

U.S. Highway 101 Cordilleras Creek Bridge Replacement Project

SAN MATEO COUNTY, CALIFORNIA
U.S. 101, PM 7.13
EA 04-2J730/ EFIS 0415000004

Initial Study with Proposed Mitigated Negative Declaration and 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 USC 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA and Caltrans.



July 2020

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General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study / Environmental Assessment (IS/EA), which examines the potential environmental impacts of the proposed project located in San Mateo County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The document explains why the project is being proposed, what alternatives have been considered for the project, and how the existing environment could be affected by the project. It also describes the potential impacts of each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures.

What you should do:

- Please read this IS/EA.
- This IS/EA may be downloaded at the following website: <https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs>. Copies of this IS/EA and related technical studies are available upon request. For request email John Seal at John.Seal@dot.ca.gov or Zachary Gifford by phone at 510-506-1264.
- As a result of the COVID-19 emergency, the California Governor's Executive Orders N-33-20 and N-60-20, and San Mateo County's Order No. c19-5f, Caltrans is conducting public meetings via remote presence by video and teleconference to protect public health and safety. Participate in a public meeting on August 13, 2020. Meeting information, including links to the online meeting and call-in numbers, will be available at <https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs>.
- We'd like to hear what you think. If you have any comments about the proposed project, please participate in the public meeting and/or send your written comments to Caltrans by the deadline.
 - Send comments via email to: John.Seal@dot.ca.gov.
 - Send comments via postal mail to:
Department of Transportation, District 4 Attn: John Seal,
P.O. Box 23660 MS 8B, Oakland, CA 94623-0660
- Be sure to send comments by the deadline: August 31, 2020.

What happens next:

After comments are received from the public and reviewing agencies, Caltrans, as assigned by the FHWA, may: (1) give environmental approval to the proposed project, (2) do additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is obtained, Caltrans could design and construct all or part of the project.

Alternative Formats:

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 call or write to Department of Transportation, Attn: John Seal, P.O. Box 23660 MS 8B, Oakland, CA, 94623-0660, e-mail John.Seal@dot.ca.gov, or Zachary Gifford at 510-506-1264 (Voice), or use California Relay Service 1 (800) 735-2929 (TTY to Voice), 1 (800) 735-2922 (Voice to TTY), 1 (800) 855-3000 (Spanish TTY to Voice and Voice to TTY), 1-800-854-7784 (Spanish and English Speech-to-Speech) or 711.

SCH: _____
04-SM-101PM 7.13
EA 04-2J730K
Project ID 0415000004

Reconstruct Cordilleras Creek Bridge on US Highway 101 (US 101) in the City of
Redwood City in San Mateo County at Post Mile (PM) 7.13

**Initial Study with Proposed Mitigated Negative Declaration/Environmental
Assessment**

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C), 49 USC 303, and/or 23 USC 138

THE STATE OF CALIFORNIA
Department of Transportation

Cooperating Agencies:

U.S. Army Corps of Engineers, National Marine Fisheries Service, San Francisco Bay
Conservation and Development Commission, California Department of Fish and
Wildlife, San Francisco Bay Regional Water Quality Control Board, Federal Highway
Administration, United States Fish and Wildlife Service

Responsible Agencies: California Transportation Commission



07/18/2020

Lindsay Vivian
Office Chief
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Date

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SCH: _____

Proposed Mitigated Negative Declaration
Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to replace the existing Cordilleras Creek Bridge on United States Highway 101 (U.S. 101) at post mile 7.13 in Redwood City in San Mateo County.

Determination

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

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

- The proposed project would have no effect on agricultural lands and forest resources, mineral resources, population and housing, tribal cultural resources, land use and planning, paleontology, and recreation.
- The proposed project would result in a less than significant impact on aesthetics, air quality, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, noise, public services, transportation and traffic, utilities and service systems, and wildfire.
- With standard conservation measures, avoidance and minimization measures, and mitigation measures, the proposed project would have a less than significant impact on biological resources and wetlands. Mitigation measures are needed to reduce the potential for potentially unavoidable significant impacts to occur.

Melanie Brent
Deputy District Director Environmental Planning
and Engineering
California Department of Transportation
District 4

Date of Approval

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Summary

The California Department of Transportation (Caltrans) proposes to replace the existing Cordilleras Creek Bridge (Bridge #35-0019) located on United States Highway 101 at post mile (PM) 7.13 in the City of Redwood City in San Mateo County. The project is near the boundary of the City of San Carlos. The purpose of the project is to maintain connectivity and a safe highway facility for the traveling public along U.S. 101 by replacing the existing deteriorated bridge over Cordilleras Creek. The existing bridge is at the end of its service life and in need of replacement.

The proposed project includes two Build Alternatives and would include the following:

- Replace the existing bridge with a new bridge that also consists of a triple-box culvert. The culverts would be 10 × 10 feet in size; the existing culverts are 8 × 10 feet (Alternative 1). Alternative 2 would consist of replacing the existing bridge with a single-span bridge (Alternative 2).
- Replace the existing drainage system.
- Construct new retaining wall on the southbound side.
- Implement a minor reconfiguration of Cordilleras Creek.
- Replace Median Barrier Guard Rails (MBGR) with Midwest Guard Rails (MGS).
- Replace existing vehicle detector loops.
- Install safety lighting in the median.
- Add new riprap along Cordilleras Creek on the east side of the bridge.

The proposed project is needed because the existing bridge will remain and continue to deteriorate, and because structural conditions, if not addressed, would affect the structural integrity and ultimately the safety of the traveling public.

NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 United States Code (USC) 327, for more than 5 years, beginning July 1, 2007, and ending September 30, 2012. The Moving Ahead for Progress in the 21st Century Act (MAP-21; P.L. 112-141), signed by President Barack Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding (MOU) pursuant to 23 USC 327 (National Environmental Policy Act [NEPA] Assignment MOU) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a period of 5 years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the state of California, except for certain categorical exclusions (CEs) that

FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

Project Impacts

Table S-1 summarizes and compares the effects of Alternative 1, Alternative 2, and the No Build Alternative. The proposed avoidance, minimization, and/or mitigation measures to reduce the effects of the Build Alternatives are also presented. This environmental document evaluates the potential effects of the Build Alternatives. A complete description of potential effects and recommended measures is provided in Chapter 2.

Table S-1: Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
Existing and Future Land Use	None	None	None	None
Consistency with State, Regional and Local Plans and Programs	The No Build Alternative is not consistent with the California Transportation Plan's goals of preserving the multimodal transportation system and improving public safety and security.	None	None	None
Parks and Recreation Facilities	None	The Bay Trail provides a shared bicycle/pedestrian path that runs parallel to the east of US Highway 101. No construction staging or other construction impacts would affect the use or enjoyment of the trail. Users of the trail may momentarily see construction equipment as they pass by the project area to the west. However, visual effects would be temporary and short-term during construction.	Same as Alternative 1	None
Growth	None.	None	None	None
Environmental Justice	None	None	None	None
Utilities/ Emergency Services	None	During construction activities, temporary and permanent utility relocations will be needed. The City of Redwood City's 24-inch reclaimed waterline will be temporarily or permanently relocated. Overhead	Same as Alternative 1	None

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
		power lines and other utilities will not be affected. No service disruptions are anticipated as a result of construction. No permanent utility relocations are anticipated.		
Traffic and Transportation	None	Project construction may result in periodic short-term traffic delays on US 101 near the project area. During stage construction, all lanes on both sides of the highway would remain open. A Transportation Management Plan (TMP) would be developed to minimize construction-related delays. There would be no long-term impacts.	Same as Alternative 1	None
Visual/ Aesthetics	None	Construction work crews and equipment may be visible to viewers from the highway and other vantage points along the highway. The most obvious change on the highway would be the removal of large shrubs to accommodate lane shifts and staging of construction equipment. Permanent impacts to visual resources are not expected, as changes to the bridge would be minimal. Replanting will include native plant species.	Same as Alternative 1	<p>VIS-1. Median barrier height shall be minimized to preserve San Francisco Bay (Bay) views for motorists on the southbound side of the highway. This was established by agreements made in EA 04-1J5604, SM101-Managed Lanes.</p> <p>VIS-2. Bridge design shall include measures to reduce the visual prominence of the City of Redwood City's 24-inch reclaimed waterline.</p> <p>VIS-3. Tree and vegetation removal shall be minimized to the extent feasible.</p> <p>VIS-4. Trees and vegetation outside of clearing and grubbing limits shall be protected from the contractor's operations,</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
				<p>equipment, and materials storage.</p> <p>VIS-5. All disturbed ground surfaces shall be restored and treated with erosion control.</p> <p>VIS-6. Replacement planting shall be provided in areas where shrub removal is necessary.</p> <p>VIS-7. During construction operations, unsightly material and equipment in staging areas shall be placed where they are less visible and/or covered where possible.</p> <p>VIS-8. Construction activities shall limit all construction lighting to within the area of work and avoid light trespass in residential areas through directional lighting, shielding, and other measures as needed.</p>
Cultural Resources	None	No historic properties or historical resources are present in the project's Area of Potential Effect. The cultural resources finding for this proposed project is No Historic Properties Affected. The proposed project would not affect a tribal cultural resource.	Same as Alternative 1	<p>CUL-1. Avoidance of Cultural Resources: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area shall be diverted until a qualified archaeologist can assess the nature and significance of the find.</p> <p>CUL-2. Avoidance of Human Remains: The person who discovered the remains shall</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
				contact the Branch Chief of Cultural Resources, Archaeology, so that they may work with the Most Likely Descendant (MLD) on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code (PRC) 5097.98 are to be followed as applicable.
Hydrology and Floodplain	None	Alternative 1 would result in 0.002 acres of net impervious surface by removing 0.16 acres of impervious surface and adding 0.162 acres of new impervious surface. Alternative 1 will not raise any water surface elevations or impede flows that pass the design-year flood events.	Alternative 2 would result in 0.026 acres of impervious surface by removing 0.426 acres of impervious surface and adding 0.452 acres of new impervious surface. Alternative 2 will not raise any water surface elevations or impede flows that pass the design-year flood events, and replacement work will not cause any significant or immediate hydraulic or scour-related issues.	Alternative 1 should have a 5-foot cutoff wall for the culvert.
Water Quality and Storm Water Runoff	None	Alternative 1 would result in 0.002 acres of net impervious surface by removing 0.16 acres of impervious surface and adding 0.162 acres of new impervious surface. Erosion from disturbed soil areas during project construction has the potential to cause sediment-laden runoff to enter storm	Alternative 2 will result in 1.27 acres of disturbed soil. Erosion from disturbed soil areas during project construction has the potential to cause sediment-laden runoff	WQ-1. Water Quality/Erosion Control BMPs: Implement temporary erosion control and water quality measures as required by the Construction General Permit.

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
		<p>drainage facilities and increase the turbidity and decrease the clarity and beneficial uses of receiving waterbodies.</p>	<p>to enter storm drainage facilities and increase the turbidity and decrease the clarity and beneficial uses of receiving waterbodies. Alternative 2 would result in 0.026 acres of impervious surface by removing 0.426 acres of impervious surface and adding 0.452 acres of new impervious surface.</p>	<p>WQ-2: Implement treatment best management practices (BMPs) to address post-construction water-quality impacts and remove pollutants from stormwater runoff.</p>
Paleontology	None	<p>During construction of the proposed project, ground-disturbing activities such as grading, drilling, and excavating have the potential to destroy paleontological resources (if any are present). However, the paleontological resources are unlikely to be encountered, as the project area is entirely underlain by artificial fill and Holocene-age deposits.</p>	Same as Alternative 1.	None
Hazardous Waste/ Materials	None	<p>Project construction activities are expected to involve the transport, use, and disposal of hazardous materials (e.g., fuels, paints, asphalt, and lubricants) that could pose a threat to human health or the environment if not properly managed. Construction of the proposed project could result in the potential disturbance of hazardous materials in</p>	Same as Alternative 1	None

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
		the soil and groundwater, such as aurally deposited lead at concentrations above the Department of Toxic Substances Control's regulated levels.		
Air Quality	None	Construction of Alternative 1 would generate emissions of criteria air pollutants and precursors that could potentially affect air quality. Therefore, there would be no long-term impacts associated with the project following construction activities.	Same as Alternative 1	None
Noise and Vibration	Noise levels will increase with or without the project due to the projected increase in traffic volumes over time.	Construction activities such as pile driving, excavation, and grading would result in temporary increased ambient noise levels. The highest source of vibration anticipated is from Cast-in-Drilled Hole (CIDH) piles. There would be no long-term impacts associated with the proposed project following construction activities.	Same as Alternative 1	<p>NOI-1. Public Notices: Require Public outreach to inform residents, business, and others about upcoming major activities and time frame.</p> <p>NOI-2. Noise Scheduling Measure: When possible, schedule major activities on a separate timeline from other activities to reduce significant vibration impacts.</p> <p>NOI-3. Use CIDH piles instead of concrete pile driving to reduce vibration. Contractor shall drill pile holes to a depth prescribed by the Engineer and then drive the concrete pile to the full depth.</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
Natural Communities	None	<p>The project will result in temporary impacts to riparian land, vegetation, wetlands and fish passage.</p> <p>The project will have permanent impacts on natural communities. A total of 1.246 acres of permanent to unpaved land cover are anticipated as a result of the proposed project. Permanent impacts to 0.011 acres of riparian habitat are anticipated due to minor reconfiguration of Cordilleras Creek and installation of slope stabilization; 0.112 acres of wetland habitat are anticipated to be permanently affected.</p>	Same as Alternative 1	<p>Additional measures are included in: Wetlands and Other Waters of the United States; Plant Species; Animal Species; Threatened and Endangered Species; and Invasive Species in table, below.</p> <p>WQ-1. Water Quality/Erosion Control BMPs</p> <p>BIO-1. Environmentally Sensitive Area Fencing: ESAs shall be clearly delineated using temporary high-visibility fencing.</p> <p>BIO-2. Avoidance and Minimization Measure for Plants: a qualified biologist shall conduct appropriately timed surveys for the listed plant before construction.</p> <p>BIO-3. Minimizing Tree Removal: The project minimizes tree removal to the maximum extent practicable, and no removal of trees is anticipated.</p> <p>BIO-4. Vegetation Removal: Vegetation removal shall be limited to the designated work areas needed for access and workspace.</p> <p>BIO-5. Fish Passage: Design of the proposed replacement</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
				structures will incorporate hydraulic modeling to ensure structures provide adequate fish passage.
Wetlands and Other Waters of the United States	None.	Temporary construction impacts to wetlands of approximately 0.104 acres are anticipated due to installation of the temporary creek dewatering system on the Bay side of the project. Permanent impacts to wetlands are also anticipated during the construction of the project. Permanent impacts to wetlands of approximately 0.112 acres are anticipated due to widening of the southbound highway shoulder to accommodate stage construction.	Same as Alternative 1	<p>BIO-1. Environmentally Sensitive Area Fencing: As described in Section 2.3.1, environmentally sensitive areas (ESAs) shall be clearly delineated using temporary high-visibility fencing.</p> <p>WQ-1. Water Quality/Erosion Control BMPs.</p> <p>WET-1. Compensatory Mitigation Measure for Wetlands: Wetland impacts shall be mitigated at a minimum 1:1 ratio. A 1:1 ratio is standard for impacts to wetlands and other aquatic resources based on a project's risk of failure to compensate for impacts to wetlands (mitigation project), and the temporal loss or reduction of functions during the time it takes a mitigation project to achieve the targeted level of performance for all of its functions.</p>
Plant Species	None.	During construction of the proposed project, the removal of plants associated with ruderal habitats will occur. The majority of these plants are	Same as Alternative 1	BIO-2. Avoidance and Minimization Measure for Plants

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
		<p>nonnative and invasive. The project is not expected to result in the permanent loss of special-status plant species or any rare or special-status plant species, as they are absent from the project area.</p>		<p>BIO-3. Minimizing Tree Removal: The project minimizes tree removal to the maximum extent practicable, and no removal of trees is anticipated.</p> <p>BIO-4. Vegetation Removal: Vegetation removal shall be limited to the designated work areas needed for access and workspace.</p> <p>BIO-6. Replant, Reseed, and Restore Disturbed Areas: Where disturbance includes the removal of trees, native species shall be replanted at a 3:1 ratio for every native tree removed, and at a 1:1 ratio for every nonnative tree removed, based on the local species composition.</p>
<p>Animal Species</p>	<p>None</p>	<p>Approximately 0.90 acres of temporary impacts to potential foraging habit for northern harrier, Alameda song sparrow and white-tailed kite are anticipated to occur due to construction activities. Construction activities also have the potential to affect these bird species due to construction-related noise, vibration, and increased human presence. In addition, take may occur if birds are present.</p>	<p>Same as Alternative 1</p>	<p>BIO-7. Construction Site BMPs: The following site restrictions shall be implemented to avoid or minimize impacts on special-status species and their habitats.</p> <p>BIO-8. Entrapment Avoidance: To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep shall be covered at</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
				<p>the close of each working day by plywood or similar materials or provided with one or more escape ramps.</p> <p>BIO-9. Biological Monitor and Protocol for Observation: The names and qualifications of proposed biological monitor(s) shall be submitted to the United States Fish and Wildlife Service and California Department of Fish and Wildlife for approval prior to the start of construction.</p> <p>BIO-10. Preconstruction/Daily Surveys: Preconstruction surveys for special-status wildlife species listed in this Natural Environmental Assessment, shall be conducted by the agency-approved biological monitor.</p> <p>BIO-11. Migratory Bird Treaty Act: To protect migratory birds and their nests, all initial major vegetation clearing, but not grubbing, shall be conducted between October 1 and January 31.</p>
Threatened and Endangered Species	None	Habitat for threatened and endangered bird species and salt marsh harvest mouse (will be disturbed during the construction of the proposed project, and impacts to these species could	Same as Alternative 1	<p>BIO-1. Environmentally Sensitive Area Fencing.</p> <p>BIO-7. Construction Site BMPs: The following site</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
		potentially occur if they are present during these activities.		<p>restrictions shall be implemented to avoid or minimize impacts on special-status species and their habitats</p> <p>BIO-8. Biological Monitor and Protocol for Observation</p> <p>BIO-10. Preconstruction/Daily Surveys: Preconstruction surveys for special-status wildlife species listed in this NES shall be conducted by the agency-approved biological monitor.</p> <p>BIO-12. Dry Season Work Window: Construction activities within potential steelhead habitat shall be conducted during the dry season, between June 15 and October 15.</p> <p>BIO-13. Worker Environmental Awareness Training: The program shall focus on the conservation measures that are relevant to an employee’s personal responsibility and will include an explanation on how to avoid take of the Central California Coast distinct population segment Steelhead, Ridgway’s rail, SMHM, and western snowy plover.</p>

