain intact and well-preserved archaeological features and deposits located both outside and within the area of direct impact of the APE.
- Caltrans has not determined CA-SBA-87/*Qasil* as eligible under Criterion A for its cultural and religious significance to tribal members as a Traditional Cultural Property (TCP). Caltrans has clarified that no tribal members, throughout the consultation process, identified CA-SBA-87/*Qasil* as a TCP or as a place that plays a current role in their communities' historically rooted beliefs, customs, and/or practices.
- The existing and well-documented archaeological collection associated with West's 1969 archaeological investigation of CA-SBA-87/*Qasil* holds substantial data potential as it has never been fully analyzed. Caltrans explains that the existing intact deposits at CA-SBA-87/*Qasil* and West's existing collection have the potential to address important research themes, particularly when analyzed holistically.

Based upon the information provided by Caltrans to-date, Caltrans in accordance with Stipulation VIII.C.6 of the Section 106 PA is seeking SHPO concurrence that CA-SBA-87/*Qasil* is eligible for listing on the NRHP under:

- Criterion A as representative of an ethnohistoric village site associated with Chumash Native Americans' societal and economic complexity during the pre-contact period on the Santa Barbara Coast through its well-preserved features, artifacts, and intra-site patterning. **I concur.**
- Criterion D for its ability to address, as a partially excavated site that contains other intact deposits which may yield information in the future and through the analysis of its archaeological collection generated by James West in 1969, important information regarding pre-contact Chumash life on the Santa Barbara Coast and coastal communities' connections to the interior and the island communities. **I concur.**

Caltrans will continue consultation with the SHPO on the assessment of effects as a result of this undertaking. If you require further information, please contact Alicia Perez of my staff at 916-445-7014 or at Alicia.Perez@parks.ca.gov

Sincerely,

Julianne Polanco
State Historic Preservation Officer

State of California • Natural Resources Agency
Gavin Newsom, *Governor*

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION
Lisa Ann L. Mangat, *Director*

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July 18, 2019

VIA EMAIL

Reply in Reference To: FHWA_2018_0502_001

Ms. Alex Bevk Neeb
Section 106 Coordinator
Cultural Studies Office
Caltrans Division of Environmental Analysis
1120 N Street, MS-27
Sacramento, CA 95814

Subject: Finding of Adverse Effect for the Refugio Bridges Replacement Project, Santa Barbara County (EA 05-1C9500, EFIS 05-1300-0018)

Dear Ms. Bevk Neeb:

On July 1, 2018, the Office of Historic Preservation (OHP) received a letter from the California Department of Transportation (Caltrans) continuing consultation with the State Historic Preservation Officer (SHPO) on the above referenced undertaking. Consultation is occurring in accordance with the January 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Office, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (Section 106 PA).

Caltrans proposes to replace two bridges along US Route 101 (US 101), 22.4 miles west of Santa Barbara in Santa Barbara County. The Refugio Bridge Replacement Project is needed to address the issue of reactive aggregate in the concrete, which is affecting the structural integrity of the bridges. The undertaking will replace the right and left Refugio Road Undercrossing Bridges along the existing alignment. The bridge rail on the Canada del Refugio On-Ramp Bridge will also be upgraded to current standards as part of the undertaking.

In previous consultation, the SHPO concurred with Caltrans' determination that CA-SBA-87/*Qasil* is eligible for listing on the National Register of Historic Places (NRHP) under Criterion A as representative of an ethnohistoric village site associated with Chumash Native Americans' societal and economic complexity during the pre-contact period on the Santa Barbara Coast through its well-preserved features, artifacts, and intra-site patterning. The SHPO also concurred with Caltrans' determination that CA-SBA-87/*Qasil* is eligible for listing on the NRHP under Criterion D for its ability to address, as a partially excavated site that contains other intact deposits which may yield information in the future and through the analysis of its archaeological

collection generated by James West in 1969, important information regarding pre-contact Chumash life on the Santa Barbara Coast and coastal communities' connections to the interior and the island communities.

In applying the criteria of adverse effect, Caltrans finds that the undertaking will result in an adverse effect to CA-SBA-87/*Qasil* and is currently seeking SHPO concurrence on this finding pursuant to Stipulation X.C.1 of the Section 106 PA. I concur with Caltrans' finding of adverse effect for this undertaking.

Caltrans will continue to consult with the SHPO to resolve adverse effects in accordance with Stipulation XI.A of the Section 106 PA.If you require further information, please contact State Historian Natalie Lindquist at 916-445-7014 or Natalie.Lindquist@parks.ca.gov or Associate State Archaeologist Alicia Perez at 916-445-7020 or Alicia.Perez@parks.ca.gov.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

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Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
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Making Conservation a California Way of Life.

November 2019

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.*"

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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, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

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Appendix D Avoidance, Minimization and/or Mitigation Summary

To be sure that all environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated in the proposed Environmental Commitments Record that follows) would be implemented. During project design, the avoidance, minimization, and/or mitigation measures would be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits would be obtained prior to implementation of the project. During construction, environmental and construction and engineering personnel would 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 would take place, as applicable. Because the following Environmental Commitments Record is a draft, some fields have not been completed but would be filled out as each of the measures is implemented.

Measures that address an impact considered significant under the California Environmental Quality Act are identified as mitigation measures (e.g., Mitigation Measure CUL-1). All other measures are avoidance or minimization measures.

Utilities and Emergency Services

- **UTL-1:** If temporary or permanent utility relocation is required, Caltrans or the utility owner would notify Refugio State Beach and/or any affected residents in advance of any disruption in service during utility relocation.

Traffic and Transportation/Pedestrian and Bicycle Facilities (Section 2.1.4)

- **TRA-1:** Caltrans will implement a traffic management plan during the construction period to reduce transportation, traffic, pedestrian and bicycle impacts associated with construction activities.

Visual/Aesthetics (Section 2.1.5)

- **AES-1:** The replacement bridge rail on all affected structures will be an open style, as determined in consultation with the County of Santa Barbara.
- **AES-2:** The new U.S. 101 bridge structures will include aesthetic design and treatment as developed in collaboration with the County of Santa Barbara.