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
Threatened and Endangered Species <i>(continued from previous page)</i>				<p>BIO-14. Proper Use of Erosion Control Devices: To avoid entanglement or injury of wildlife, including the salt marsh harvest mouse, erosion control materials that use plastic or synthetic monofilament netting shall not be used.</p> <p>BIO-15. Light Restrictions shall be implemented during construction to avoid impacts to threatened and endangered species.</p> <p>BIO-16. Handling of Listed Species. If a listed species is discovered, the Resident Engineer and agency-approved biological monitor shall be immediately informed.</p>
Invasive Species	None	Project construction activities have the potential to inadvertently spread noxious weed species.	Same as Alternative 1	BIO-17. Invasive Species Management: Strategies shall be implemented during construction to avoid the potential of spreading invasive species.
Cumulative Impacts	None	None	None	None
Wildfire	None	Alternative 1 would not impair implementation of an emergency response or emergency evacuation plan, exacerbate wildfire risks or expose project occupants to pollutants from a wildfire or the uncontrolled	Same as Alternative 1	None

Affected Resource	Potential Impact: No Build Alternative	Potential Impact: Build Alternative 1	Potential Impact: Build Alternative 2	Avoidance, Minimization, and/or Mitigation Measures
		spread of a wildfire, increase wildland fire risk through installation or maintenance of associated infrastructure, or result in downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes.		
Climate Change	None	Alternative 1 is estimated to generate a total of 1,936metric tons per construction project (MT/construction project) of carbon dioxide equivalent (CO ₂ e). Greenhouse gas emissions would only be generated during the construction of the project.	Alternative 2 is estimated to generate 2,068 MT/construction project of CO ₂ e. GHG emissions would only be generated during the construction of the project.	None

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes to replace the existing Cordilleras Creek Bridge (Bridge #35-0019) located on United States Highway 101 (U.S. 101) at post mile (PM) 7.13 in Redwood City in San Mateo County. The project is also near the City of San Carlos. Figure 1.1-1 shows the project location.

The existing 180-foot-long bridge that spans Cordilleras Creek is a reinforced-concrete triple 10-by-8-foot box culvert under 1.6 feet of embankment with straight stepped wing walls at the upstream end, and straight end walls at the downstream end. The original structure built in 1930 was 100 feet long and was widened 55 feet on the downstream (right) side in 1958. Also, a straight end wall was placed at the downstream end of the culvert in 1958. The structure was again widened by an additional 25 feet on the downstream (right) side in 1971, for a total width of 180 feet. The original bridge was completed in 1930 under Contract 24TC1.

Maintenance inspections reports have shown the bridge is beyond the end of its service life and structurally deficient. The bridge needs to be replaced to prevent its failure and preserve a facility safe for the traveling public.

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

The project is to be funded from the 2018 State Highway Operations and Protection Program (SHOPP) Program Code 201.110 for the Fiscal Year 2021/2022. This project is also eligible for Federal-aid funding.

Figure 1.1-1: Project Location



FIGURE 1.1-1
Project Location

Caltrans
San Mateo 101 Cordilleras Creek Bridge Replacement Project
CITY OF SAN CARLOS, SAN MATEO COUNTY, CA

1.2 Corridor Overview

The stretch of U.S. 101 near Redwood City and San Carlos is also known as the Bayshore Freeway and is a vital link between Silicon Valley to the south and San Francisco to the north. U.S. 101 is also the main access route to both San Francisco International Airport (SFO) and Norman Y. Mineta San Jose International Airport. U.S. 101 connects to the East Bay via the Dumbarton Bridge (State Route [SR] 84), the San Mateo-Hayward Bridge (SR 92), and the San Francisco–Oakland Bay Bridge (Interstate 80 [I-80]). The portion of US 101 in San Mateo County is an eight- to ten-lane freeway, and it is generally a ten-lane facility as it runs through Redwood City.

There is substantial travel use along the corridor. The current traffic volume along U.S. 101 in the project vicinity averages 240,000 vehicles per day (Annual Average Daily Traffic), as shown in Table 2.1.7-1 in Section 2.1.7 (AADT; Caltrans 2020a). U.S. 101 is identified in the 2015 Interregional Transportation Strategic Plan (ITSP) as one of the Strategic Interregional Corridors that provide communities access to local and interregional markets, recreational facilities, and vital medical and social services, and that supports emergency response and disaster recovery activities. U.S. 101 is also identified as one of the Priority Interregional Facilities that are most critical in supporting interregional transportation and is a candidate for Interregional Transportation Improvement Program investment in the future

1.3 NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 United States Code (USC) 327, for more than 5 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 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, Caltrans entered into a Memorandum of Understanding (MOU) pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016, for a term of 5 years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions (CEs) that FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

1.4 Purpose and Need

1.4.1 Project Purpose

The purpose of the project is to maintain connectivity and a safe highway facility for the traveling public along U.S. 101 by replacing the existing deteriorated bridge over Cordilleras Creek. The existing bridge is at the end of its service life and in need of replacement.

1.4.2 Project Need

On July 2002, a routine inspection of the Cordilleras Creek Bridge found cracks, delamination, and spalls in the structure, especially in the two sections that were previously widened in 1958 and 1971. It was determined that the structural conditions, if not addressed, would affect the structural integrity. A Project Initiation Report Review convened by Structure Maintenance and Investigations on June 13, 2011, reaffirmed the 2002 recommendation.

1.5 Project Description

Caltrans proposes to replace the existing Cordilleras Bridge on U.S. 101 at PM 7.13. The project as proposed has two Build Alternatives and one No Build Alternative. Specific details involved in replacing the existing bridge are discussed in Section 1.5.2, *Project Construction*. The proposed project would include the following.

- Replace the existing bridge in-kind with another three-box culvert (Alternative 1) or with a single-span bridge (Alternative 2). Both alternatives would include installation of a longer bridge to accommodate standard road shoulders within the project limits.
- Replace the existing drainage system.
- Construct a new retaining wall on the southbound side.
- Implement a minor reconfiguration of Cordilleras Creek.
- Replace Median Barrier Guard Rails (MBGR) with Midwest Guard Rails (MGS).
- Replace existing vehicle detector loops.
- Install safety lighting in the median.
- Add new riprap along Cordilleras Creek on the east side of the bridge.
- The project is required to incorporate full trash capture devices where there are STGAs within the project limit, as required by the San Francisco Regional Water Quality Control Board. This requirement will be part of the project design.

1.5.1 Project Alternatives

The proposed project includes three alternatives, with two Build Alternatives and a No-Build alternative (Figures 1.5.1-1 and 1.5.1-2 show layouts of the Build Alternatives). Appendix D contains structural plans for Alternative 1 and Alternative 2 at each stage of construction. The alternatives are described below.

1.5.1.1 No Build Alternative

Under the No Build Alternative, Cordilleras Creek Bridge would not be replaced. The existing bridge would remain in place and continue to deteriorate, and structural conditions, if not addressed, would affect the structural integrity and ultimately the safety of the traveling public. The No Build Alternative would not meet the project's purpose and need.

1.5.1.2 Alternative 1

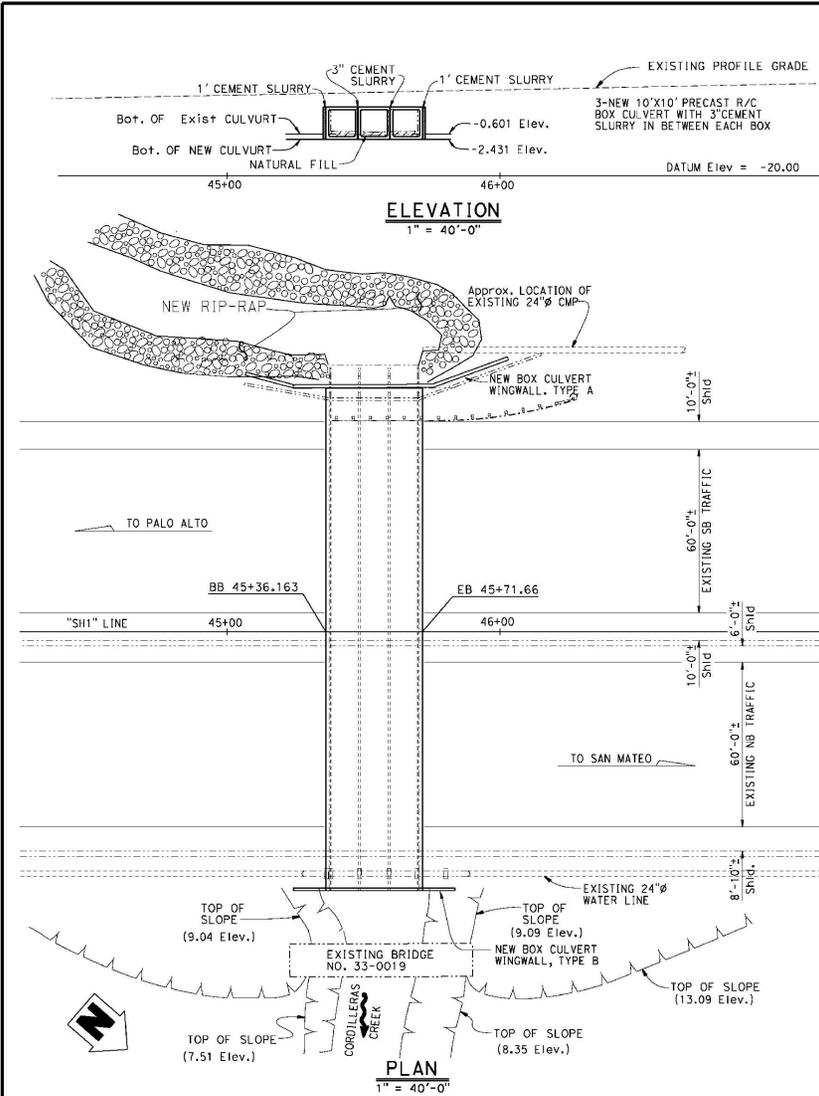
Under Alternative 1, Caltrans proposes to replace the existing triple box culvert with a new, pre-cast triple reinforced-concrete box culvert; each culvert would be 10 × 10 feet in size.

Additionally, the total width of the new bridge would increase by 4 feet, due to structural requirements. This alternative would also include replacing the existing drainage system; constructing new wing walls on the east and west side of the freeway; realigning Cordilleras Creek, and lining Cordilleras Creek west of the highway with vegetated, rock-stabilized embankment. The bottom of the culvert would be installed at a depth to allow for a natural channel bottom to persist post-construction. Table 1.3.1 presents a summary of the project design for Alternative 1.

1.5.1.3 Alternative 2

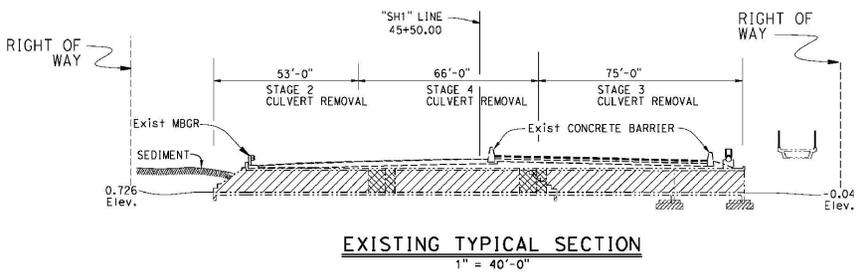
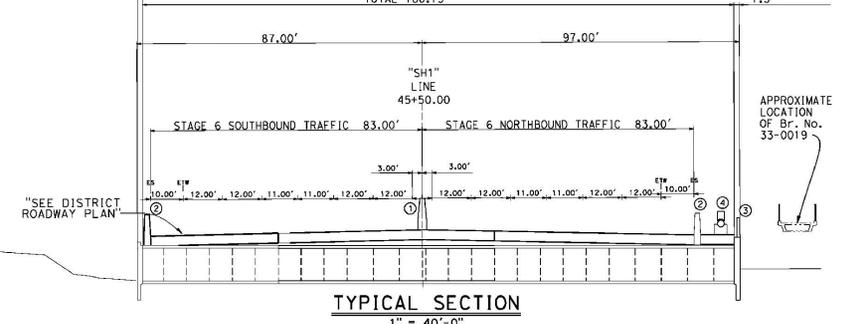
Alternative 2 would include replacing the existing triple box culvert with a new, 36-foot-10-inch single-span precast, pre-stressed bridge. The total width of the new bridge would increase by 5 feet. Two new 30-foot approach slabs on each side of the structure would also be installed. This alternative would also include replacing the existing drainage system; constructing new wing walls on the west side of the freeway; realigning Cordilleras Creek; and lining Cordilleras Creek with vegetated, rock-stabilized embankment. Table 1.3.1-1 compares the two project alternatives.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES



DATE OF ESTIMATE	--- -- --
BRIDGE REMOVAL	= 635 CY
STRUCTURE DEPTH	= 11'-8"
LENGTH	= 35.5'
WIDTH	= 184'
AREA	= 6532 sqft

Dist	COUNTY	ROUTE	POST MILE
X	X	X	X



- NOTES:
- Barrier type 80
 - Barrier type 742
 - Concrete wall
 - Existing 24" water line to be temporarily replace during stage 3 construction and replace in same location

- LEGEND:
- Indicates limits of Removal of existing Triple 10'x8' RC box culvert
 - Indicates limits of Removal of existing Triple 10'x8' RC box culvert During weekend
 - Indicates existing structure

DESIGNED BY Eduardo Gomez	DATE X	STRUCTURE DESIGN	ALTERNATIVE 1	
DRAWN BY Sumaia Hossen	DATE X		PLANNING STUDY (1 of 3)	
CHECKED BY X	DATE X	4	CORDILLERAS CREEK BRIDGE	
APPROVED X	DATE X		UNIT: 35.79	BRIDGE No.: 35-0019
		PROJECT EA: 2J730K		PROJECT No. & PHASE: 0415000040