- **AES-3:** Design of the pedestrian pathway will aesthetically complement the rural coastal and riparian setting. No galvanized chain link fencing will be used.
- **AES-4:** All guardrail (including posts) and bridge end treatments will be darkened to reduce reflectivity and be visually compatible with the rural setting.
- **AES-5:** Impacts on vegetation will be minimized to the greatest extent possible. Replanting in the creek will incorporate native vegetation, address aesthetic considerations, and meet agency permit requirements and biological goals.
- **AES-6:** Vegetation control will be a natural material such as shale. If concrete must be used, it will be colored to visually blend with the surrounding natural ground.
- **AES-7:** Gore paving, if required, will match the existing aesthetic gore treatment along U.S. 101 in the area.

Cultural Resources (Section 2.1.6)

- **Mitigation Measure CUL-1:** Prior to the start of construction, field investigations will be conducted to remove potential cultural material from areas to be impacted by construction, as outlined in the Archaeological Treatment Plan developed for the project. Components of the investigation may include establishment of a mapping datum and grid over the site, excavation of surface transect units, mechanical removal of overburden, and processing all materials excavated.
- **Mitigation Measure CUL-2:** An archaeological monitoring program will be implemented during ground disturbance, as outlined in the project's Archaeological Treatment Plan. The program will include archaeological awareness training for construction personnel, presence of an archaeological monitor and Native American monitor during ground-disturbing activities, data recovery during monitoring activities, and a plan for inadvertent discoveries. If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be temporarily diverted while a qualified archaeologist assesses the nature and significance of the find. If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities will stop in any area or nearby area suspected to overlie remains, and the county coroner will be contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native American Heritage Commission which, pursuant to Public Resource Code Section 5097.98, will then notify the most likely descendent. At that time, the person who discovered the remains will contact the District 5 Environmental Branch so that it may work with the most likely descendent on the respectful treatment and disposition of the

remains. Further provisions of Public Resources Code Section 5097.98 are to be followed as applicable.

- **Mitigation Measure CUL-3:** Analysis and Interpretation of Cultural Materials. Cultural materials collected from CA-SBA-87 will be analyzed using current professional standards, as outlined in the Archaeological Treatment Plan developed for the project. The bulk of this work will focus on the archived collection from West's 1969 excavation, which will be obtained on loan from the University of California, Los Angeles Archaeological Curation Facility. Cultural materials that may be discovered during data recovery under CUL-1 or archaeological monitoring under CUL-2 will also be included in the analysis. Work will include but not be limited to organization of the 1969 collection, analysis and digitization of cultural materials including an analysis of artifact tool classes, taxonomic identification of plant and animal remains, special studies relating to chronology and sourcing (e.g., radiocarbon dating), cataloguing of materials into the University of California, Los Angeles collections database, Chumash ethnographic studies and an ethnographic study of G. James West's 1969 archaeological excavations. Results will be summarized in a technical report and will provide information for the public outreach component outlined in measure CUL-4.
- **Mitigation Measure CUL-4:** Public outreach based on the history of CA-SBA-87 and Chumash tribal groups will be developed in direct consultation with interested parties and will be designed to benefit both Native American communities and enhance understanding of Native American culture for the public, as outlined in the Archaeological Treatment Plan developed for the project. Outreach strategies may include but are not limited to development of a virtual museum and associated educational materials, and creation of interpretive materials for use by the California Department of Parks and Recreation or other interested agencies. Interpretive materials may include interpretive panels at Refugio State Beach, pamphlets, educational videos that can be displayed on monitors or websites, and field trip guides for use by educators. Outreach to the archaeological community will occur through publication in a peer-reviewed journal such as *Advances in Archaeological Practice.*

Water Quality and Storm Water Runoff (Section 2.2.2)

- **WQ-1:** Construction activities would be scheduled according to the relative sensitivity of the environmental resources and as directed by regulatory permit conditions. When working near streams, erosion and sediment controls would be implemented to keep sediment out of the stream channel to avoid significant water quality concerns.
- **WQ-2:** Minimize disturbance by selecting the narrowest crossing location, limiting the number of equipment trips across the stream during

construction, and reducing the number and size of work areas (equipment staging areas and spoil storage areas). Isolate equipment staging and spoil storage areas away from the stream channel using appropriate storm water control barriers. Provide stabilized access to the stream when in-stream work is required.

- **WQ-3:** Locate staging and work areas in pre-disturbed areas when possible.
- **WQ-4:** Preserve existing vegetation outside of the active work area, especially in the streambank environment where preservation of existing vegetation provides the benefits of water quality protection, streambank stabilization, and riparian habitat.
- **WQ-5:** Temporary large sediment barriers, fiber rolls, and gravel bag berms should be installed as needed. Fiber rolls should be installed along slope contours above the high-water level to intercept runoff, reduce flow velocity, and release the runoff as sheet flow and remove sediment from the runoff. In a stream environment, fiber rolls should be used in conjunction with other sediment control methods.
- **WQ-6: Clear-Water Diversion.** In-channel systems put in place to divert water around the work area are required during the winter season and should also be pre-designed for rapid deployment to respond to unexpected rains outside of the winter season.

Geology, Soils, and Seismicity (Section 2.2.3)

- **GEO-1:** Design the project according to Caltrans seismic standards, as provided in the Highway Design Manual.
- **GEO-2:** Conduct additional soil sampling and laboratory tests for corrosion, scour, liquefaction, strength, index (unit weight, water content, gradation), and consolidation. This will include borings to assess subsurface conditions for the proposed bridge foundations.

Hazardous Waste and Materials (Section 2.2.4)

- **HAZ-1:** A Lead Compliance Plan will be required for handling, reusing or disposing of aerially deposited lead enriched soil. An aerially deposited lead study will be performed to evaluate aerially deposited lead handling, disposal and/or reuse criteria. If the aerially deposited lead study found soils to be deemed hazardous waste, aerially deposited lead enriched soil can be used on-site in accordance with the conditions specified in the Soil Management Agreement of aerially deposited lead between Caltrans and the Department of Toxic Substances Control Board or be disposed at a Class 1 landfill facility. Lead-contaminated soil can only be used if it is placed under one foot of clean soil, a minimum of five feet above ground water and away from surface water bodies and/or under paved surfaces.

- **HAZ-2:** If asbestos-containing materials are identified, they will be managed and disposed of accordingly.
- **HAZ-3:** If lead-containing paint is identified, it will be disposed of as California and Resource Conservation and Recovery Act hazardous waste at a Class 1 landfill facility. Intact lead paint on components is accepted by most landfills and recycling facilities. Handling lead and disposal of removed lead-containing paint will follow Caltrans Standard Special Provision 14-11.13.
- **HAZ-4:** It is presumed that treated wood waste is a hazardous waste and must be managed in accordance with the Alternative Management Standard, which among other things, permit disposal of presumed hazardous treated wood waste at specific non-hazardous waste landfill. Proper management of treated wood waste will follow Standard Special Provision 14-11.14.

Air Quality (Section 2.2.5)

- **AQ-1:** A debris containment and collection plan should be included in the project's special provisions if a waste characterization evaluation determines that lead-based paint or asbestos-wrapped pipe is present. Implement "work area monitoring" to monitor ambient air and soil in and around the work area and verify the effectiveness of any containment system, if one is ultimately included in the engineer's estimate.

Noise (Section 2.2.6)

- **NOI-1:** Minimize Impact on Refugio State Beach Campground. To minimize impacts on the adjacent campground, construction should take place during daytime hours, especially on the southbound bridge. Normal construction equipment should not emit noise levels greater than 86 decibels at 50 feet from the source during nighttime hours (9:00 p.m. to 6:00 a.m.).
- **NOI-2:** Notify Sensitive Receptors of Construction Activity. A notice should be published in local news media and included on the Reserve California website so that prospective campers are aware of the dates and duration of proposed construction activities. The District 5 Public Information Office will post notices regarding the proposed construction. Informational materials about the project and potentially elevated noise levels during construction should be given to campers when registering at the kiosk.

Natural Communities (Section 2.3.1)

- **NC-1:** Environmentally sensitive area fencing will be installed along the maximum disturbance limits to minimize disturbance to habitats and vegetation. Special provisions for the installation of environmentally sensitive area fencing and silt fencing will be included in the construction

contract and will be identified on the project plans. Prior to the start of construction activities, environmentally sensitive area areas will be delineated in the field and will be approved by the Caltrans environmental division.

Wetlands and Other Waters (Section 2.3.2)

- **WET-1:** Prior to construction, Caltrans will obtain a Section 404 Nationwide Permit from the U.S. Army Corps of Engineers, a Section 401 Water Quality Certification from the Regional Water Quality Control Board, a Section 1602 Streambed Alteration Agreement from the California Department of Fish and Wildlife, and a Coastal Development Permit (or Waiver) from the California Coastal Commission.
- **WET-2:** Prior to any ground-disturbing activities, environmentally sensitive area fencing will be installed around jurisdictional waters, coastal zone Environmentally Sensitive Habitat Areas, and the dripline of trees to be protected within project limits. Caltrans-defined environmentally sensitive areas will be noted on design plans and delineated in the field prior to the start of construction activities.
- **Mitigation Measure WET-3:** On-site compensatory mitigation is proposed at a 1:1 ratio (acreage) for temporary impacts and at a 3:1 ratio (acreage) for permanent impacts, except for permanent impacts to California Coastal Commission wetlands which will be mitigated at a 4:1 ratio (acreage). Impacts to protected trees, as defined in Policy NS-12 of the Gaviota Coast Plan, would be mitigated at a 10:1 ratio (number of trees). Mitigation would be achieved through restoration and would include acquiring a permanent planting easement along Cañada del Refugio Creek. Fish passage modifications to the creek bed would improve migration for anadromous fish as well as improving riparian habitat and stream conditions. Replacement plantings will be detailed in Caltrans' Landscape Architecture Landscape Planting Plan and the final Mitigation Management Plan, which will be developed in coordination with a Caltrans district biologist. The Mitigation Management Plan will include developing planting specifications to ensure survival of planted vegetation and re-establishment of impacted natural habitats. The final Mitigation Management Plan will detail mitigation commitments and will be consistent with standards and mitigation requirements as the project proceeds through the regulatory agency permit review process. It is expected that restoration plantings will be on-site and in-kind and consist of the same native species impacted, such as arroyo willow, sycamore, California sage, coyote bush, quailbush, and other associated native species known to occur in the project limits.

Plant Species (Section 2.3.3)

- **PLA-1:** Prior to construction, the top two inches of the soil within about 1.5 feet of all Santa Catalina island buckwheat and cliff aster plants affected in the project work area will be collected by the contractor and stockpiled during construction. Prior to collection, soils should be inspected for the presence of invasive species such as fountain grass. If invasive species are present, the soils will not be collected and stockpiled. Towards the end of construction and prior to permanent erosion control application the stockpiled soil will be spread in areas that are suitable habitat. It is estimated that soil from about 20 cliff aster plants will need to be collected from the area under the bridges and soil from about 30 Santa Catalina island buckwheat plants from areas where permanent vegetation control will be placed under metal-beam guardrail. The contractor will coordinate with the Caltrans district biologist no sooner than 60 working days prior to construction.

Animal Species (Section 2.3.4)

- **AS-1:** Prior to initiation of water management systems in Cañada del Refugio Creek, Caltrans will conduct an informal worker environmental training program including a description of the coast range newt, western pond turtle and two-striped garter snake, their legal and protected status, closeness to the project site, and avoidance and minimization measures to be implemented during the project.
- **AS-2:** Prior to construction, a biologist determined qualified by Caltrans will survey the biological study area and, if present, capture and relocate any coast range newts or two-striped garter snakes to suitable habitat upstream of the biological study area. Western pond turtles will be captured and relocated to Refugio Lagoon. Observations of Species of Special Concern or other special-status species will be documented on California Natural Diversity Database forms and submitted to the California Department of Fish and Wildlife upon project completion. If these species or other aquatic Species of Special Concern are observed during construction, they will likewise be relocated to suitable habitat outside of the impact area by a qualified biologist.
- **AS-3:** All excavation and vegetation removal will be monitored by a qualified biologist. The qualified biologist will be on-site and monitoring during all new excavations and vegetation removal.
- **AS-4:** Northern California legless lizards, coast horned lizards, coast patch-nosed snakes, or any species (excluding state or federal listed species) discovered during monitoring will be captured and relocated by the qualified biologist to suitable habitat outside of the biological study area. Observations of species of special concern or other special-status species will be documented on California Natural Diversity Database

forms and submitted to the California Department of Fish and Wildlife upon project completion.