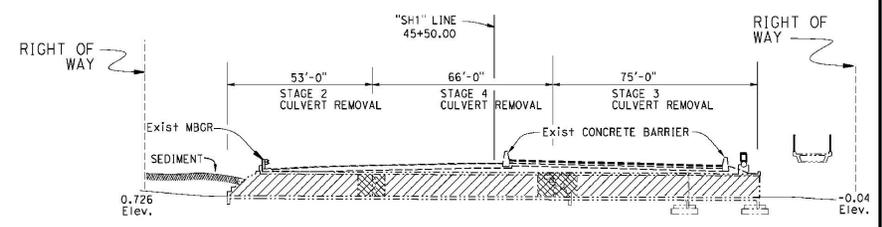
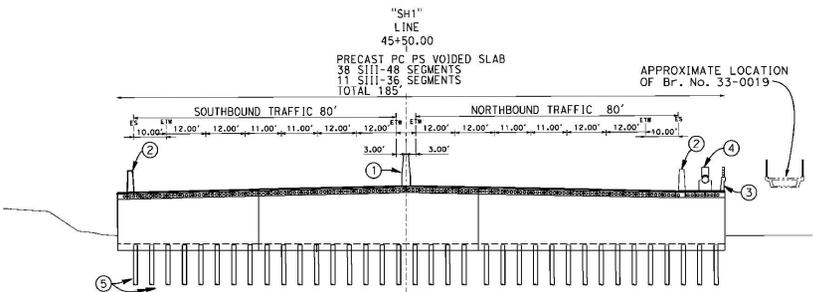
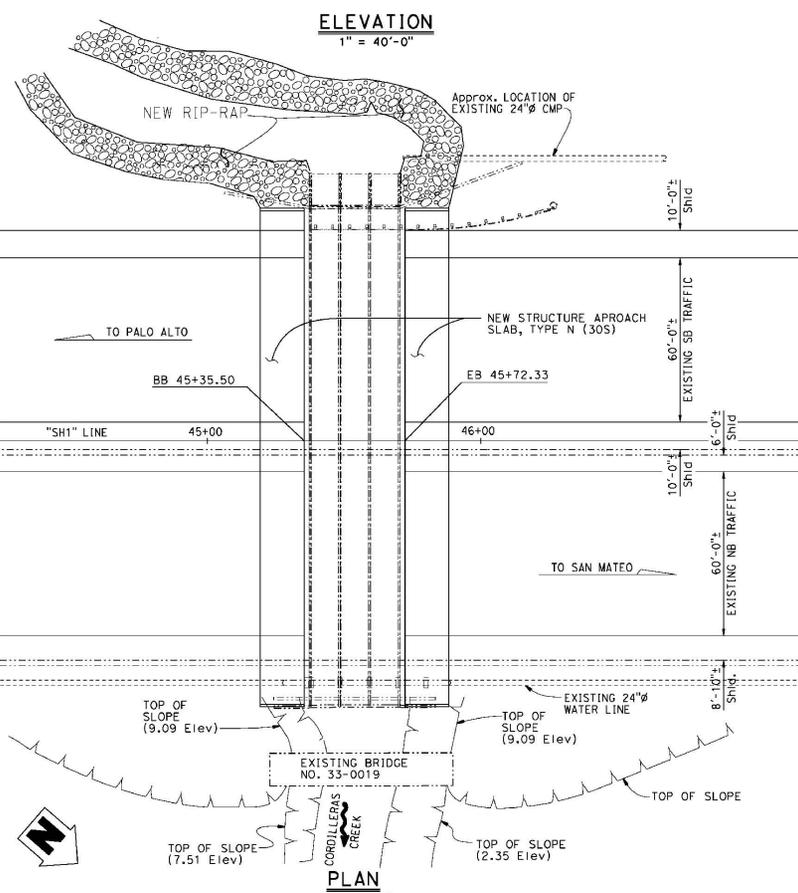
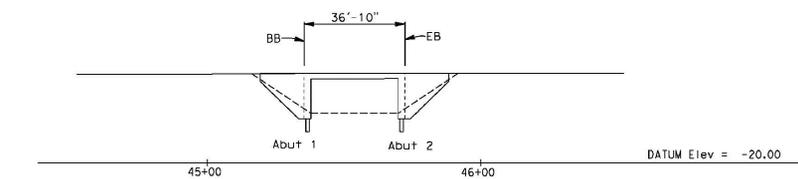
Source: State of CA, DOT, 2020

FIGURE 1
Alternative 1 Site Plan

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

DIST	COUNTY	ROUTE	POST MILE
X	X	X	X

DATE OF ESTIMATE = -- -- -- --
 BRIDGE REMOVAL = 635 CY
 STRUCTURE DEPTH = 2'
 LENGTH = 36'-10"
 WIDTH = 185'
 AREA = 6814 sqft



- NOTES:
- Barrier type 80
 - Barrier type 742
 - Concrete wall
 - Existing 24" water line to be temporarily replace during stage 3 construction and replace in same location
 - Class 140 piles spaced 5' cc

- NOTES:
- ① Temporary Railing (Type K), see ROADWAY PLANS
- LEGEND:
- Indicates existing structure
 - ▨ Indicates limits of Removal of existing Triple 10'x8' RC BOX culvert
 - ▩ Indicates limits of Removal of existing Triple 10'x8' RC BOX culvert During weekend

DESIGNED BY Eduardo Gomez	DATE X	STRUCTURE DESIGN	ALTERNATIVE 2	
DRAWN BY A. Onodera/S. Hossen	DATE X		PLANNING STUDY (1 of 3)	
CHECKED BY X	DATE X	DESIGN BRANCH	CORDELLERAS CREEK BRIDGE	
APPROVED X	DATE X		UNIT: 3579	BRIDGE No.: 35-0019
		4	PROJECT EA: 2J730K	
			PROJECT No. & PHASE: 0415000040	

Source: State of CA, DOT, 2020

FIGURE 2
 Alternative 2 Site Plan

Table 1.3.1-1: Project Design

Alternative 1	Alternative 2
Replace the existing 8-foot x 10-foot triple box culvert with a three new precast 10-foot x 10-foot three box culvert	Replace the existing culvert with a single-span, precast prestressed bridge
Proposed length of the culvert is 184 feet. There will be a total of 4 feet of widening (East = 1.5 feet and West = 2.5 feet.)	Proposed length of the culvert is 185 feet. There will be a total of 5 feet of widening (East = 1.5 feet and West = 3.5 feet.)
126 square feet of riprap placed on the west end (upstream) of the culvert for reconfiguration and contour grading	405 square feet of riprap placed on the west end (upstream) of the culvert for reconfiguration and contour grading
266 concrete driven piles for abutment and wing-wall	266 concrete driven piles for abutment and wing-wall
Replace existing drainage inlets; construct bioswale in median barrier; upgrade guardrail system to MGS; install safety lighting and vehicle loop detectors	Replace existing drainage inlets, construct bioswale in median barrier; upgrade guardrail system to MGS; install safety lighting and vehicle loop detectors
Construction would last approximately 185 working days	Construction would last approximately 235 working days

1.5.2 Project Construction

Construction of the proposed project is scheduled to commence in 2022 and would take approximately 2 years to complete. Alternative 1 would require 185 working days, while Alternative 2 would require 235 working days. Construction activities within the creek would be limited to the summer dry season or June 15 to October 15, except for clearing of vegetation and staging activities. Work in the creek would mostly be done during daytime hours. No structural work will occur at night. However, nightwork may be required for road activities, such as moving K-rail or lane stripping. Construction of the temporary bridge would occur during the weekend. The bridge would be constructed in sections, starting on the southbound side, then moving to the northbound side, and ending in the middle section.

Construction equipment anticipated to be used on this project includes chainsaws, skip loaders, drill rigs/augers, excavators, skid steers, dozers, vibratory plate compactors, cranes, rollers, disc trenchers, concrete trucks, concrete saws, pavers, water trucks, sweepers, pile rigs, pile drivers, generators, concrete boom trucks, concrete vibrators, and flatbed trucks; standard two-axle vehicles and diesel-powered vehicles with air brakes (e.g. dump trucks) may also be used. The contractor may select alternate but similar vehicles or equipment based on site-specific considerations.

The construction footprint is defined as the maximum extent of construction-related, ground-disturbing activities, including staging and access. The project footprint is larger, which includes construction activities, staging for construction, and staging to maintain traffic during construction. For this project, the construction footprint is approximately 6 acres (see Figure 1.5.2-1).



Caltrans
 San Mateo 101 Cordilleras Creek Bridge Replacement Project
 CITY OF SAN CARLOS, SAN MATEO COUNTY, CA

FIGURE 1.5.2-1
 Project Footprint

The project would be constructed in six stages in order to maintain 6 general-purpose traffic lanes on U.S. 101 throughout construction. As the construction area moves, traffic lanes would be temporarily shifted to maintain all lanes. During some construction stages temporary barriers would be used to shift traffic to the opposite side of the highway, while maintaining a barrier between north and southbound traffic. Stage construction activities are generally the same for both Build Alternatives; notable differences between the two alternatives are called out below.

The following activities and components are associated with each phase:

1.5.2.1 Stage 1

- There is an elevational difference of approximately 1.38 feet between the northbound and southbound directions. To eliminate this elevation difference, the roadway on the southbound side would be modified with a permanent hot mix asphalt overlay of 1.38 feet. This modification would accommodate the proposed lane configuration shift during construction.
- Vegetation will be cleared along the southbound shoulder.
- Portions of Cordilleras Creek will be dewatered, and the creek will be reconfigured for the proposed bridge widening. To accomplish this, coffer dams on each side of the bridge will be set up and a new line will be installed to divert water out of the stream channel while maintaining creek flow. These components will be installed and removed at the beginning and end of each construction season.
- New riprap will be incorporated on the southbound end of the structure on both sides of the creek.
- A temporary bridge will be installed along a ditch on the southbound side of U.S. 101 from the southbound edge of shoulder for a length of 22 feet.
- The median concrete barrier will be removed and shifted to the east (towards the northbound direction).
- Six, 11-foot-wide lanes will be established in the southbound direction.
- Six, 11-foot-wide lane will be established in the northbound direction.

1.5.2.2 Stage 2

- After removing the median barrier, six lanes of traffic will be maintained for the northbound direction with 2 feet of shoulder and K-rail, and six lanes of traffic for the southbound direction with 2 feet of outside shoulder.
- Install K-rail to delineate the 56-foot-wide construction zone (Alternative 1) or 54-foot-wide construction zone (Alternative 2) for the southbound direction.
- Install creek diversion system.
- Drive concrete piles for wingwall construction (Alternative 1) or drive concrete piles for new abutments and wingwall (Alternative 2).

- Remove the southbound portion of the existing triple-box culvert, and replace the existing bridge, consisting of a three-box culvert, with either another three-box culvert (Alternative 1), or with a single-span bridge (Alternative 2).
- Establish the final roadway structural section for the outside 54 feet of the southbound direction.

1.5.2.3 Stage 3

- Shift six lanes of southbound traffic to a new section with a 2-foot-wide inside shoulder and place K-rail toward the west end.
- Shift six lanes of northbound traffic to the middle section and provide a stage construction zone for the contractor on the east side of the bridge.
- A lane closure may be required from Friday night through Monday morning (one lane closed during weekend hours).
- Relocate Redwood City's reclaimed waterline on the northbound side. This would be a temporary relocation during construction activities.
- Additional dewatering of Cordilleras Creek.
- Provide a construction zone for the contractor on the east end portal.
- There may be a right lane closure on weekends in the northbound direction.

1.5.2.4 Stage 4

- Using the new structural section from Stage 3 on the southbound side, establish six lanes of traffic for southbound traffic toward the outermost west side.
- Install K-rail to delineate a 2-foot shoulder on either side.
- Using the new structural section from Stage 2 on the northbound side, establish 6 travel lanes for northbound traffic toward the outermost east side.
- A lane closure may be required from Friday night to Monday morning, with one lane closed during weekend hours.
- Install K-rail to delineate a 2-foot-wide shoulder on either side.
- Additional dewatering of Cordilleras Creek.
- Remove and replace the existing culverts.
- Drive concrete piles for wingwall construction (Alternative 1) or drive concrete piles for new abutments and wingwall (Alternative 2)
- Using the new structural section toward the east side, establish six lanes of northbound traffic on the most eastern section of U.S. 101.
- Install K-rail to provide sufficient space for a 2-foot-wide shoulder on either side.
- Shift six lanes of southbound traffic toward the east to accommodate the contractor while the temporary staged-construction roadway is demolished.

- New lighting will be added.

1.5.2.5 Stage 5

- Establish 6 lanes of northbound traffic on most eastern section of U.S. 101.
- Shift 6 lanes of southbound traffic towards the east direction to accommodate the contractor to demolish the temporary bridge on the west most section.

1.5.2.6 Stage 6

- Demolish the temporary bridge along the southbound side of U.S. 101.
- Return roadway to existing configuration. Bring roadway back to original profile and place median barrier at its original location.
- The bioswales will be constructed.

1.5.2.7 Other Activities and Components

Right-of-Way

No permanent right-of-way (ROW) acquisitions, utility easements, or maintenance easements are anticipated for the Build Alternatives. A temporary construction easement will be needed.

Utilities

There is an existing 24-inch reclaimed waterline owned by the City of Redwood City, fiber optic lines and overhead powerlines near the project area. Overhead powerlines are not expected to be impacted. Fiber optic lines will need to be rerouted. The water line will need to be temporarily or permanently relocated.

Water Quality

Potential impacts to receiving waterbodies could occur during construction of the Build Alternatives related to sediment, turbidity, pH from wet concrete and debris. A Storm Water Pollution Prevention Plan (SWPPP) would be prepared before project construction, and SWPPP requirements would be inspected and maintained during construction. The SWPPP would require the implementation of temporary BMPs for sediment control and material management. These BMPs would include a temporary creek diversion system, drainage inlet protection, the use of fiber rolls and silt fence, and street sweeping. Disturbed soil areas would be stabilized using paving, rock slope protection, or erosion control measures to minimize long-term impacts to water quality.

Coordination with Other Projects

The Project Initiation Document was developed in 2015, before the inception of the U.S. 101 Managed Lanes Project (MLP) in Santa Clara and San Mateo counties. The U.S. 101 MLP project will be changing the existing highway operation from 5 general purpose traffic lanes to 6 lanes including express lanes and general-purpose lanes. The design of the proposed project would be completed in coordination with the U.S. 101 MLP.

1.5.2.8 Other Construction Activities and Requirements

This project contains a number of 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 proposed project. These measures are addressed in more detail in the Environmental Consequences sections in Chapter 2. The construction contractor would be required to follow all standard requirements and procedures to be included during detailed design, specifications, and permits or other authorizations.

The following are examples of standardized project measures that would be implemented as part of the project.

Transportation Management Plan

During the final design phase for the Build Alternative, a Transportation Management Plan (TMP) would be prepared in accordance with Caltrans requirements and guidelines to minimize construction-related delays. The TMP would address potential traffic impacts as they relate to stage construction and other traffic handling concerns associated with construction of the proposed project. It will include the use of portable Changeable Message Signs, California Highway Patrol (CHP) Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol where possible to minimize delays. The project would limit road closures and maintain traffic during stage construction. Access would be maintained for emergency response vehicles.

Highway Planting

Vegetation removal would be minimized, and protection of remaining vegetation would be provided, as outlined in Sections 2.1.8.3 and 2.1.8.4. Replacement planting and revegetation activities would be completed. Shrubs and plants and associated irrigation facilities would be installed where plants are removed for construction activities. Impacted areas and the majority of vegetation removal are anticipated to occur primarily along the southbound side of the highway. Replacement planting activities would be a part of the construction contract and would include a one-year plant establishment period.

Erosion Control and Construction Discharges

Prior to commencement of construction activities, a SWPPP would be prepared by the Contractor and approved by Caltrans. The SWPPP addresses potential temporary impacts via implementation of appropriate BMPs to protect water quality. These BMPs include covering exposed soil, temporary creek diversion systems, drainage inlet protection, the use of fiber rolls, silt fence, street sweeping, and concrete washouts. Disturbed soil areas would be stabilized by paving, rock slope protection, or erosion control. The project proposes to use vegetated rock stabilized embankment for erosion control. Other erosion control methods may include the use of hydroseed, hydromulch, fiber rolls, and erosion control netting.

Geotechnical Design Standards

Caltrans' design and construction guidelines incorporate engineering standards that address seismic risks. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and

site conditions. Caltrans also requires additional geotechnical subsurface and design investigations to be performed during the final project design and engineering phase.

Executive Order 13112

Compliance with Executive Order (EO) 13112 on Invasive Species is a standard practice that Caltrans adheres to on all projects. In compliance with EO 13112, and subsequent guidance from the FHWA, the landscaping and erosion control included in the project will use species that are not listed as noxious weeds. The following methods will be used in accordance with standard construction practices:

- No disposal of soil and plant materials will be allowed from areas that support invasive species to areas dominated by native vegetation.
- Construction workers will be educated on weed identification and the importance of controlling and preventing the spread of identified invasive nonnative species.
- Gravel and/or fill material to be placed in relatively weed-free areas will come from weed-free sources. Certified weed-free imported materials (or rice straw in upland areas) will be used.

1.5.2.9 Estimated Project Cost and Funding

The current preliminary total capital cost for this project is \$32,940,000 (Alternative 1) and \$38,717,000 (Alternative 2), which includes \$4,285,000 in ROW costs. Total escalated capital costs, including support costs and right of way, are estimated at \$46,200,000 for Alternative 1, and \$51,100,000 for Alternative 2 to be funded under SHOPP Program Code 110 (Bridge Rehabilitation and Replacement). It will be programmed in the 2021/2022 Fiscal Year. The project is also eligible for Federal-aid funding.

1.5.3 Final Decision Making Process

After the public circulation period, all comments will be considered, and the Project Development Team (PDT) will select a preferred alternative, and Caltrans will make the final determination of the project's effect on the environment.

Under CEQA, if no unmitigable significant adverse impacts are identified, Caltrans will prepare an MND.

Similarly, if Caltrans, as assigned by FHWA, determines the NEPA action does not significantly impact the environment, Caltrans will issue a Finding of No Significant Impact.

1.5.4 Alternatives Considered but Eliminated from Further Discussion

No additional alternatives were considered for the proposed project.

1.5.4.1 Permits and Approvals Needed

A number of permits will be needed for the proposed project from local, state and federal agencies. Table 1.3.5-1 shows the permits, reviews, and approvals that would be required for project construction.