- **AS-5:** If feasible and regulatory approvals allow, tree removal will be scheduled to occur from October 1 and January 31, outside of the typical nesting bird season to avoid potential impacts to nesting birds. If it is not feasible to conduct this work outside of the nesting bird season, nesting bird surveys should be conducted by a qualified biologist no more than 14 days prior to the start of construction. If an active nest is found, a qualified biologist will determine an appropriate buffer and monitoring strategy based on the habits and needs of the species. The buffer area will be avoided until a qualified biologist has determined that the nest is no longer active.
- **AS-6:** Unoccupied swallow mud nests could provide roosting locations for bats protected by the State of California. As a result, mud nests on these bridges must be removed prior to starting work and outside of the bird nesting season (scheduled to occur from October 1 and January 31). The applicant (contractor) will prepare a plan to exclude birds and bats from nesting or roosting on the bridges. This plan will discuss methods of removing mud nests or other nests and eliminating access to the angles of the bridges where swallows typically build nests and to drainage holes where white-throated swifts are known to nest and may provide roosting habitat for bats. The exclusion methods will be implemented after the mud nests have been removed. Exclusion methods should include, but are not limited to installing thick plastic sheeting, or polytetrafluoroethylene (i.e., Teflon brand) sheeting in the angles where swallows build nest. For drainage holes, one-way exclusion material will be used to prevent inadvertent trapping of bats. The exclusion plan will be submitted to the Caltrans district biologist for approval at least 45 working days prior to implementation. Refer to AS-8 below.
- **AS-7:** Mud nest removal and installation of exclusion methods will be completed prior to the beginning of the bird nesting season. Mud nests will be removed, and the exclusion devices will be installed any time outside of the nesting bird season (i.e., install devices between October 1 to January 31). Refer to measures AS-9 and AS-10 in the avoidance and minimization measures for bats for additional procedures.
- **AS-8:** Daily inspections and recorded inspection logs will also be a part of the exclusion plan. After installed, exclusion devices will be inspected daily by the contractor to remove any partially constructed nests, monitor for any wildlife that may become trapped by the exclusion devices, and/or repair exclusion devices (if necessary). If any wildlife is discovered trapped or a bat-occupied or bird-occupied area is discovered, the Caltrans district biologist will be notified immediately and any further work on the bridges will stop until further protection measures can be implemented.

- **AS-9:** The applicant (contractor) will contact the district biologist at least seven days prior to removing swallow mud nests from the bridges.
- **AS-10:** Mud nest removal will require a boom lift, snooper truck, or equipment suitable to access mud nests at arm's length. Swallow nests will be visually inspected (using an inspection camera if necessary) to determine if they are occupied before proceeding. Once it is determined they are unoccupied, swallow mud nests will be gently scraped off the bridge and allowed to drop into a container with a cushioned bottom to protect any bats that may reside within. Mud nests will not be dropped to the ground or more than 10 feet to a cushioned container.
- **AS-11:** No more than 14 days prior to construction activities, a preconstruction survey will be conducted within the biological study area by a qualified biologist to determine the presence or absence of woodrat middens.
- **AS-11:** If woodrat middens are located during this survey, the qualified biologist will establish an environmentally sensitive area with a 25-foot buffer around each midden and no project activities requiring grading, mechanized equipment or vehicles, or large crews will be allowed within the 25-foot protective buffer.
- **AS-13:** If project activities cannot avoid impacting the middens, then a qualified biologist will dismantle the middens by hand prior to grading or vegetation removal activities. The midden dismantling will be conducted such that the midden material is slowly removed while the biologist looks for young woodrats. The material will be placed in a pile at the closest adjacent undisturbed habitat and more than 50 feet from construction activities.
- **AS-14:** If young are encountered during midden dismantling, the dismantling activity will be stopped and the material replaced back on the nest and the nest will be left alone and rechecked in two to three weeks to see if the young are out of the nest or capable of being out on their own (as determined by a qualified biologist); once the young can fend for themselves, the nest dismantling can continue.
- **AS-15:** No more than 14 days prior to construction activities or any project activity likely to impact American badgers, a preconstruction survey will be conducted for American badgers. The survey will identify badger habitat features on the project site, evaluate use by badgers and, if possible, assess the potential impacts to the badger by the proposed activity. The status of all dens should be determined and mapped. Known dens, if found occurring within the biological study area, will be monitored for three days with a tracking medium to determine the current use. If no badger activity is observed during this period, the den will be destroyed immediately to preclude subsequent use. If badger activity is observed at the den during this period, the den will be monitored for at least five

consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Only when the den is determined to be unoccupied will the den be excavated under the direction of the biologist.

- **AS-16:** If the preconstruction and pre-activity survey reveals an active natal pupping den or new information regarding badger presence within 200 feet of the project boundary, a qualified biologist will immediately notify the California Department of Fish and Wildlife.
- **AS-17:** Prior to ground breaking, a qualified biologist will conduct an environmental education and training session for all construction personnel. Prior to, during, and after the site disturbance and/or construction phase, use of pesticides or herbicides should follow all federal, state, and local regulations. No rodent control pesticides will be used, including anticoagulant rodenticides such as brodifacoum, bromadiolone, difethialone and difenacoum. This is necessary to minimize the possibility of primary or secondary poisoning of American badgers or other special-status species.
- **AS-18:** A litter control program will be instituted at each project site. No canine or feline pets or firearms (except for law enforcement officers and security personnel) will be permitted on construction sites to avoid harassment, killing, or injuring of badgers.

Threatened and Endangered Species (Section 2.3.5)

- **TES-1:** Prior to construction, Caltrans will acquire incidental take authorization for tidewater gobies from U.S. Fish and Wildlife Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.
- **TES-2:** Prior to initiation of the water management plan for Cañada del Refugio Creek, Caltrans will conduct an informal worker environmental training program including a description of the tidewater goby, its legal and protected status, proximity to the project site, avoidance and minimization measures to be implemented during the project, and the implications of violating the Federal Endangered Species Act and permit conditions.
- **TES-3:** If dewatering is required, any pumps used will be fitted with an anti-entrapment device to prevent tidewater gobies from being drawn into the pump or impinged on intake screening. Just prior to dewatering and just after dewatering, the U.S. Fish and Wildlife Service-approved biologist will remove by hand or net all tidewater gobies found within the dewatering area and relocate them to Refugio Lagoon downstream of the biological study area.
- **TES-4:** A U.S. Fish and Wildlife Service-approved biologist will remain on-site and observe tidewater gobies and turbidity (murkiness) levels within the work areas during installation of a clear-water stream diversion system

and dewatering (if needed) and will capture and relocate tidewater gobies to Refugio Lagoon as necessary.

- **TES-5:** Caltrans will provide U.S. Fish and Wildlife Service a written summary of work performed (including biological survey and monitoring results), best management practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and re-location efforts (if appropriate) will include names of the U.S. Fish and Wildlife Service-approved biologists, location and description of the area surveyed, the time and date of the survey, all survey methods used, a list and tally of all sensitive animal species observed during the survey, a description of the instructions and recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts.
- **TES-6:** Prior to construction, Caltrans will acquire incidental take authorization for steelhead trout from the National Marine Fisheries Service through a Federal Endangered Species Act Section 7 Biological Opinion and Incidental Take Statement.
- **TES-7:** Prior to implementation of a water management plan in Cañada del Refugio Creek, a qualified biologist will conduct an informal worker environmental training program including a description of steelhead trout, its legal and protected status, proximity to the project site, avoidance and minimization measures to be implemented during the project, and the implications of violating Federal Endangered Species Act and permit conditions.
- **TES-8:** During construction, in-stream work, including pile driving will be limited to the low-flow period from June 1 and October 31 in any given year, when the surface water is likely to be at seasonal minimum and to avoid adult steelhead trout spawning migration and peak smolt migration. Deviations from this work window will only be made with permission from Caltrans and the relevant regulatory and resource agencies.
- **TES-9:** A qualified biologist will be retained with experience in steelhead trout biology and ecology, aquatic habitats, biological monitoring (including dewatering), and capturing, handling, and relocating fish species. The biological monitor will continuously monitor placement and removal of any creek diversion and dewatering system (if needed) to capture steelhead trout and other native fish species and relocate them to suitable habitat as appropriate. The monitor will capture steelhead trout in the biological study area just prior to installation of the stream diversion and any remaining stranded immediately after. Steelhead trout will be relocated to suitable habitat upstream of the work area, using methods approved by the appropriate regulatory agencies. This may include but will not necessarily be limited to: seine-netting, dip-netting, and providing aerated water in buckets for transport and ensuring adequate water temperatures during

transport. The biologist will note the number of steelhead trout observed in the affected area, the number of steelhead trout captured and relocated, and the date and time of the collection and relocation.

- **TES-10:** During in-stream work, if pumps are incorporated to assist in temporarily dewatering the site, intakes will be completely screened with no larger than 3/32-inch (2.38 mm) wire mesh to prevent steelhead trout and other sensitive aquatic species from entering the pump system. Pumped water will be directed through a silt filtration bag and/or into a settling basin allowing the suspended sediment to settle out prior to re-entering the stream outside of the isolated area.
- **TES-11:** When the biological monitor is on-site, they will monitor erosion and sediment controls to identify and correct any conditions that could adversely affect steelhead trout or steelhead trout habitat. The biological monitor will be granted the authority to stop work activity as necessary and to recommend measures to avoid and minimize adverse effects to steelhead trout and steelhead trout habitat.
- **TES-12:** Caltrans will provide National Marine Fisheries Service a written summary of work performed (including biological survey and monitoring results), best management practices implemented (i.e., use of biological monitor, flagging of project areas, erosion and sedimentation controls) and supporting photographs. Furthermore, the documentation describing listed species surveys and relocation efforts (if appropriate) will include names of the Caltrans-approved biologists, the location and description of the area surveyed, the 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 and recommendations given to the applicant during the project, and a detailed discussion of capture and relocation efforts (if appropriate).
- **TES-13:** Sound attenuating devices will be used during pile driving, if any feasible method is available for dry pile driving.
- **TES-14:** Vibration and oscillation of piles will be used to the greatest extent feasible to install piles and reduce the need for hammer driving.
- **Mitigation Measure TES-15:** Remediate the partial fish passage barrier in the biological study area.
- **TES-16:** Only U.S. Fish and Wildlife Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frogs.
- **TES-17:** Ground disturbance will not begin until written approval is received from the U.S. Fish and Wildlife Service that the biologist is qualified to conduct the work.
- **TES-18:** A U.S. Fish and Wildlife Service-approved biologist will 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 will be allowed enough time to move them from the site before work begins. The U.S. Fish and Wildlife Service-approved biologist will 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 will be in the same drainage to the extent practicable. Caltrans will coordinate with the U.S. Fish and Wildlife Service on the relocation site prior to the capture of any California red-legged frogs.

- **TES-19:** Before any activities begin on a project, a U.S. Fish and Wildlife Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will 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, with a qualified person on hand to answer any questions.
- **TES-20:** A U.S. Fish and Wildlife Service-approved biologist will be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of habitat has been completed. After this time, Caltrans will designate a person to monitor on-site compliance with all minimization measures. The U.S. Fish and Wildlife Service-approved biologist will ensure this monitor receives the training outlined in Measure 4 above and in the identification of California red-legged frogs. If the monitor or the U.S. Fish and Wildlife Service-approved biologist recommends that work be stopped because California red-legged frogs would be affected in a manner not expected by Caltrans and U.S. Fish and Wildlife Service during review of the proposed action, they will notify the resident engineer immediately. The resident engineer will resolve the situation by requiring that all actions causing these effects are stopped. When work is stopped, the U.S. Fish and Wildlife Service will be notified as soon as possible.
- **TES-21:** Habitat contours will be returned to a natural configuration at the end of the project activities. This measure will be implemented in all areas disturbed by activities associated with the project, unless the U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible, or modification of original contours would benefit the California red-legged frog.
- **TES-22:** The number of access routes, size of staging areas, and the total area of activity will be limited to the minimum necessary to achieve the project. Environmentally sensitive areas will 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.

- **TES-23:** Caltrans will attempt to schedule work for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding would be avoided, to the maximum degree practicable, during the breeding season (November through May). Isolated pools that are important to maintain California red-legged frogs through the driest portions of the year would be avoided, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and technical assistance between Caltrans and the U.S. Fish and Wildlife Service during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of year.
- **TES-24:** To control sedimentation during and after project completion, Caltrans will implement best management practices outlined in any authorizations or permits issued under the authorities of the Clean Water Act received for the project. If best management practices are ineffective, Caltrans will attempt to remedy the situation immediately, in coordination with the U.S. Fish and Wildlife Service.
- **TES-25:** Unless approved by U.S. Fish and Wildlife Service, water will not be impounded in a manner that may attract California red-legged frogs.
- **TES-26:** A U.S. Fish and Wildlife Service-approved biologist will permanently remove any exotic species individuals, such as bullfrogs (*Rana catesbeiana*), signal and red swamp crayfish (*Pacifasticus leniusculus; Procambarus clarkii*), and centrarchid fishes from the project area, to the maximum extent possible. The U.S. Fish and Wildlife Service-approved biologist will be responsible for ensuring his or her activities comply with the California Fish and Game Code.
- **TES-27:** 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.
- **TES-28:** To ensure that diseases are not conveyed between work sites by the U.S. Fish and Wildlife Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Task Force will always be followed.
- **TES-29:** Project sites will be revegetated with an assemblage of native riparian and upland vegetation suitable for the area. Locally collected plant materials will be used to the maximum extent practicable. Invasive, exotic plants will be controlled to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the

project, unless the U.S. Fish and Wildlife Service and Caltrans determine that it is not feasible or practical.