Table 1.3.5-1: Permits and Approvals Needed

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers (USACE)	Concurrence on delineation of waters of the United States, and Section 404 permit for placement of fill within waters of the United States.	The Jurisdictional Delineation will be submitted to USACE for concurrence after the environmental document's circulation period has closed. A permit application will be submitted during the project design phase.
U.S. Fish and Wildlife Service (USFWS)	Section 7 consultation for threatened and endangered species	Caltrans will initiate consultation with USFWS to receive concurrence that the project "may affect, is not likely to adversely affect" certain species under USFWS jurisdiction.
National Marine Fisheries Service (NMFS)	Section 7 consultation for threatened and endangered species	Caltrans has initiated consultation with NMFS on April 30, 2019 to receive concurrence that the project "may affect, likely to adversely affect" certain species under NMFS jurisdiction. Section 7 will be initiated after adoption of the preferred alternative and before the Final Environmental Document.
Federal Highway Administration (FHWA)	Concurrence with project's conformity to Clean Air Act and other requirements	Air quality studies will be submitted for FHWA concurrence after public review of this IS/EA.
San Francisco Bay Conservation and Development Commission (BCDC)	The project is in BCDC jurisdiction and requires a BCDC Permit per California Government Code Title 7.2; California Public Resources Code Division 19	A permit application will be submitted during the project design phase.
California Department of Fish and Wildlife (CDFW)	Section 1602 Lake and Streambed Alteration Permit and Consistency Determination	A permit application will be submitted during the project design phase.
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Section 401 certification and Construction General Permit	A joint "Application for 401 Water Quality Certification" and/or "Report of Waste Discharge" will be submitted during the project design phase. A NPDES permit application will be submitted during the project design phase. A Notice of Intent and Storm Water Pollution Prevention Plan (SWPPP) will be submitted prior to construction.
Cities of San Carlos and Redwood City, and San Mateo County	Freeway Maintenance Agreements	The need for this potential agreement will be determined during final design.
Cities of San Carlos and Redwood City	Special Agreement (bike path and reclaimed waterline)	The need for this potential agreement will be determined during final design.

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

This chapter addresses the environmental impacts of the proposed project. The environmental resource discussions presented in this chapter are based on the technical studies cited at the beginning of each discussion. An evaluation of the proposed project consistent with the CEQA checklist criteria is provided in Section 3.2. Avoidance, minimization, and/or mitigation measures are discussed in the following sections and summarized in Appendix B.

For the proposed project, the CEQA baseline for all resource areas is 2020, when environmental studies commenced. Environmental impacts are determined by comparing the difference between the Build and No Build Alternatives, consistent with the requirements of NEPA.

Resources Considered but Determined Not to Be Relevant

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

Wild and Scenic Rivers

No wild and scenic rivers are located in or adjacent to the project area and therefore would not be affected by the proposed project.

Parks and Recreation Facilities

The Bay Trail provides a shared bicycle/pedestrian path that runs parallel to the east of US 101. No construction staging or other construction impacts would occur to the trail. Users of the trail may momentarily see construction equipment as they pass by the project area to the west. However, visual effects would be temporary and short-term during construction activities and would not prevent use of the trail. There are no other publicly owned parks or recreation areas within 0.25 mile of the project area.

Farmlands/Timberlands

There are no farmlands or timberlands adjacent to or within the general vicinity of the project area. Land uses adjacent to the project area are commercial uses. Therefore, farmlands and timberlands would not be affected by the proposed project.

Community Character and Cohesion

The proposed project would not change any existing community boundaries or physically divide an established community. The project would not change the existing character of the communities in the project area.

Relocations and Real Property Acquisition

The proposed project would not result in the relocations of homes or businesses, and no property acquisition is proposed. Two Temporary Construction Easements (TCEs) will be required for

staging to the west of the project on lots located on either side of Cordilleras Creek to allow for adequate access to both sides of the creek for construction and Rock Slope Protection (RSP)/vegetated embankment installation.

Geology/Soils/Seismicity/Topography

As noted in Section 1.3.1.1, Caltrans' design and construction guidelines incorporate engineering standards that address seismic risks. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions. Caltrans also requires additional geotechnical subsurface and design investigations to be performed during the final project design and engineering phase. These standards and requirements would avoid the potential for adverse impacts.

Paleontology

During construction of the project, ground-disturbing activities such as grading, drilling, and excavating have the potential to destroy paleontological resources. However, paleontological resources are unlikely to be encountered as the project area is entirely underlain by artificial fill and Holocene-age deposits. Artificial fill has no potential to contain paleontological resources. Holocene sedimentary deposits are generally considered too young geologically speaking to contain fossils. Therefore, these deposits have a "low potential" to contain paleontologically sensitive geologic units. Thus, the proposed project would not impact paleontological resources.

2.1 Human Environment

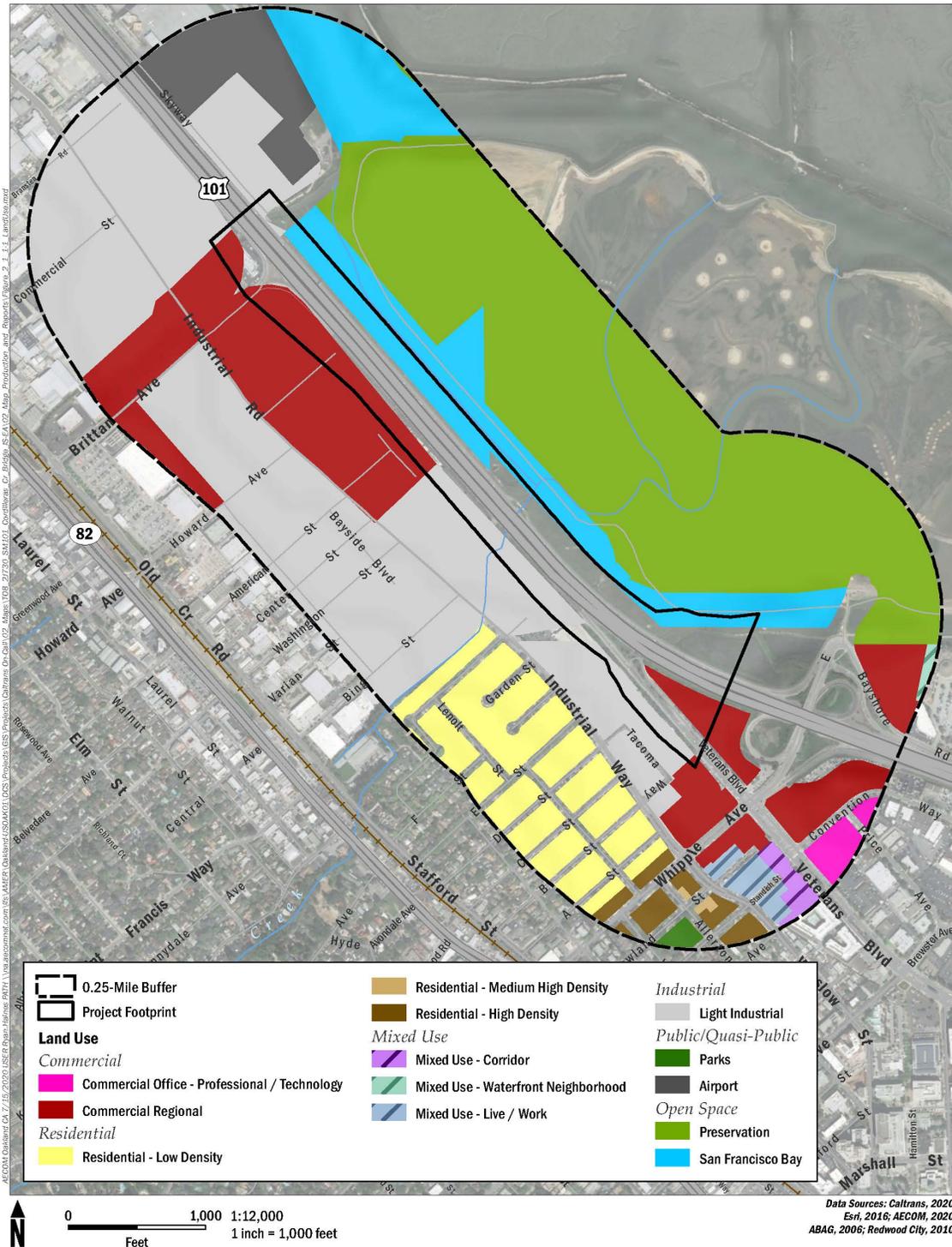
2.1.1 Existing and Future Land Use

2.1.1.1 Affected Environment.

The project area is located along U.S. 101 in Redwood City and near the City of San Carlos, in San Mateo County. The majority of the project area will be located within Caltrans' ROW. However, some staging will occur on lots located on either side of Cordilleras Creek, which are outside of Caltrans' ROW. Adjacent land use consists of urban development, including commercial real estate, a hotel, and light industrial uses to the west and open space to the east, including Bay tidal areas and sloughs (see Figure 2.2.1-1).

Recreational and open space areas in the vicinity of the project area include: Bair Island Ecological Reserve, Don Edwards San Francisco Bay National Wildlife Refuge, and the San Francisco Bay Trail. Bair Island Ecological Reserve is an ecological reserve managed by CDFW. Don Edwards San Francisco Bay National Wildlife Refuge is a national wildlife refuge managed by USFWS. The San Francisco Bay Trail is a walking and biking path generally located along the shoreline of the Bay Area. These are considered Section 4(f) properties; refer to Appendix G.

The area immediately adjacent to the project site to the west is built land. In general, the areas near the project site continue to intensify existing land uses through the addition of new commercial space, dense residential and mixed-used developments, and supporting infrastructure. Proposed plans and amendments for growth in the future are described further in Section 2.4.



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FIGURE 2.1.1-1
 Land Use of Surrounding Area

2.1.1.2 Environmental Consequences

As stated above, the majority of the project area will be located within Caltrans' ROW. However, some staging will occur on lots located on either side of Cordilleras Creek, which are outside of Caltrans' ROW. TCEs will be required for staging. The project will not conflict with any existing land use designations or preclude the development of any of the proposed projects within the project vicinity.

2.1.1.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.1.2 Consistency with State, Regional, and Local Plans and Programs

2.1.2.1 Affected Environment

There are several community, regional, and transportation plans that encompass the project area. The following types of plans were considered and are discussed in the subsections below:

- Transportation plans/programs
- Regional growth plans
- General and community plans
- Habitat Conservation Plans
- Other regulatory and planning influences

California Transportation Plan

The California Transportation Plan (CTP) provides a long-range policy framework to meet the state's future mobility needs and reduce greenhouse gas (GHG) emissions (Caltrans 2016). The CTP defines goals, performance-based policies, and strategies to achieve a collective vision for California's future statewide, integrated, multimodal transportation system. The CTP contains six goals. Preserving the multimodal transportation system is Goal 2 in the CTP. Improving public safety and security is Goal 4 in the CTP.

Regional Growth Plans

The Metropolitan Transportation Commission (MTC) is the State-designated Regional Transportation Planning Agency and the federally designated Metropolitan Planning Organization for the San Francisco Bay Area. *Plan Bay Area 2040* is the regional planning document of the MTC and Association of Bay Area Governments (ABAG). *Plan Bay Area 2040* functions as a regional growth plan for the nine-county San Francisco Bay Area, including San Mateo County (ABAG and MTC 2017). Plan Bay Area designates priority development areas (PDAs), which are areas within existing communities that have been identified and approved by a local city or county for future growth because of proximity to transit, jobs, shopping, and other services. Promoting compact development within PDAs is intended to take development pressure off the region's open space and agricultural lands. PDAs are located in areas to the east of the project area. No designated PDAs are within the project area.

General Plans and Community Plans

General and community plans were reviewed for the jurisdictions in the project vicinity, including San Mateo County and the cities of Redwood City and San Carlos. The plans generally focus on improving local circulation, encouraging multi-modal transportation, and encouraging developments and implementations that minimize vehicle trips and miles traveled. None of the plans specifically evaluate or reference the proposed project since the project would not result in any long-range change in U.S. 101 capacity or access. There are no policies within these general plans that are relevant to the proposed project.

Habitat Conservation Plans

The project will occur entirely within the Caltrans ROW. No Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans overlap with the proposed project area.

San Francisco Bay Conservation and Development Commission

The project is within San Francisco Bay Conservation and Development Commission (BCDC) jurisdiction. Fill and dredge of the Bay or project construction within 100-feet inland from the Bay requires a permit and review by BCDC. This jurisdiction includes tidal waters and wetlands (the Cordilleras Creek channel and banks).

2.1.2.2 Environmental Consequences

No Build Alternative

The No Build Alternative is not consistent with the CTP's goals of preserving the multimodal transportation system and improving public safety and security.

Build Alternatives 1 and 2

The No Build and the Build Alternatives would not be inconsistent with local or regional plans and policies. As discussed above, applicable general plans focus on improving local circulation, encouraging multi-modal transportation, and encouraging developments and implementations that minimize vehicle trips and miles traveled. No policies in the referenced general plans are relevant to the proposed project. The project would not interfere with the implementation of policies and projects within *Plan Bay Area 2040*. The project would not conflict with any of the PDAs in the corridor or induce development into open space or public or private lands.

The project would involve work within BCDC jurisdiction for construction staging. Specifically, work will occur in Cordilleras Creek on the east side of the bridge and that work would require BCDC's review. The existing culverts would be removed and replaced, dewatering would be completed, and wing wall construction would require pile driving and the installation of coffer dams on the east side of the bridge. Therefore, a BCDC permit would be required, but the project would not conflict with BCDC's plans and policies.

The proposed project meets the CTP's goals of preserving the multimodal transportation system and improving public safety and security. Therefore, there would be no impacts related to consistency with state, regional and local plans.

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.1.3 Coastal Zone

2.1.3.1 Regulatory Setting

The Bay Conservation and Development Commission (BCDC), created prior to the California Coastal Act, retains oversight and planning responsibilities for development and conservation of coastal resources in the Bay Area. The regulatory authority for BCDC is the McAteer-Petris Act and the Suisun Marsh Protection Act. The proposed project is within BCDC jurisdiction and would require a BCDC permit.

2.1.3.2 Affected Environment

The Cordilleras Creek Bridge spans Cordilleras Creek on U.S. 101 and flows into Smith Slough and Steinberger Slough before flowing out to the lower San Francisco Bay (the Bay) to the northeast.

2.1.3.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect San Francisco Bay resources.

Build Alternatives 1 and 2

Short-term Construction Impacts

The project would require work on the east side of the bridge adjacent to the Bay in BCDC jurisdiction, as shown in Figure 2.1.3-1. The following activities would occur: remove and replace existing culverts; dewater Cordilleras Creek; and drive piles for the wing wall construction. The bridge would also be widened by 1.5 feet towards the Bay. The project would require grading, excavation, trenching, clearing and grubbing of vegetation, and increasing impervious surfaces adjacent to the Bay shoreline. As a result, sedimentation and pollutants could enter neighboring bodies of water including Cordilleras Creek, Smith Slough, Steinberger Slough and lower San Francisco Bay. No construction work will occur in the Bay other than at Cordilleras Creek.

Public access to the Bay shoreline in the project area is available at the Bay Trail that is located east of the project. This trail is east of the pipeline that parallels US 101 in the vicinity of the project. Public access would be maintained during construction as there is no need to close the trail; all work would be completed within Caltrans' ROW. There will be no short-term impacts to shoreline access along the Bay Trail. Construction work may be briefly visible to users of the Bay Trail if they look inland (to the west) but trail users' views of the Bay looking to the east would not be impeded. There would be no impact with respect to shoreline access or views of the Bay from the Bay Trail.

Drivers on U.S. 101 towards the Bay may briefly see construction equipment if they are looking to the east. However, drivers' views of construction would be momentary and brief.

A permit from BCDC will be required for construction work within their jurisdiction. As part of the permit process, BCDC will require a Sea Level Rise (SLR) Assessment.

Long-term Operational Impacts

Bay resources, views of the Bay, or access to the Bay (along the Bay Trail) would not experience any long-term impacts following construction activities. The median barrier will be minimized to preserve Bay views, as established by agreements made as part of the San Mateo U.S. Managed Lanes Project (EA 04-1J5604).

2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

No mitigation is proposed.



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FIGURE 2.1.3-1
BCDC Jurisdiction

2.1.4 Growth

2.1.4.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

CEQA also requires the analysis of a project's potential to induce growth. The CEQA guidelines (Section 15126.2[d]) require that environmental documents "...discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment..."

2.1.4.2 Affected Environment

Plan Bay Area anticipates that San Mateo County's population will increase by 26 percent between 2010 and 2040 (ABAG and MTC 2013). By comparison, the average population growth in the Bay Area's nine counties is anticipated to be 30 percent. Employment is expected to increase in the San Mateo County by 29 percent and housing units are expected to increase by 20 percent from 2010 to 2040. Over the past 9 years, Redwood City has grown by 11.8 percent and has had an annual growth rate of 1.11 percent. The recorded population was 76,815 in 2010 and 85,925 in 2019. The projections indicate that recent growth in the project area is expected to continue. San Mateo County has grown by 6.7 percent over the past 9 years, with an annual rate of 0.74 percent. The recorded population was 718,517 in 2010 and 766,573 in 2019 (US Census 2019).

Growth in San Mateo County and Redwood City appears to be driven primarily by the technology, health care, education, and government sectors and financial business (EDD 2020). In 2010, there were about as many jobs in San Mateo County as housing units. However, because jobs are anticipated to grow faster than housing units between 2010 and 2040, more people will need to commute to San Mateo County in the future. This has the potential to increase congestion on U.S. 101.

While population in Redwood City increased between 2000 and 2010, the growth rate in Redwood City substantially increased between 2010 and 2019. Table 2.1.4.2-1 shows growth in housing and population in the City of Redwood City between 2000 and 2010.