- **TES-30:** Caltrans will not use herbicides as the primary method to control invasive or exotic plants. However, if it is determined that the use of herbicides is the only feasible method for controlling invasive plants at project site, it will implement additional protective measures for the California red-legged frog, including: **a)** Caltrans will not use herbicides during their breeding season; **b)** Caltrans will conduct surveys for the California red-legged frog immediately prior to initiating herbicide use. If found, California red-legged frogs will be relocated to suitable habitat far enough from the project area to avoid their direct contact with herbicides; **c)** Giant reeds and other invasive plants will 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 will use a hand-held sprayer for foliar application of Aquamaster® or Rodeo® where large monoculture stands occur at an individual site; **e)** All precautions will be taken to ensure that no herbicide is applied to native vegetation; **f)** Herbicides will not be applied on or near open water surfaces (no closer than 60 feet from open water); **g)** Foliar applications of herbicides will not occur when wind speeds exceed three miles per hour; **h)** No herbicides will be applied within 24 hours of forecasted rain; **i)** Application of all herbicides will be done by qualified Caltrans staff or contractors to ensure that overspray is minimized, that all applications are made in accordance with the label recommendations, and with implementation of all required and reasonable safety measures. A safe dye will be added to the mixture to visually denote treated sites. Application of herbicides will 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 will be stored, poured, or refilled at least 60 feet from riparian habitat or water bodies in a location where a spill would not drain directly toward aquatic habitat, unless otherwise preapproved by the applicable agencies. Prior to the onset of work, Caltrans will ensure that a plan is in place for a prompt and effective response to accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- **TES-31:** Prior to initiation of stream dewatering, Caltrans will conduct an informal worker environmental training program that includes a description of foothill yellow-legged frogs, their legal and protected status, their proximity to the project site, and avoidance and minimization measures to be implemented during the project.
- **TES-32:** In the unlikely event that a foothill yellow-legged frog is observed during preconstruction surveys or construction monitoring, all in-stream project activities will immediately stop, and Caltrans will contact the

California Department of Fish and Wildlife within 48 hours to determine if a Section 2081 Incidental Take Permit is necessary.

- **TES-33:** If least Bell's vireo and/or southwestern willow flycatcher are observed within 100 feet of the biological study area during construction, a qualified biologist will implement an exclusion zone and ensure that work is avoided within the exclusion zone until the least Bell's vireo and/or southwestern willow flycatcher is greater than 100 feet from project-related disturbance. If an active least Bell's vireo and/or southwestern willow flycatcher nest is observed within 100 feet of the biological study area, all project activities will stop immediately, and Caltrans will contact the U.S. Fish and Wildlife Service and California Department of Fish and Wildlife within 48 hours. If required, Caltrans will then initiate the Federal Endangered Species Act Section 7 formal consultation with U.S. Fish and Wildlife Service and the California Endangered Species Act coordination for least Bell's vireo and/or southwestern willow flycatcher and implement additional measures as necessary.

Invasive Species (Section 2.3.6)

- **IS-1:** Only clean fill will be imported. When practicable, invasive exotic plants in the project site will be removed and properly disposed. All vegetation removed from the construction site will be taken to a landfill to prevent the spread of invasive species. If soil from weedy areas must be moved off-site, the top six inches containing the seed layer in areas with weedy species will be disposed of at a landfill.
- **IS-2:** Invasive species listed in the California Invasive Plant Council's Invasive Plant Inventory will not be included in the Caltrans erosion control seed mix or landscaping planting plans.
- **IS-3:** The contract specifications for permanent erosion control will require the use of regionally appropriate California native forb and grass species that occur in the same general geographic area as the project site.
- **IS-4:** Mulches used on the project will be from source materials that will not introduce exotic species.

Wildfire (Section 3.4)

- **WF-1:** An emergency water supply for use if a fire is ignited will be kept on the project site for the duration of project construction.
- **WF-2:** Prior to the start of project construction, clearing and grubbing within areas of direct impact to reduce the potential of igniting a wildfire will take place. Vegetation clearing should occur in coordination with the Caltrans biologist to avoid impacts to sensitive habitats or plant species.

Greenhouse Gases (Section 3.5.4)

Operational Emissions Reduction Measures

- **GHG-1:** To improve water efficiency, vegetation will be replaced with native and drought tolerant plants. Low-flow drip irrigation will be used during the plant establishment period.
- **GHG-2:** The project will incorporate the following Complete Streets component: The existing trail will be replaced with a new trail that is compliant with the standards of the Americans with Disabilities Act.
- **GHG-3:** The project will incorporate native plants and vegetation, which includes replacing more vegetation than was removed for the project design to increase carbon sequestration.
- **GHG-4:** The project will include landscaping components such as mulch and compost application to improve carbon sequestration rates in soils and reduce organic waste.
- **GHG-5:** The project will incorporate green infrastructure (planted areas) instead of gray (concrete) storm water facilities with the use of vegetated swales at the flow line and in the median following removal of the median crossover paving.

Construction Emissions Reduction Measures

- **GHG-6:** During project construction idling will be limited to 5 minutes for delivery and dump trucks and other diesel-powered equipment per Caltrans standard specifications.
- **GHG-7:** During project construction the use of recycled materials (e.g., tire rubber) will occur. Rubberized asphalt will be used where applicable. Excavated material can be used in embankment.
- **GHG-8:** The project will lower the rolling resistance of highway surfaces as much as possible by removing the open grade asphalt and replacing it with rubberized asphalt for a smoother surface.
- **GHG-9:** The project will attempt to balance earthwork by balancing cut and fill quantities to the maximum extent feasible.

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Appendix E Notice of Preparation

Notice of Preparation of a Draft Environmental Impact Report/Environmental Assessment

Refugio Road Bridge Replacement Project,
Santa Barbara County, CA

The California Department of Transportation (Caltrans), the Lead Agency, is preparing environmental compliance documentation to address probable environmental impacts associated with the replacement of the existing northbound and southbound bridges (bridges #51-0215R and #51-0215L) along United States Highway 101 (US 101) near Refugio State Beach in Santa Barbara County. Caltrans plans to prepare a joint environmental document, an Environmental Impact Report/Environmental Assessment (EIR/EA), pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is distributing this Notice of Preparation requesting comments from responsible and trustee agencies regarding the significant environmental issues, reasonable project alternatives, and reasonable mitigation measures that will be discussed in the draft EIR/EA.

Project Location

The proposed project is located along US 101 in southern Santa Barbara County, about 8 miles west of Goleta from 0.6 mile east of the Refugio Road Undercrossing to 0.4 mile west of the Refugio Road Undercrossing. The two bridge spans occur near the entrance to Refugio State Beach and Campground, directly over Cañada del Refugio Creek. Figures 1 and 2 shows the vicinity and location of the proposed project, which would extend from post mile (PM) 36.0 to 37.0.

Project Background

The two US 101 bridges that span Cañada del Refugio Creek and Refugio Road were built in 1974 and featured continuous reinforced concrete box girders on single column bents with driven concrete piles and open-end diaphragm abutments. According to a Structure Replacement and Improvement Needs Report, deck cracking was first noted in October 1974 on the northbound bridge, and was observed in July 1979 on the southbound bridge. Cracking on one of the southbound bridge abutments was first noted in 1995. The bridge decks have continued to deteriorate, and cracking has developed on the other bridge abutments.

This project was initiated after concrete core testing and an inspection of the structures documented the presence of Alkali-Silica Reactivity or reactive aggregate in the concrete. Alkali-Silica Reactivity is a widespread problem affecting Portland cement concrete that occurs when silica in the aggregate and alkali in the cement paste react in the presence of water. The reaction causes swelling and cracking in the concrete, which can lead to concrete failure and corrosion of embedded reinforcement. Both bridge decks have been treated with methacrylate to seal the existing cracks but because it is not possible to permanently repair a deck with Alkali-Silica Reactivity, both structures are recommended for complete replacement.

Purpose and Need

The purpose of the project is to address the presence of reactive aggregate in the concrete on both the right and left Refugio Road Bridges to ensure the safety and reliability of the US 101

corridor. Additionally, the bridge rails on the Cañada del Refugio northbound On-ramp Bridge are nonstandard and will be upgraded to current standards.

The bridge replacement project is needed because it is the most efficient way to address the inspection results found on the Refugio Road Bridges, which documents the presence of Alkali-Silica Reactivity in the concrete. The presence of reactive aggregate in the Refugio Road Bridges' structure concrete has caused the bridge decks to deteriorate and cracks have developed on the bridge abutments. As further degradation continues, the integrity of the bridge is at risk.

Project Description

Caltrans proposes to replace the existing northbound and southbound bridges along US 101 near Refugio State Beach. Four alternatives were being considered for this project: three Build alternatives and a No-Build Alternative, as summarized below. Alternative 2 was rejected by the project development team due to the increased cost and lack of overall benefit.

- **Alternative 1 –** Two-span replacement bridges (viable alternative)
  Two bridges with two-span, cast-in-place, pre-stressed box girder structures that would be an almost identical replacement of the current bridges with a nearly identical footprint and bent locations. The bridges would be 352 feet in length.
- **Alternative 2** – Three-span replacement bridges (removed from consideration)
  Two bridges with three-span, cast-in-place, post-tensioned box girder structures with two new bents for each bridge. This alternative was removed from consideration due to the increased costs and lack of benefit from an additional bent for each bridge. Although this alternative was added to avoid certain impacts to the creek, the two added bents require additional drilling and excavation that could result in the need for more monitoring and a greater potential for impacting cultural resources.
- **Alternative 3** – Clear span replacement bridges (viable alternative)
  Two bridges with single-span post-tensioned box girder structures without the need for support bents. The lack of bents would require a shorter distance between abutments, and therefore create abutments that extend 15 feet further laterally (towards the creek) than the existing bridge abutments. The bridges would be 300 feet in length.
- **Alternative 4 –** No-Build Alternative (viable alternative)
  The existing bridges would remain in place with no modifications. This alternative is still viable but does not meet the project purpose and need.

For the viable Build alternatives, the new bridges would vary in length as described above. The alignment and profile would be similar to the existing structures but would be seven feet wider to accommodate standard inside shoulders and upgraded railings. In addition, bridge rails on the smaller Cañada del Refugio northbound on-ramp bridge (# 51-0030S) would be upgraded to a standard type that is a Manual for Assessing Safety Hardware (MASH) compliant barrier that also would be an open style barrier approved for use in the coastal zone.

Below the bridges in Cañada del Refugio Creek, fish passage and habitat conditions would be improved. The existing concrete-grouted Rock Slope Protection (RSP) in Cañada del Refugio Creek was identified as a partial barrier to fish passage. As a result, the project includes work to remove concrete-grouted RSP located along the creek bottom, and to modify the creek bed to

improve fish passage. A more naturalized creek bottom would be planted with vegetation designed to provide adequate passage for anadromous fish, while protecting the bridge structures and roads. Riparian trees would help provide canopy for shade that is important to fish habitat.

Between Cañada del Refugio Creek and Refugio Road there is an existing asphalt pedestrian path that was constructed along with the freeway in 1974. The path roughly parallels the creek and will be rehabilitated along with this project, and will be brought up to current ADA compliant standards.

Metal beam guard railing and bridge approach railing affected by this project will be brought up to current standards. The interchange lighting system will be upgraded or replaced to meet current standards.

The bridges will be replaced one at a time. Two lanes of traffic in both the northbound and southbound directions will be located on one bridge separated by a barrier while the other bridge is being constructed. Refugio Road under the bridges will remain open to traffic except during demolition and falsework erection for the clear span alternative. The two-span alternative will require additional closures for the construction of the center bent foundation and column.

During the Refugio Road closure under the bridges, the southbound traffic will be able to access the State Beach/Campground using the existing offramp. Northbound traffic will be detoured north to the Mariposa Reina Overcrossing where traffic will switch directions and travel southbound and use the southbound off-ramp. All traffic leaving the park will use the southbound on-ramp with northbound traffic using the El Capitan State Park Undercrossing to switch directions. Bicyclists will be accommodated within the traffic handling plan but will be subject to the detours during the Refugio Road closures. Traffic using Refugio Road on the north (inland) side of the bridges will also be subject to the detours when the roadway is closed.

Generally, each of the proposed Build alternatives is anticipated to take approximately two years to construct, with each bridge taking a year to replace. The instream work must occur in the dry season when the creek is low or not flowing.