Table 2.1.4-1: Redwood City Population and Housing Growth

Jurisdiction	2000 Population	2010 Population	Population Change	2000 Housing Units	2010 Housing Units	Housing Units Change	Travel Time to Work (minutes)
City of Redwood City	75,402	76,815	+2%	28,060	29,167	+4%	23.1

Source: Census 2000, Census 2010

2.1.4.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not increase the capacity of U.S. 101 in the project area. The No Build Alternative would not influence growth patterns in the project area.

Build Alternatives 1 and 2

The project is not a growth-inducing project. Neither alternative would increase the capacity of U.S. 101 in the project area and would not influence growth patterns in the project area.

2.1.4.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.1.5 Environmental Justice

2.1.5.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2019, this was \$25,750 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964, and related statutes, have also been included in this project. The Department's commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

2.1.5.2 Affected Environment

The environmental justice analysis for this project included a look at the Census Block Groups that border the project area. Block groups are divisions of census tracts that are delineated by local or regional organizations and usually consist of a cluster of several blocks. For the environmental justice analysis completed for this project, the study area block groups were compared to the county overall. Data for the analysis were derived from the U.S. Census Bureau's 2013-2017 American Community Survey 5-Year Estimates (Census 2017).

Caltrans identifies a community as an environmental justice community of concern if it meets one or both of the following criteria:

- The minority population exceeds 50 percent or is meaningfully greater (e.g., more than 10 percentage points) than the minority population percentage in the general population or other appropriate unit of geographic analysis (e.g., the counties overlapping the study area).
- The low-income population comprises more than 25 percent of the census block group or tract.

There are 2 block groups that border the project area. Neither one of these block groups meet the criteria of an environmental justice community of concern (Table 2.1.5-1).

Table 2.1.5-1: Summary of Race, Ethnicity, and Poverty Status in the Study Area

Geography	Black	Native American	Asian	Native Hawaiian or Other Pacific Islander	Hispanic	Minority*	Below Poverty Level
California	5.8%	0.7%	14.1%	0.4%	38.8%	39.4%	15.1%
San Mateo County	2.4%	0.3%	27.6%	1.4%	24.9%	47.9%	4.3%
Tract 6103.02, BG 1	1.3%	2.8%	12.3%	1.5%	49.5%	49%	12.9%
Tract 6091, BG 2	1.5%	0%	16.4%	0.0%	22.7%	30.8%	6.6%

Notes: *Minority is the sum of all U.S. Census reported groups except White.

BG – Block Group

Source: Census 2017

2.1.5.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect an environmental justice community of concern.

Build Alternatives 1 and 2

The Build Alternatives would not result in disproportionately high and adverse effects on any minority or low-income populations. The project is not within an environmental justice community of concern. Construction activities would not adversely affect the surrounding environment as BMPs for water quality, air quality and noise will be implemented. Therefore, no effects would result from phased construction of the project. The project will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898.

Long-term Operation Impacts

The project would not change the long-term capacity or traffic flow on US 101. There would be no impacts to an environmental justice community of concern.

2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.1.6 Utilities/Emergency Services

2.1.6.1 Affected Environment

Utilities located within the project limits are owned and operated by Pacific Gas and Electric Company (PG&E), AT&T, the San Francisco Public Utilities Commission (SFPUC), San Mateo County, and the City of Redwood City Public Works Department. A Redwood City reclaimed waterline, overhead PG&E power lines, and telecommunication (fiber optics) are located within the project area.

Fire and police protection services in the project area are provided by the cities of Redwood City and San Carlos.

2.1.6.2 Environmental Consequences

No Build Alternative

As the No Build Alternative would not result in changes to U.S. 101, it would not require utility relocations or construction activities that could interfere with the provision of emergency services.

Build Alternatives 1 and 2

Short-term Construction Impacts

Fiber optic lines will need to be rerouted during construction. A 24-inch water line owned by Redwood City would be temporarily or permanently relocated. Overhead power lines and other utilities will not be affected. No service disruptions are anticipated as a result of construction of the proposed project. No permanent utility relocations are anticipated.

Project construction may result in increased traffic delays on U.S. 101 near the project area that could affect response times of emergency response vehicles. However, a TMP would be developed for the project to minimize construction-related delays. The TMP would include using portable changeable message signs and ground mounted signs, CHP's Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol where possible. It is anticipated that CHP would be required every day during construction for Construction Zone Enhanced Enforcement, due to the high traffic volumes and difficulty of staging. Furthermore, during stage construction and the widening of the southbound side of U.S. 101, all lanes would remain open on each side of the highway. Law enforcement, fire, and/or emergency services would be maintained during project construction and operation of the lanes. With the incorporation of the TMP, the project is not expected to result in substantially decreased response times. There would be no disruption of utility service, and minimal effect, if any, on emergency services.

Long-term Operation Impacts

A 24-inch water line owned by Redwood City would be temporarily or permanently relocated. There would be no other long-term impacts to utilities and emergency services.

2.1.6.3 Avoidance, Minimization, and/or Mitigation Measures

A TMP is a standard project feature and is not considered a minimization or mitigation measure. No avoidance, minimization or mitigation is required.

2.1.7 Traffic and Transportation/Pedestrian and Bicycle Facilities

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

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

2.1.7.1 Affected Environment

Bicycle and Pedestrian Facilities

A shared bicycle/pedestrian path runs parallel to the east side of U.S. 101 (the northbound side of the freeway). This path is separated from the freeway by a utility pipeline. The path is part of the San Francisco Bay Trail.

Traffic Volumes

Currently, the average annual daily traffic (AADT) is 240,000 vehicles per day along U.S. 101 through the project area. In this area along the U.S. 101 corridor, traffic volumes are forecasted to increase by approximately 8,100 vehicles per day from 2020 to 2026 and 21,050 vehicles per day between 2020 and 2036. Between 2020 and 2046, there is projected to be an increase in traffic volumes of 34,000 vehicles per day. The percentage of truck traffic from 2020 to 2046 is anticipated to increase by 4.89%. Current and forecasted traffic volumes for Cordilleras Creek Bridge are shown in Table 2.1.7-1.

Table 2.1.7-1: Current and Forecasted Traffic Indicators on US 101 at PM 7.13

Year	Forecasted Traffic
Present year AADT (2020)	240,000
Construction year AADT (2026)	248,100
10-year AADT (2036)	261,050
20-year AADT (2046)	274,000
% trucks	4.89%

Source: Caltrans, 2020a

2.1.7.2 Environmental Consequences

No Build Alternative

The No Build Alternative would not result in traffic and transportation changes to U.S. 101. As discussed in the affected environment of this section, traffic volumes over Cordilleras Creek would continue to increase with or without the project.

Build Alternatives 1 and 2

Short-term Construction Impacts

Project construction may result in periodic short-term traffic delays on U.S. 101 near the project area. During stage construction all lanes on both sides of the highway would remain open during the weekdays. During weekend work (Friday midnight to 5 am on Monday), only 5 traffic lanes on each side would remain open. The closure of one lane in each direction would result in traffic delays during the weekend between 0 and 29.5 minutes. However, a TMP would be developed for the project to minimize construction-related delays. The TMP would include using portable changeable message signs and ground mounted signs, CHP's Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol where possible. It is anticipated that CHP would be required every day during construction for Construction Zone Enhanced Enforcement, due to the high traffic volumes and difficulty of staging. Furthermore, due to stage construction and the widening of the southbound side of U.S. 101, all lanes would remain open on each side of the highway during construction activities. Law enforcement, fire, and/or emergency services would be maintained during project construction and operation of the lanes. With the incorporation of the TMP, the project is not expected to result in significantly decreased response times. Effects of the project on transportation would be minimal.

The Bay Trail is expected to remain open during construction, and its use would not be affected. No impacts will occur during construction including accessibility for bicycles, and pedestrians.

Long-term Operational Impacts

The project would involve replacing Cordilleras Creek Bridge. The project is not a capacity increasing project and would not result in increased traffic volumes or vehicle miles traveled (VMT). Following construction activities, there would be no long-term impacts to traffic and transportation as a result of the project.

2.1.7.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization or mitigation measures are required.

2.1.8 Visual/Aesthetics

2.1.8.1 Regulatory Setting

The National Environmental Policy Act (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 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

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

California Streets and Highways Code Section 92.3 directs Caltrans to use drought resistant landscaping and recycled water when feasible, and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate.

2.1.8.2 Affected Environment

The following discussion is based on the *Scenic Resources Evaluation and Visual Impact Assessment* completed for this project and signed on February 19, 2020.

The study area for the VIA is the area of land that is visible from, adjacent to, and just outside of U.S. 101. Viewers include motorists on the highway; bicyclists and pedestrians on the adjacent Bay Trail to the east; and members of the public on the adjacent commercial building grounds to the west.

U.S. 101 is a ten-lane facility (five northbound and four southbound plus an auxiliary lane) as it runs north and south at the project location. The San Francisco Bay provides a scenic view to motorists on US 101 and users of the Bay Trail to the east. Bair Island Ecological Reserve in the San Francisco Bay is located the east of the highway. Salt ponds and tidal marshes to the east are visible in stretches, along with freeway signage, light posts, large power line structures and billboards to the east and west. Commercial land uses dominate the area along the highway to the west. There is ornamental landscaping associated with commercial buildings, as well as intermittent highway landscaping along the southbound side of the highway. There are no sensitive receptors such as residences, schools and hospitals near the project area.

The Cordilleras Creek Bridge is a relatively short span of 180 feet, and the bridge and creek below are not visible to drivers on the highway. U.S. 101 is not an Eligible or Officially Designated Scenic Highway within the project vicinity, and the bridge is not eligible for the National Register of Historic Places. The area is characterized as having flat terrain.

2.1.8.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect the aesthetics of the project area.

Build Alternatives 1 and 2

Short-term Construction Impacts

During construction of the proposed project, construction work, crews and equipment may be visible to viewers from the highway and other vantage points that occur at the highway level. Work under the bridge and in the creek would not be visible from any vantage points. Temporary construction impacts would be visible from the vantage point along the Bay Trail's bicycle/pedestrian path. Construction materials and equipment in the staging areas would be placed where they are less visible and/or covered when possible.

No structural work will occur at night. However, nightwork may be required for roadwork, such as moving K-rail or lane stripping. If any construction lighting is required, it shall be limited to the general work area through directional lighting, shielding, and other measures as needed. Furthermore, avoidance and minimization measures VIS-3 and VIS-4, described in Section 2.1.8.4, would be implemented. These measures would reduce construction-related impacts to trees and other vegetation. Therefore, impacts related to aesthetics and visual resources would be minor.

Long-term Operational Impacts

Commercial businesses and a hotel adjacent to U.S. 101 on the southbound side would have blocked or screened views of the highway due to an existing slatted fence. Thus, new retaining walls, riprap and a new bridge structure are not likely to be visible at the southbound side of the highway, including during construction. The most obvious change on the highway would be from the removal of large shrubs for the temporary widening and staging of construction equipment. The loss of these shrubs would eliminate visual screening of adjacent commercial buildings and reduce visual quality along this portion of the highway. Permanent impacts to visual resources are not expected because changes to the bridge would be minimal. Avoidance and minimization measures VIS-1, VIS-2, and VIS-5, described in Section 2.1.8.4, would be implemented. These measures would preserve Bay views for motorists on U.S. 101 and require replacement planting with native plants. Furthermore, the visual prominence of the City of Redwood City's 24-inch reclaimed waterline would be reduced. Therefore, no adverse effects to aesthetics and visual resources would occur.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

Measure BIO-3, 4, and 6 (Section 2.3.3.4) provides for replanting native species if required.

VIS-1. Median Barrier height shall be minimized to preserve Bay views for motorists on the southbound side of the highway. This was established by agreements made under the San Mateo Managed Lanes Project (EA 04-1J5604).

VIS-2. Bridge design shall include measures to reduce visual prominence of Redwood City's 24-inch reclaimed waterline.

VIS-3. Tree and vegetation removal shall be minimized to the extent feasible.

VIS-4. Trees and vegetation outside of clearing and grubbing limits shall be protected from the contractor's operations, equipment, and materials storage.

VIS-5. All disturbed ground surfaces shall be restored and treated with erosion control.

VIS-6. Replacement planting shall be provided in areas where shrub removal is necessary.

VIS-7. During construction operations, unsightly material and equipment in staging areas shall be placed where they are less visible and/or covered where possible.

VIS-8. Construction activities shall limit all construction lighting to within the area of work and avoid light trespass in residential areas through directional lighting, shielding, and other measures as needed.

2.1.9 Cultural Resources

2.1.9.1 Regulatory Setting

The term “cultural resources,” as used in this document, refers to the “built environment” (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including “historic properties,” “historic sites,” “historical resources,” and “tribal cultural resources.” Laws and regulations dealing with cultural resources include the National Historic Preservation Act (NHPA) of 1966 and CEQA.

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

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

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU) between the Department and SHPO, effective January

1, 2015. For most federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

2.1.9.2 Affected Environment

The following discussion is based on the *Office of Cultural Resource Studies (OCRS) Section 106 Memo for the Cordilleras Creek Bridge Replacement Project at Postmile 7.13 on U.S. 101 in San Mateo County* completed on April 20, 2020.

The Area of Potential Effects (APE) defined for the Cultural Resources study encompasses all areas within the physical footprint of improvements proposed for Alternative 1 and Alternative 2. For this project the APE is the same as the construction footprint. The APE was developed to in order to assess the project's potential effects on cultural resources. Construction-related activities include excavation, pile driving, wall construction, minor reconfiguration of Cordilleras Creek, and TCEs for staging. The APE is approximately 1,200 feet (365 meters) long from northwest to southwest, and 320 feet (97 meters) wide from northeast to southwest, for a total area of 6 acres (Figure 2.1.9-1). The APE consists of the existing Caltrans ROW (Cordilleras Creek Bridge and U.S. 101) along with portions of Cordilleras Creek, the San Francisco Bay Trail, salt marshes and private properties where temporary construction easements are proposed. Two TCEs will be required for staging to the west of the project. These will take place on lots located on either side of Cordilleras Creek to allow for adequate access to both sides of the creek for construction and Rock Slope Protection RSP/vegetated embankment installation. The Cordilleras Creek Bridge is listed in the Caltrans Bridge Inventory as Category 5, not eligible for the National Register of Historic Places.

The Native American Heritage Commission (NAHC) was contacted on February 8, 2019, to request a search of their sacred lands file for any historically significant resources within or near the APE. The search result found no historically significant resources within or near the APE.

The NAHC provided a list of Native American parties and individuals with potential interest in the project and their contact information. On February 19, 2019, letters providing project information and requesting input were sent to each individual and organization on the list.

Representatives of the Galvan of the Ohlone Indian Tribe; Muwekma Ohlone Tribe of the San Francisco Bay Area; Amah Mutsun Tribal Band of Mission San Juan Bautista; and Indian Canyon Mutsun Band of Costanoan responded to the letter. Representatives of the Tribes requested to be informed about project developments and recommended monitoring of the project by Native Americans. Follow up phone calls to Native American parties who did not respond to the initial letter outreach were made on May 23, 2019. Consultation with Caltrans is ongoing. No consultation was conducted with historical societies or groups because there are no potentially historic cultural resources within the APE.

2.1.9.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect any cultural resources.

Build Alternatives 1 and 2

No historic properties or historical resources are present in the project's APE. The cultural resources finding for this project is No Historic Properties Affected. The project would not affect any tribal cultural resources. The project area does not contain any historic properties subject to the provisions of Section 4(f) of the Department of Transportation Act. The project would not cause a substantial adverse change to a historical or archaeological resource as defined by CEQA, or affect or use any Section 4(f) historic resource. CUL-1 and CUL-2 would be incorporated during construction activities to avoid any effects to cultural resources if discovered. Therefore, there would be no impact to cultural resources.

2.1.9.4 Avoidance, Minimization, and/or Mitigation Measures

CUL-1. *Avoidance of Cultural Resources:* If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

CUL-2. *Avoidance of Human Remains:* If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. The Caltrans Branch Chief of Archaeology shall be notified, and then the County Coroner contacted. If the remains are thought by the County Coroner to be Native American, the County Coroner will notify the NAHC, who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact the Branch Chief of Cultural Resources, Archaeology, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 Regulatory Setting

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

To comply, the following must be analyzed:

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

The base floodplain 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.”

2.2.1.2 Affected Environment

The following information has been taken from the *Structures Draft Final Hydraulic Report* for the proposed project; the report was completed on March 21, 2020.

Project Watershed

The proposed project is located within the Cordilleras Watershed Basin, which encompasses the headwaters of the Cordilleras Creek Basin. The Cordilleras Watershed is bounded on the east and southeast by San Carlos Airport, on the south by the City of Redwood City, and on the west by Interstate 280 (I-280). The watershed is roughly 50 percent urban and 50 percent undeveloped. The size of the watershed basin is 3.21 square miles. The Cordilleras Creek Bridge is located at the mouth of the watershed, in the urban area.

Cordilleras Creek

Cordilleras Creek is relatively straight where it approaches the Bay, except between 100 and 900 feet upstream from the existing structure where it makes two 90-degree bends to enter into a culvert. The existing culvert has no hydraulic skew, which means the culvert is perpendicular to the flow of the creek. The average stream slope is estimated to be 0.009 feet per foot. It is estimated the bed is composed of silt and clay.