Potential Environmental Effects

The proposed project is expected to result in temporary and permanent environmental effects. The Draft EIR/EA will determine what resources would be affected, the level of significance of the effects, and feasible measures to reduce impacts. Based on preliminary surveys and information, the potential environmental effects of the proposed project are outlined below.

- **Biological Resources** – Preliminary studies indicate potential impacts to federally listed animal species (tidewater goby, southern California steelhead, California red-legged frog, least Bell's vireo, and southwestern willow flycatcher), California Rare Plant Rank species (cliff aster and Santa Catalina island buckwheat), California Species of Special Concern, and nesting native birds. Impacts may also occur to other waters and riparian habitats. A Natural Environment Study is being prepared and two Biological Assessments will follow. It is anticipated that two Biological Opinions will be issued as part of the Section 7 consultation process with the U.S. Fish and Wildlife Service (USFW) and National Marine Fisheries Service. Coordination with the California Coastal Commission, California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers, and the Regional Water Quality Control Board is also anticipated. Potential impacts to biological resources

will be reduced below the level of significance through the implementation of avoidance, minimization and mitigation measures. As discussed above, the project will include elements designed to improve fish passage conditions in Cañada del Refugio Creek.

- **Cultural Resources** – Preliminary studies indicate a high probability of encountering sensitive cultural resources in the project footprint. A Historic Property Survey Report, Archeological Survey Report, Historical Background Study Report, and Extended Phase One and Archeological Evaluation Report will be prepared, and the Native American Heritage Commission and local Native American Tribes will be consulted. At least one resource may be determined to be eligible for the National Register of Historic Properties. Avoidance, minimization and mitigation features will be implemented but may be unable to reduce potential impacts to a level below the significance threshold. A Section 4(f) use for cultural resources may occur.
- **Hazardous Waste and Materials** – It is anticipated that potential hazardous materials including: aerially deposited lead, asbestos containing materials, lead containing paint, treated wood waste, and yellow thermoplastic/traffic stripe could be present within the proposed project limits. An Initial Site Assessment, Aerial Deposited Lead Study, and Preliminary Site Investigation will be conducted. Appropriate minimization measures will be implemented.
- **Water Quality and Stormwater Runoff–** The proposed project includes work in the bed of Cañada del Refugio Creek, thus water quality impacts may occur within and adjacent to the creek. A Water Quality Assessment Report will be completed, and the introduction of pollution control measures or Best Management Practices and a Storm Water Pollution Prevention Plan will minimize short-term construction-related impacts and permanent impacts. All required permits will be obtained to comply with state water quality standards.
- **Visual and Aesthetic Resources** – The proposed project has the potential to create short-term temporary impacts to visual and aesthetic resources during construction. Permanent impacts are not anticipated because the length and profile of the replacement bridge alternatives are proposed to be nearly identical to the existing bridges. A Visual Impact Assessment will be completed, and the aesthetic design of the new bridges will be determined with input from the local community and the County of Santa Barbara. Potential impacts will be avoided or minimized with the inclusion of specified design features (e.g., open-style bridge railings).
- **Geology, Soils, and Seismicity –** A geotechnical field investigation will be conducted and a Geotechnical Design Report with recommended design parameters will be prepared.
- **Coastal Zone** – the project has the potential to affect resources protected by the Coastal Zone Management Act (CZMA) of 1972. A Coastal Development Permit will be acquired to ensure that design criteria and use standards are consistent with the requirements of the CZMA. Avoidance and minimization measures will be put in place to reduce impacts to sensitive resources in the Coastal Zone (e.g., biological resources, water quality).
- **Parks and Recreational Facilities –** the proposed project has the potential to create temporary short-term affects to Refugio State Beach and Campground during project construction due to partial closures of US 101 and intermittent closures of Refugio Road.

Detours will be developed and implemented to the State Beach and Campground facilities, which will provide consistent access for vehicles and bicycles to the state park facilities. A walking trail runs parallel to Refugio Road below the bridges. The path will intermittently be closed while it is being reconstructed as part of the project. No Section 4(f) use of the park is anticipated.

- **Noise** – the proposed project has the potential to create temporary short-term construction noise impacts to Refugio State Beach and Campground. A noise study will be conducted, and minimization measures will be implemented during construction to reduce impacts. Such measures may include ensuring that construction only takes place during daytime hours, and publication of a notice of construction activities on the Reserve California website and other relevant locations.
- **Transportation and Traffic** – the proposed project has the potential to create temporary short-term traffic delays during construction, with partial closures of US 101 and intermittent closures of Refugio Road anticipated. A traffic management plan will be developed and implemented to provide detours with consistent access for vehicles and bicycles to US 101 and to adjacent Refugio State Beach. Overall, it is anticipated that the proposed project will improve traffic operations on US 101 because it will replace a deteriorating bridge, provide standard shoulder widths, and reconstruct a walking trail to appropriate ADA standards.

Based on preliminary project scoping, other environmental resources are not anticipated to be impacted by the proposed project.

Scoping Process and Early Coordination:

Caltrans has undertaken an effort to solicit input from the public prior to preparation of the draft EIR. The Notice of Preparation is being mailed to the following responsible and trustee agencies, as well as the Office of Planning and Research:

- California Department of Fish & Wildlife
- California State Parks
- Central Coast Regional Water Quality Control Board
- California Coastal Commission
- California Native American Heritage Commission
- U.S. Fish & Wildlife Service
- National Marine Fisheries Service
- Army Corp of Engineers
- Santa Barbara County Planning

Caltrans is tentatively planning to hold a Scoping Meeting in March 2019. A notice of the meeting will be sent when the meeting time and place have been established.

Figure 1. Project Vicinity Map

Figure 2. Project Location Map

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List of Technical Studies

Air Quality, Noise, and Greenhouse Gas Memorandum—July 2018; Addendum January 2019

Archaeological Survey Report—August 2017

Extended Phase 1 and Archaeological Evaluation Report—April 2018

Draft Final Hydraulic Report—November 2019

Fish Passage Analysis—May 2018

Floodplain Evaluation Report—April 2019

Historical Background Study—May 2017

Historic Property Survey Report—April 2018; Supplemental January 2019

Initial Site Assessment—January 2019

Location Hydraulic Study—April 2019

Natural Environment Study—January 2020

Paleontology Review Memorandum—July 2018; Addendum January 2019

Preliminary Hydraulic Report—April 2018

Structure Preliminary Geotechnical Report—April 2013

Visual Assessment—July 2019

Water Quality Report—January 2020