Floodplains

The current Federal Emergency Management Agency (FEMA) Flood Insurance Study used for this report is 06081CV001D through 06081CV003D, effective April 2019. U.S. 101 is not located in a special flood zone. However, areas immediately adjacent to U.S. 101 are within Special Flood Hazard Area Zone AE and Zone X. Cordilleras Creek is classified as a Regulatory Floodway. Figure 2.2.1-1 shows an aerial view of FEMA flood zones in the project vicinity. Zone AE regions represent areas subject to flooding by the 1% annual chance flood event, which is determined using a detailed method in which base flood elevations are provided. FEMA states that Zone AE refers to “Special Flood Hazard Areas inundated by the 100-year flood where base flood elevations are determined.” Zone X regions represent areas subject to flooding by the 0.2% annual chance flood. The Cordilleras Creek floodplain lies within Zone AE.

2.2.1.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect the floodplains located within the project limits.

Alternative 1

Alternative 1 would replace the existing triple box culvert with three new precast, reinforced-concrete box culverts and would widen the bridge by 4 feet. During construction, work in Cordilleras Creek would be required. Temporary dewatering and minor reconfiguration of Cordilleras Creek would occur. However, existing drainage patterns are not anticipated to be significantly affected in the long term, as the goal of the project’s drainage design is to maintain existing drainage patterns. Alternative 1 would be on the same alignment and use the same top-of-deck grades as the existing culvert and would perform similarly to existing conditions.

Alternative 1 would result in 0.002 acres of net impervious surface by removing 0.16 acres of impervious surface and adding 0.162 acres of new impervious surface. This added impervious area is not expected to result in substantially increased surface runoff volume and rate of flow, since the amount added is small. The proposed project does not involve pumping or using groundwater. However, the added impervious surface from the project has the potential to reduce the available unpaved area where runoff can infiltrate into native soils and recharge aquifers. Nonetheless, the additional impervious area is minimal in comparison with the total area of the local aquifers and groundwater basins.

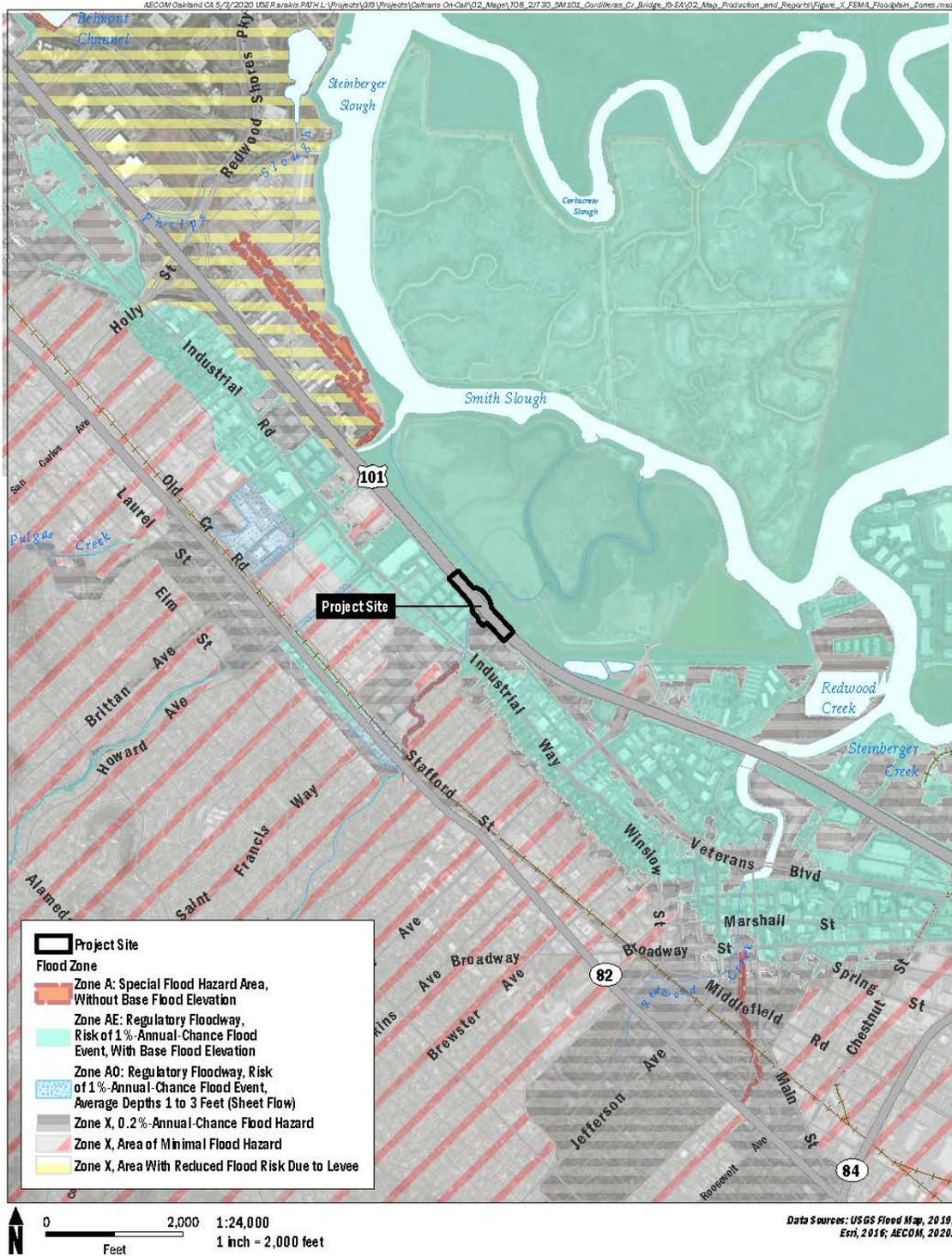
U.S. 101 is not within a Special Flood Hazard Area. Areas surrounding U.S. 101 are within Zones AE and X (see Figure 2.2.1-1). The project minimizes any increases to the existing base flood elevations for the Cordilleras Creek regulatory floodway. Through hydraulic modeling of the Cordilleras Creek Bridge floodplain, it was determined that the proposed work would not result in any changes to the floodplain. Alternative 1 would fulfill the flow needs for this project with no additional flood risk. Alternative 1 would not raise any water surface elevations or impede flows that pass the design-year flood events. Furthermore, replacement work for Alternative 1 would not cause any significant or immediate hydraulic or scour-related issues.

Alternative 2

Alternative 2 would replace the existing culvert with a new single-span, precast pre-stressed bridge and widen the south end of the bridge by 5 feet. The impacts of Alternative 2 would be similar to those of Alternative 1. Alternative 2 would be on the same alignment as Alternative 1 and would use the same top-of-deck grades as the existing culvert. Alternative 2 would fulfill the flow needs for this project with no additional flood risk, and the proposed work would not result in any changes to the floodplain. Alternative 2 would not raise any water surface elevations or impede flows that pass the design-year flood events, and replacement work would not cause any significant or immediate hydraulic or scour-related issues. In contrast, Alternative 2 would result in 0.026 acres of impervious surface by removing 0.426 acres of impervious surface and adding 0.452 acres of new impervious surface.

2.2.1.4 Avoidance, Minimization and/or Mitigation Measures

No other avoidance, minimization, or mitigation is required.



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FIGURE 2.2.1-1
FEMA Floodplain Zones in the Project Vicinity

2.2.2 Water Quality and Storm Water Runoff

2.2.2.1 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 U.S. from any point source¹ unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme.

The following are important sections of the CWA:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

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

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

Ordinarily, projects that do not meet the criteria for a regional or nationwide permit may be permitted under one of the USACE’s individual permits. There are two types of individual permits: standard permits and letters of permission. For individual permits, the USACE’s decision to approve is based on compliance with U.S. Environmental Protection Agency’s (EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the

¹ A point source is any discrete conveyance such as a pipe or a man-made ditch.

permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent² standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements: Porter-Cologne Water Quality Control Act

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

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all waterbody 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 SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQB are responsible for

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

protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System (NPDES) Program

Municipal Separate Storm Sewer Systems (MS4)

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

The Department’s MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012 and effective on July 1, 2013), as amended by Order No. 2014-0006-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:

- The Department must comply with the requirements of the Construction General Permit (see below);
- The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
- The Department’s storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

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

Construction General Permit

Construction General Permit, Order No. 2009-0009-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). The permit regulates storm

water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); 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 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 SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with a DSA of less than one acre.

Section 401 Permitting

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

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

2.2.2.2 Affected Environment

The following discussion is based on Caltrans' *Water Quality Study* and Stormwater Data Report prepared for the proposed project (May 2020).

The project area is within the San Francisco Bay Basin (Region 2) and regulated by the San Francisco RWQCB. The RWQCB is responsible for implementing state and federal laws and regulations for water quality, as described in the regulatory setting section above. The project area is also within the San Mateo County Municipal Separate Storm Sewer Systems (MS4).

Neighboring bodies of water include Cordilleras Creek, Smith Slough, Steinberger Slough and Lower San Francisco Bay. The Cordilleras Creek flows into Smith Slough, Steinberger Slough

and the Lower San Francisco Bay which flows to Central San Francisco Bay and ultimately to the Pacific Ocean. The watershed information is listed below in Table 2.2.2-1.

Table 2.2.2-1: Hydrologic Sub-Area for Neighboring Bodies of Water

Watershed Information Heading	Hydrologic Sub-Area
Hydrologic Unit	South Bay
Hydrologic Area	San Mateo Bayside
Hydrologic Sub-Area (HAS) #	204.40
HAS (acres)	107,918
Watershed	San Francisco Bay
Sub Watershed	San Francisco Bay Estuaries
Average Annual Precipitation (inches)	14.86

Source: Caltrans, 2020

Waterbodies in and adjacent to the project area all flow into the Lower San Francisco Bay. The estimated size of the Lower San Francisco Bay is 92,274 acres. This part of the Bay is on the CWA 2014-2016 total maximum daily load (TMDL) and 303(d) lists of impaired waterbodies for polychlorinated biphenyls (PCBs) and mercury. TMDL establishes a maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. Table 2.2.2-2 shows each pollutant that impairs the Lower San Francisco Bay.

Table 2.2.2-2: Pollutants that Impair the Lower San Francisco Bay

Pollutant	Status
Chlordane	TMDL Required
DDT (Dichlorodiphenyltrichloroethane)	TMDL Required
Dieldrin	TMDL Required
Dioxin Compounds (including 2,3,7,8-TCDD)	TMDL Required
Furan Compounds	TMDL Required
Invasive Species	TMDL Required
Mercury	Being addressed with USEPA approved TMDL
PCBs (Polychlorinated biphenyls)	Being addressed with USEPA approved TMDL
PCBs (dioxin-like)	Being addressed with USEPA approved TMDL
Trash	TMDL Required

Source: Caltrans, 2020

The Water Quality Control Plan (Basin Plan) for the San Francisco Basin establishes beneficial uses for waterways and waterbodies within the region. Beneficial uses of adjacent waterbodies include: Industrial Service Supply (IND); Navigation (NAV); Contact/Non-Contact Water Recreation (REC-1/REC-2); Commercial and Sport Fishing (COMM); Warm Freshwater Habitat (WARM); Estuarine Habitat (EST); Wildlife Habitat (WILD); Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting

(MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting (SHELL; Caltrans 2020; SWRCB 2007). Table 2.2.2-3 shows waterbodies within and adjacent to the project area beneficial uses.

Table 2.2.2-3: Waterbody with Beneficial Uses

Waterbody	Beneficial Uses	Sediments-Sensitive Waterbody	High-Risk Area
Lower San Francisco Bay	COMM, EST, IND, MIGR, NAV, RARE, SPWN, REC1, REC2, SHELL, WILD	False	No
Cordilleras Creek	WARM, REC1, REC2, WILD	False	No
Smith Slough	EST, RAER, REC1, REC2, WILD	False	No
Steinberger Slough	EST, RAER, REC1, REC2, WILD	False	No

Source: Caltrans, 2020

Within the project limits, U.S. 101 at PM 7.13 is identified as a significant trash generation area (STGA). The project is required to incorporate full trash capture devices, as required by the San Francisco RWQCB. This requirement will be part of the project design.

2.2.2.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not change current conditions related to water quality and storm water runoff.

Alternative 1

Short-term Construction Impacts

Construction of the project has a potential to result in impacts to water quality; most of these potential impacts would be temporary in nature. Construction is estimated to take 185 working days. Erosion from disturbed soil areas during project construction has the potential to cause sediment-laden runoff to enter storm drainage facilities and increase water turbidity and decrease the clarity and beneficial uses of receiving waterbodies. Alternative 1 would result in approximately 1 acre of disturbed soil. Fueling or maintenance of construction vehicles could take place within the project area during construction, so accidental spills or releases of fuels, oils, or other potentially toxic materials could occur. An accidental release of these materials may pose a threat to water quality.

In consideration of the project scope, the following activities are of water quality concern:

- Grading and excavation for replacement of the existing box culvert
- Drilling, excavation, driving piles and pouring concrete for wing wall construction
- Shoulder widening
- Grading, excavation and pouring concrete for relocation of sign structures

- Replacement of the drainage system
- Excavation, grading and pouring concrete for construction of retaining walls
- Minor reconfiguration of Cordilleras Creek
- Replacement of guardrails
- Construction of a temporary creek diversion system
- Storage of material and equipment
- General equipment movement and access

However, the project would comply with water quality requirements and implement BMPs to avoid adverse impacts to water quality such as fueling and maintenance operations of vehicles and equipment at least 50 feet away from watercourses; collecting concrete waste in washouts so they do not get into watercourses; implementing dust control measures and protecting graded areas.

As listed in Section 1.3.5, the project would require a Section 404 permit issued by USACE and a Section 401 certification and general construction permit issued by the RWQCB. Projects requiring 401 certifications are required to comply with local county stormwater treatment requirements. Furthermore, since the project would disturb at least 1 acre of soil, a SWPPP would be required as part of the Construction General Permit.

WQ-1 would implement temporary erosion control and water quality measures as required by the Construction General Permit. A Temporary Water Pollution Control Plan has been produced for the project, which includes temporary construction site BMPs (such as the ones listed above) that will be implemented for sediment control and material management. Section 2.2.2.4 describes BMPs that will be utilized during construction of the project in more detail. In addition, a SWPPP will be prepared by the construction contractor and approved by Caltrans prior to construction. Requirements under the SWPPP would require the construction contractor to implement BMPs for water quality. The contractor will also comply with the following standards/objectives (or BMPs) including but not limited to the following:

- Where work areas encroach on wetlands, RWQCB-approved physical barriers adequate to prevent the flow or discharge of sediment into these systems will be constructed and maintained between working areas and streams, lakes, and wetlands.
- Discharge of sediment into culverts and storm drains will be held to a minimum during construction of the barriers.
- Discharge will be contained through the use of RWQCB-approved measures that will keep sediment from entering jurisdictional waters beyond the project limits.
- All off-road construction equipment should be cleaned of potential noxious weed sources (mud and vegetation) before entering the project footprint and after entering a potentially infested area before moving on to another area. The contractor will employ whatever cleaning methods (typically spraying with a high-pressure water hose) are necessary to ensure that equipment is free of noxious weeds.

- Equipment should be considered free of soil, seeds, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required. Equipment washing stations will be placed in areas that afford easy containment and monitoring (preferably outside of the project footprint) and that do not drain into sensitive (riparian, wetland, etc.) areas.

Furthermore, disturbed soil areas will be stabilized by fiber rolls, cover and other methods used to control erosion. WQ-1 would prevent or reduce construction-related impacts to a minor level.

Long-term Operation Impacts

Alternative 1 would result in an increase of 0.002 acres of net impervious surface by removing 0.16 acres of impervious surface and adding 0.162 acres of new impervious surface. However, this small amount of impervious surface added to the project area is not expected to result in substantial increases in stormwater runoff. Furthermore, the proposed project is required to construct stormwater treatment BMPs to treat runoff from 0.162 acres of impervious surfaces. Caltrans would implement WQ-2 or treatment BMPs to address post-construction water quality impacts and remove pollutants from stormwater runoff. In addition, the project would implement full trash capture devices within the project limits. WQ-2 would prevent or reduce the post-construction impacts to a minor level.

Alternative 2

Short-term Construction Impacts

Alternative 2 would result in similar impacts to that of Alternative 1, as described above. In contrast, construction for Alternative 2 is estimated to take 235 working days. Alternative 2 would result in 1.27 acres of disturbed soil. However, this slight difference between the two alternatives would not cause a substantial difference in impacts to water quality and stormwater runoff. The same permits would be required for Alternative 2, as described in Alternative 1.

Long-term Operation Impacts

Alternative 2 would result in an increase of 0.026 acres of impervious surface by removing 0.426 acres of impervious surface and adding 0.452 acres of new impervious surface. This small amount of impervious surface added to the project area is not expected to result in substantial increases in stormwater runoff. Furthermore, WQ-2 will implement treatment BMPs to address post-construction water quality impacts and remove pollutants from stormwater runoff, as described in section 2.2.2.4, Avoidance, Minimization and/or Mitigation. In addition, Caltrans would be required to install full trash capture devices at this location. WQ-2 would prevent or reduce the post-construction impacts to a minor level.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

Implementation of the following BMPs will avoid or minimize adverse impacts to water quality and storm water runoff. These BMPs would be incorporated into the project's design as a matter of Caltrans standard practices and are not mitigation.

Short-Term Construction BMPs

WQ-1. *Water Quality/Erosion Control BMPs:* Implement temporary erosion control and water quality measures as required by the Construction General Permit as follows:

- Temporary Creek Diversion System: The system will consist of upstream and downstream berms, with a pipe conveying runoff to create a dry working environment for temporary access, pile driving, and bridge construction. The system will be required during each summer during construction and would be removed during each intervening winter.
- Temporary silt fences: A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff.
- Street sweeping: Street sweeping is a sediment and tracking control practice to remove tracked soil particles from paved roads to prevent the sediment from entering a storm drain or watercourse.
- Temporary fiber rolls: A fiber roll consists of straw or other similar materials placed on the face of the slopes at regular intervals to intercept runoff, reduce its flow velocity, release the runoff as sheet flow, and provide removal of sediment from the runoff.
- Temporary Cover: Cover such as geosynthetic fabrics (geotextiles), plastic covers, or erosion control blankets/mats will be placed on the ground to stabilize DSAs and protect soil from erosion by wind or water.
- Temporary concrete washout facilities: This waste management BMP contains procedures and practices that will minimize or eliminate the discharge of concrete waste materials to the storm drain systems or watercourses.
- Job Site Management: Management includes considerations for operations, illicit discharge detention and reporting, vehicle and equipment cleaning, vehicle and equipment fueling, and material use.

Long-Term BMPs

WQ-2: *Implement treatment BMPs to address post-construction water quality impacts and remove pollutants from stormwater runoff.* Treatment BMPs address post-construction water quality impacts and remove pollutants from storm water runoff before it is discharged to receiving waters. This project is required to construct stormwater treatment BMPs to treat runoff from (0.162 or 0.452 acres for Alternative 1 and Alternative 2, respectively). One location to be considered for a treatment BMP is the shoulder on the north and southbound shoulder of the project area. A biofiltration swale is being considered for this location and is expected to treat the runoff from the new and reworked impervious area. Alternatively, the project could address long-term treatment via stormwater alternative compliance (e.g., partnership with local partners).

The San Francisco Regional Water Quality Control Board adopted Order No. R2-2019-0007 (effective in February 2019) and requires Caltrans to provide trash control in areas identified as STGA. The proposed project is located within a STGA. Opportunities have been preliminarily identified to install full trash capture devices within the project limits inside the Caltrans ROW. These would be defined during the PS&E phase. If with further analysis, it is found that

installing full trash capture devices would not be feasible, opportunities to construct trash capture devices elsewhere would be further investigated with local partner agencies.

2.2.3 Hazardous Waste/Materials

2.2.3.1 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, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

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

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

In addition to the acts listed above, Executive Order (EO) 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 CA Health and Safety Code and is also authorized by the federal government to implement RCRA 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.

2.2.3.2 Affected Environment

Hazardous Materials Sites

The review of Department of Toxic Substances Control's (DTSC) EnviroStor identified no hazardous materials release sites within 0.25 mile of the project area (DTSC 2020). California State Water Board GeoTracker records identified 5 sites within a 0.25-mile radius of the project area that have impacted or have the potential to impact water quality (SWRCB 2020). These sites include Leaking Underground Storage Tank (LUST) Sites and Cleanup Program Sites and are discussed further below.

- **Axial Tome # T0608100052:** LUST cleanup site at 1559 Industrial Way in San Carlos. In 1990, gasoline was reported to have contaminated groundwater. Case closed as of 1991.
- **Former Industrial Plating # T10000009575:** Cleanup program site at 803 American Street in San Carlos. In 2015, cyanide, lead, nickel, other metal, trichloroethylene (TCE) and zinc were reported to have contaminated groundwater. Cleanup status and case open as of 2016.
- **1409-1411 Industrial Road # T10000012536:** Cleanup program site at 1409-1411 Industrial Road in San Carlos. Polychlorinated biphenyls (PCBs) were reported to have contaminated surface water in 2018. Cleanup status and case open as of 2019.
- **Murrillo Metal Fab # T0608191813:** LUST cleanup site at 939 Center Street in San Carlos. In 1998, gasoline was reported to have contaminated groundwater. Case closed as of 2001.
- **Wilsey, Bennett Co #T0608100623:** LUST cleanup site at 961 Bing Street in San Carlos. In 1990, gasoline was reported to have contaminated groundwater. Case closed as of 2000.

All of the LUST sites have been listed as “case closed” since the 1990s and early 2000s, which indicates that a closure letter or other formal closure decision document has been issued for the site. The other two sites are part of the SWRCB Cleanup Program and are still open cases.

2.2.3.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect potential hazardous material sites in the project area.

Build Alternatives 1 and 2

Short-term construction impacts

Project construction activities are expected to involve the transport, use, and disposal of hazardous materials (e.g., fuels, paints, asphalt and lubricants) that could pose a threat to human health or the environment if not properly managed. The transport, use, and disposal of hazardous materials during construction is regulated and enforced by federal and state agencies. In addition, BMPs will be incorporated such as fueling and maintenance operations of vehicles and equipment at least 50 feet away from watercourses.

Workers who handle hazardous materials are required to adhere to OSHA and California Division of Occupational Safety and Health (Cal/OSHA) health and safety requirements. Hazardous materials must be transported in accordance with RCRA and USDOT regulations and disposed of in accordance with RCRA and the California Code of Regulations at a facility that is permitted to accept the waste.

In accordance with the SWRCB, a SWPPP must be prepared and implemented during construction for coverage under the Construction General Permit. The SWPPP requires implementation of BMPs for hazardous materials storage and soil stockpiles, inspections, maintenance, training of employees, and containment of releases to prevent runoff into existing storm water collection systems or waterways.

Adherence to federal and state regulations during project construction reduces the risk of exposure to hazardous materials and accidental hazardous materials releases. Compliance with existing regulations is mandatory; therefore, construction of the proposed project is not expected to create a hazard to construction workers, the public, or the environment through the routine transport, use, disposal, or accidental release of hazardous materials. As a result, the project would have no adverse effects related to the routine transport, use, disposal, or accidental release of hazardous materials during construction and maintenance activities and no mitigation is required.

Construction of the project could result in the potential disturbance of hazardous materials in the soil and groundwater, according to the Caltrans Hazardous Waste Branch's inputs in a memo dated March 2020. Shallow soils along the southbound shoulder that would be excavated during construction likely contain aerially deposited lead at concentrations above DTSC-regulated levels. Furthermore, groundwater would likely be encountered during structure foundation work and require dewatering activities. In addition, GeoTracker records identified 5 sites within 0.25 mile of the project area that have impacted or have the potential to impact groundwater and surface water quality. Given these sites' close proximity to the project area, there is potential that residual contamination at these sites could affect soils or groundwater in the project area.

Soil and groundwater testing and characterization would be required. In addition, a bridge survey would be needed to determine the presence or absence of asbestos-containing material (ACM) in the existing triple box culvert to be removed and replaced. The bridge survey and soil and groundwater testing would be conducted during the design phase of the project. If identified, ACM and contaminated soil and groundwater would be handled according to the appropriate project specifications.

No additional effects would result from phased construction of the Alternative 1 or Alternative 2. Therefore, impacts related to hazardous waste and materials would be minor.

Long-term Operation Impacts

Following construction, no long-term impacts are expected to occur related to hazardous waste and materials. Maintenance work will be required periodically over the life of the bridge and may require the use of hazardous materials. However, adherence to federal and state regulations regarding the use of hazardous material will be compiled with and there will be no long-term impacts.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

As, discussed in Section 2.2.2, **WQ-1. Water Quality/Erosion Control BMPs**: Implement temporary erosion control and water quality measures as required by the Construction General Permit. Additionally, a SWPPP will be prepared by the construction contractor and approved by Caltrans prior to construction. Requirements under the SWPPP would require the construction contractor to implement BMPs for water quality.

2.2.4 Air Quality

2.2.4.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the EPA and the California Air Resources Board (CARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM)—which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM₁₀) and particles of 2.5 micrometers and smaller (PM_{2.5}), lead (Pb), and sulfur dioxide (SO₂). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS 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 (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the USDOT and other Federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to the State Implementation Plan (SIP) for attaining the NAAQS.

“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 proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS 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 NAAQS for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and in some areas (although not in California), sulfur dioxide (SO₂). California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not

the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed 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 RTP and TIP; the project has a design concept and scope³ that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.4.2 Affected Environment

The proposed project is located in the San Mateo County subregion, as defined by the Bay Area Air Quality Management District (BAAQMD). San Francisco Bay Area Air Basin (SFBAAB) is currently designated as a maintenance area⁴ for the 8-hour carbon monoxide (CO) standard and is a nonattainment area for the 8-hour ozone (O₃) standard and 24-hour fine particulate matter (PM_{2.5}) standard. The SFBAAB is designated as attainment/unclassifiable for the remaining National Ambient Air Quality Standards (NAAQS). For the California Ambient Air Quality Standards (CAAQS), the SFBAAB is designated as a nonattainment area for the 1-hour and 8-hour O₃ standards, the annual average and 24-hour PM₁₀ standards, and the annual average PM_{2.5} standard. The SFBAAB is designated as attainment/unclassified for the remaining CAAQS.

Local Ambient Air Quality

The Bay Area Air Quality Management District (BAAQMD) operates a network of air monitoring sites. The nearest and most representative air monitoring station to the project area is currently the Redwood City station, which is located at 897 Barron Avenue, approximately 0.25 mile south of the linear project footprint. The criteria pollutants monitored at this station include O₃, CO, NO₂, and PM_{2.5}. The nearest station where PM₁₀ levels are measured is the San Francisco station, located at 10 Arkansas Street, approximately 7 miles north of the northernmost point of the project area. This station is considered representative of the project area as it located within similar land uses and emission sources (residential, commercial, industrial, and some urban open space), and similar meteorological conditions. The County of San Mateo is in

³ "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

⁴ On March 31, 1998, the EPA approved California's SIP revision and the redesignation became effective on June 1, 1998. CARB submitted a revised CO plan to the USEPA on November 8, 2004, with an update to the CO maintenance plan that showed how the 10 urban areas will continue to maintain the CO standard through 2018.

nonattainment for 8-Hour Ozone (2008), 8-Hour Ozone (2015), and PM_{2.5} (2006) in 2020 (U.S. EPA 2020).

2.2.4.3 Environmental Consequences

No Build Alternative

The No Build Alternative would make no physical or operational changes to the project area that would affect air quality.

Build Alternatives 1 and 2

Short-term Construction Impacts

During construction of the project, there would be temporary air emissions from the use of construction equipment and vehicles powered by gas and diesel. A quantitative analysis was made using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions model to estimate construction emissions of the project at each project phase. Project phases include the following: grubbing/land clearing; grading/excavation; drainage/utilities/sub-grade and paving. Table 2.2.5-1 shows the total estimated construction related criteria pollutant for Alternative 1 and Alternative 2.

The project will comply with construction standards adopted by the BAAQMD, as well as Caltrans standardized procedures for minimizing air pollutants during construction. Furthermore, the project would not result in a cumulatively considerable net increase of Ozone and PM_{2.5}. Therefore, the project would not cause or contribute to any state or federal air quality violations for criteria air pollutants. Furthermore, the project would not contribute substantially to an existing or projected air quality violations.

Table 2.2.5-1: Total Construction-Related Criteria Pollutants

Emission Sources	ROG	NO _x	Total PM ₁₀	Total PM _{2.5} (exhaust + dust)
Alternative 1				
Total Emissions (tons/total construction period)	0.82	8.39	0.35	0.30
Maximum Daily Emissions (lbs./day) ^(a)	11.99	121.42	0.35	0.30
Alternative 2				
Total Emissions (tons/total construction period)	0.87	5.37	0.37	0.32
Maximum Daily Emissions (lbs./day) ^(a)	12.97	129.15	5.32	4.65

Notes:

- a) PM₁₀ and PM_{2.5} estimates assumes 50% control of fugitive dust from watering and associated dust control measures if a minimum of water trucks are specified.
- b) ROG = reactive organic gases; NO_x = oxides of nitrogen; PM₁₀ = particulate matter with aerodynamic diameter less than 10 microns; PM_{2.5} = particulate matter with aerodynamic diameter less than 2.5 microns; lbs/day = pounds per day.

Long-term Operation Impacts

The Build Alternatives would not change capacity or make physical or operational changes to the project area. Therefore, there would be no long-term impacts associated with the project following construction activities and the project would not conflict with or obstruct implementation of the applicable air quality plan.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.2.5 Noise and Vibration

2.2.5.1 Regulatory Setting

NEPA and CEQA provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on Title 23 Part 772 of the Code of Federal Regulations (23 CFR 772), which specifies how noise analyses are conducted pursuant to NEPA; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 CFR 772

For highway transportation projects with Federal Highway Administration (FHWA) involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

2.2.5.2 Affected Environment

The dominant noise in the project area is from vehicles traveling along US 101. Levels of highway and roadway traffic noise typically range from 70 to 80 A-weighted decibels (dBA) at a distance of 50 feet from the highway. These levels can affect people by interrupting concentration, increasing heart rates, or limiting the ability to carry on a conversation (FHWA 2017). The project area is dominated by commercial and industrial uses. There are no residential receptors near the project area. However, there is a hotel and a pedestrian and bike path adjacent to the project area.

2.2.5.3 Environmental Consequences

No Build Alternative

The No Build Alternative would make no physical or operational changes to the project area that would affect noise or vibration levels.

Table 2.2.6-1: Noise Abatement Criteria

Activity Category	NAC, Hourly A- Weighted Noise Level, Leq(h)	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B ¹	67 (Exterior)	Residential.
C ¹	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
Activity Category	NAC, Hourly A- Weighted Noise Level, Leq(h)	Description of activity category
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.
¹ Includes undeveloped lands permitted for this activity category.		

Figure 2.2.6-1: Noise Levels of Common Activities

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Jet Fly-over at 300m (1000 ft)	110	Rock Band
Gas Lawn Mower at 1 m (3 ft)	100	
Diesel Truck at 15 m (50 ft), at 80 km (50 mph)	90	Food Blender at 1 m (3 ft)
Noisy Urban Area, Daytime	80	Garbage Disposal at 1 m (3 ft)
Gas Lawn Mower, 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area		Normal Speech at 1 m (3 ft)
Heavy Traffic at 90 m (300 ft)	60	
Quiet Urban Daytime	50	Large Business Office
		Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
Quiet Rural Nighttime	30	Bedroom at Night, Concert Hall (Background)
	20	Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Build Alternative 1 and Alternative 2

Short-term construction impacts

Noise. During project construction activities such as pile driving, excavation, and grading would result in temporary increased ambient noise levels. Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from special impact tools such as pile drivers. Under Alternative 1 and 2, a total of 266 piles would be required. Caltrans is considering utilizing standard driven concrete piles or Cast-in-Drilled Hole (CIDH) piles with steel pipes or steel casing as methods for drilling. CIDH pile installation is recommended because it generates much lower levels of noise and vibration. The vibration assessment, below, is based on the worst-case scenario (utilizing pile drivers). Caltrans will comply with the Caltrans 2018 Standard Specifications 14-8.02, which requires maximum sound levels (Lmax) not to exceed 86 dBA at 50 feet from the job site from 9:00 p.m. to 6:00 a.m. Since no structural nightwork will take place, a Construction Noise Analysis is not required.

Vibration. During project construction, the highest source of vibration anticipated is from concrete pile driving equipment. CIDH piles generally produce less vibration than pile driving. A Construction-Related Vibration Assessment was completed by Caltrans in December 2019. In order to analyze the impacts of vibration during drilling activities, representative receptors A and B, were chosen to be analyzed based on their close proximity to the project (see Figure 2.2.6-2). Both of the receptors are modern industrial/commercial buildings and were selected to be analyzed for impacts related to vibration. The vibration amplitudes for continuous sources were predicted using equation No. 12 of Caltrans' Transportation and Construction Vibration Guidance Manual (TCVGM; Caltrans 2013). The predicted peak particle velocity (PPV) for locations A and B are 1.88 in/sec and 0.14 in/sec, respectively. The Vibration Damage Potential Threshold Criteria is 0.5 in/sec. Therefore, the PPV would exceed the Vibration Damage Potential Threshold Criteria at location A. In addition, employees at both locations A and B may be annoyed at the strongly perceptible to severe levels resulting from the concrete driving vibration.

If concrete driven piles are the final method of choice, a Non-Standard Special Provision (NSSP) – a special provision that is not covered in the list of DES Office Engineer approved Standard Special Provisions, will be developed during the project's design phase. This specification would require vibration monitoring before, during and after project completion. A construction-related vibration assessment has been completed and a Vibration Studies Report will be required. Furthermore, Minimization Measures NOI-1 through NOI-3 would be implemented during drilling to reduce impacts to a minor effect.

No drilling in water will occur, as temporary coffer dams will be installed to dewater portions of the creek were construction work is taking place. Since the groundwater is shallow at the site, the CIDH piles may need temporary or permanent steel casing that can be vibrated into the ground.

Long-term Operation Impacts

There would be no long-term impacts associated with the project following construction activities.

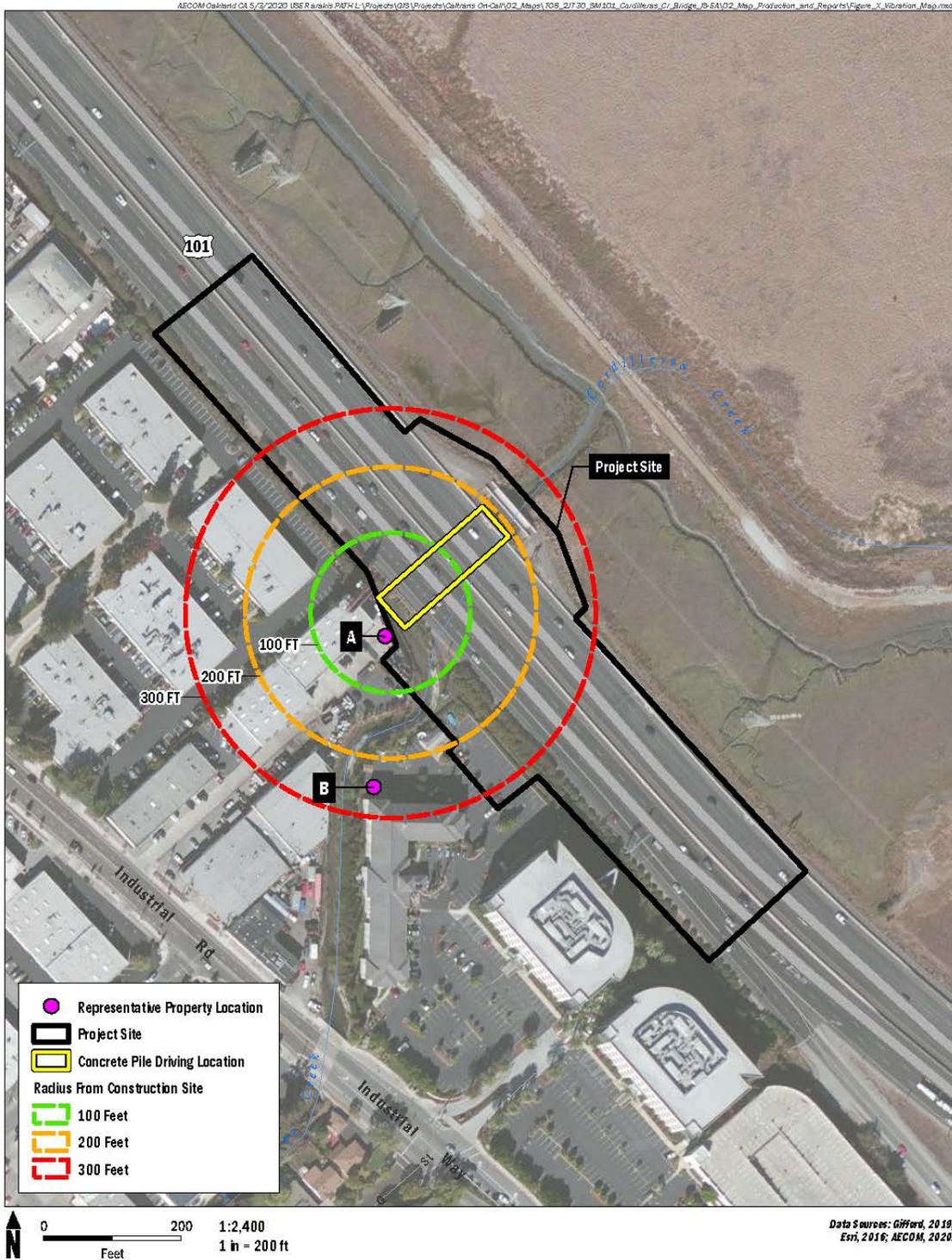
2.2.5.4 Avoidance, Minimization, and Abatement Measures

To minimize the impacts of vibration during construction of the project, the following measures would be implemented by the construction contractor:

NOI-1. *Public Notices:* Require public outreach to inform residents, businesses and others of upcoming major activities and their time frames.

NOI-2. *Noise Scheduling Measure:* When possible, schedule major activities separately with others to reduce significant vibration impacts.

NOI-3. *CIDH Piles to Reduce Vibration.* Caltrans requests the use of CIDH piles instead of concrete pile driving to reduce vibration. This would be accomplished by drilling a pile hole to a depth prescribed by the Engineer and then driving the concrete pile to the full depth.



Caltrans
 San Mateo 101 Cordilleras Creek Bridge Replacement Project
 CITY OF SAN CARLOS, SAN MATEO COUNTY, CA

FIGURE 2.2.6-2
 Map of Representative
 Properties for Vibration
 Impacts

2.2.6 Energy

2.2.6.1 Regulatory Setting

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

The California Environmental Quality Act (CEQA) Guidelines section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

2.2.6.2 Affected Environment

In California, the transportation sector consumes the most energy (nearly 40 percent in 2017; U.S. Energy Information Administration 2019a). The high consumption of transportation fuels in California is attributed to the state's abundance in airports, military bases, public transportation, and automobiles. In addition, major metropolitan areas, such as San Francisco and Los Angeles, experience extremely long commute travel times and delay because of high traffic congestion and long distances of travel between homes and jobs.

Fossil fuels are the predominant source of energy consumed by the transportation sector. Approximately 56 percent of the fossil fuel consumed by the California transportation sector is gasoline (U.S. Energy Information Administration 2019b). Alternatives to fossil fuels have helped decrease the dependence on gasoline and other fossil fuels. The following alternatives to fossil fuels are currently used in California (U.S. Energy Information Administration 2019c):

- Compressed natural gas
- Electricity
- Ethanol, 85 percent
- Hydrogen
- Liquefied natural gas
- Liquefied petroleum gas

2.2.6.3 Environmental Consequences

Direct Energy Use

The project involves replacing the existing Cordilleras Creek Bridge with a new bridge. The project is not a capacity-increasing project, as no bypass, new or expanded highways, new interchanges, additional lanes, interchange reconfiguration or auxiliary lanes are planned. While energy use would be required for vehicles using the bridge, the project would not result in increased traffic volumes or VMT. The project would not add new roadway lighting or other features requiring electricity which is an ongoing and permanent source of direct energy consumption.

Direct energy use would occur during construction. Energy in the form of gas and diesel would be consumed by construction vehicles and equipment operating on site, trucks delivering equipment and supplies, and construction workers driving to and from the project site. Construction energy would be a necessary commitment or expenditure that is associated with any major infrastructure improvement project. Compared to other roadway projects, this project is fairly small in scope and would not create a noticeable or adverse impact on short-term energy demand during the construction period. Energy consumption during project construction would be temporary and minimized to the maximum extent practicable. As such, the project would not result in an inefficient, wasteful, and unnecessary consumption of energy. Furthermore, various methods would be employed that would conserve energy and nonrenewable resources during construction. Thus, project construction would not have substantial energy effects.

Indirect Energy Use

Indirect impacts represent factors such as the energy consumed to construct materials for construction and ongoing maintenance of the bridge. The project would utilize typical materials used to construct bridges, roads, retaining walls and guardrails. All of these materials require energy to make. However, the project is relatively small in scope and would use these materials in an efficient way. While energy would be consumed during maintenance activities, these activities would not result in an inefficient, wasteful, and unnecessary consumption of energy. Furthermore, various methods would be employed that would conserve energy and nonrenewable resources during maintenance activities.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation is required.

2.3 Biological Environment

2.3.1 Natural Communities

The information provided in this section is summarized from the *Natural Environment Study* prepared for the proposed project by Caltrans on May 2020.

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.

2.3.1.1 Affected Environment

The project is in the vicinity of an environmentally sensitive area (ESA) due to the potential presence of special-status species. Caltrans biologists have conducted a database and literature review as well as field surveys of the biological study area (BSA) to identify and assess the presence of natural communities and habitats of concern and the potential for special-status species to be affected by project activities. For this project, the BSA encompasses all areas within 150 feet of the project footprint at each location, to account for potential direct and indirect effects of construction activities and human presence. This includes, but is not limited to, impacts due to construction-related noise, vibration, ground disturbance, hydrologic disturbance, vegetation removal, and compaction. The BSA for this project is approximately 17.62 acres. The BSA is shown in Figure 2.3.1-1. The following natural communities in the BSA include:

Riparian Land

There are riparian habitat areas adjacent to Cordilleras Creek. A variety of plants and trees along the creek potentially provide foraging habitat for different wildlife species.

Vegetation

Vegetation in the BSA consists of ruderal habitats. Ruderal habitats are typified by species that are able to establish on disturbed sites, especially when the disturbance includes soil alteration, such as plowing, landfills, and graded sites, and are often suitable for weedy, nonnative, and invasive species. More information on specific plant species are provided in Section 2.2.3.

Wetlands

Wetlands in the BSA are saline emergent wetlands (SEW) or salt marshes. These wetlands occur along the margins of bays, lagoons, and estuaries sheltered from excessive wave action. SEW are characterized as salt or brackish marshes, consisting mostly of perennial grasses and forbs, the latter often succulent and slightly woody, along with algal mats on moist soils and at the base of vascular plant stems. SEW exists primarily on the eastern side of U.S. 101; a narrow strip of SEW is located along the west side of the bridge (see Figure 2.3.1-1). More information about wetlands is provided in Section 2.3.2.

Fish Passage

Other waters in the BSA include Cordilleras Creek, which serves as a fish passage for the federally threatened steelhead.

2.3.1.2 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect any natural communities.

Build Alternatives 1 and 2

Short-term Construction Impacts

Based on the scope and location of the proposed project, construction activities would directly impact the existing land cover within the project footprint. A total of 0.523 acres of temporary impacts to unpaved land cover are anticipated as a result of the proposed project. Table 2.3.1-1 summarizes the acreages of temporary impacts on habitat/coverage types within the project footprint.

Table 2.3.1-1: Temporary Impacts to Natural Communities

Land Cover Type	Temporary Impacts (acres)
Wetland	0.104
Ruderal	0.149
Waters	0.140
Riparian	0.130
Total	0.523

The proposed project will impact jurisdictional waters of the U.S., wetlands, and riparian habitat. Temporary impacts of 0.130 acres to riparian habitats and 0.104 acres of wetland habitat are anticipated due to construction access requirements.

Construction activities will occur during the dry season when there will be less water present in the creek. Dewatering and in-creek construction activities will be limited to the dry season (June 15 to October 15) to minimize potential impacts to steelhead. Therefore, temporary impacts related to fish passage are expected to be minimal.

California Fish and Game Code Section 1602 requires any person, state or local governmental agency, or public utility to notify CDFW before beginning any activity that would substantially modify a river, stream or lake. Under the current scope of work, a CDFW Lake and Streambed Alteration Agreement will be required for the project. Coordination with the USACE and San Francisco Regional Water Quality Control Board (RWQCB) will be required as impacts are anticipated to agency regulated resources. The project will require a USACE Section 404 permit and a Section 401 Water Quality Certification from the RWQCB. Permits will be obtained prior to construction.

In addition to complying with permit requirements, Caltrans will implement all applicable avoidance and minimization measures to reduce potential project-related impacts, including WQ-1, BIO-1 through BIO-5, described in Section 2.3.1.3. Therefore, the project will not contribute to detrimental cumulative effects to these natural communities of concern.

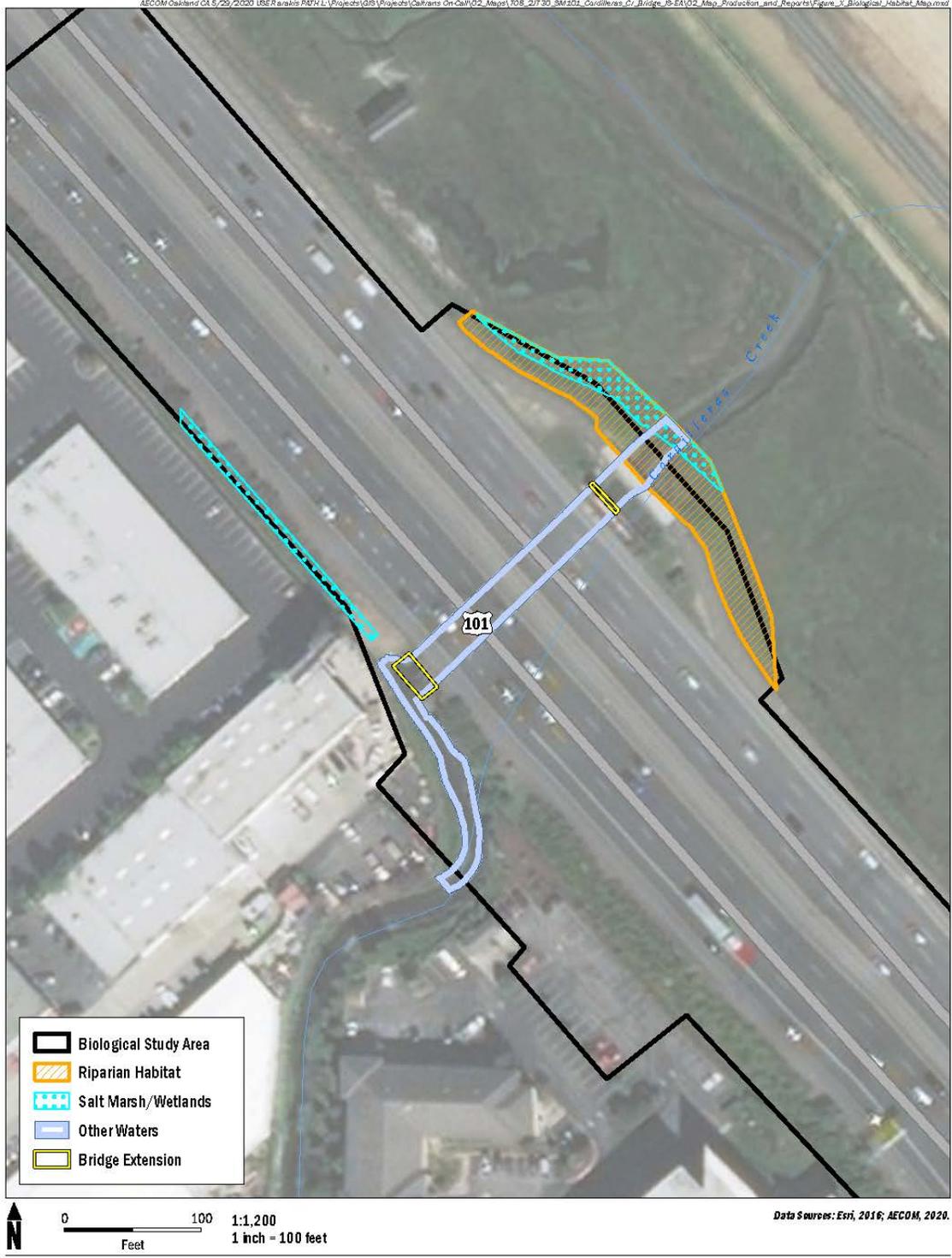
Long-term Construction Impacts

Construction of the project will result in a total of 1.246 acres of permanent impacts to natural communities. A total of 1.246 acres of permanent to unpaved land cover are anticipated as a result of the widening of the bridge. Permanent impacts to 0.011 acres of riparian habitat are anticipated due to minor reconfiguration of Cordilleras Creek and installation of slope stabilization. A total of 0.112 acres of wetland habitat are anticipated to be permanently impacted. Table 2.3.1-2 summarizes the acreages of permanent impacts on habitat/coverage types within the project footprint.

Table 2.3.1-2: Permanent Impacts to Natural Communities

Land Cover Type	Permanent Impacts (acres)
Wetland	0.112
Ruderal	0.949
Waters	0.174
Riparian	0.011
Total	1.246

Bridge replacement is expected to have a net positive long-term impact on the functional values of existing habitat for salmonids, as the project design will ensure adequate flows and conditions for fish passage. The project would not result in detrimental long-term changes to water chemistry or physical characteristics (e.g., substrate and flow) of the creek after construction is complete. Therefore, no indirect impacts on fish or other aquatic organisms are anticipated.



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FIGURE 2.3.1-1
Biological Habitat Map

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

WQ-1. *Water Quality/Erosion Control BMPs:* As described in Section 2.2.2, *Water Quality and Storm-Runoff*, WQ-1 would be incorporated to avoid substantial water quality impacts. The Construction General Permit will require the contractor to submit a SWPPP. The SWPPP must also comply with the goals and restrictions identified in the RWQCB's Basin Plan. Any additional measures included in the Water Quality Certification will be implemented.

BIO-1. *Environmentally Sensitive Area Fencing:* ESAs will be clearly delineated using temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and fully maintained at all times.

BIO-2. *Avoidance and Minimization Measure for Plants:* As described in Section 2.3.3.4 in more detail, a qualified biologist shall conduct appropriately timed surveys for the listed plant species during these species' blooming periods before construction.

BIO-3. *Minimizing Tree Removal:* The project minimizes tree removal to the maximum extent practicable, and no removal of trees is anticipated.

BIO-4. *Vegetation Removal:* Vegetation removal will be limited to designated work areas needed for access and workspace. Where possible, vegetation will be trimmed instead of removed. Removal in temporary work areas will be cut above soil level to promote re-vegetative growth of established plants following construction to the maximum extent feasible. Vegetation will be mowed to a height greater than 4 inches.

BIO-5. *Fish Passage:* Design of the proposed replacement structures will incorporate hydraulic modeling to ensure structures provide adequate fish passage. A natural channel bottom design has also been incorporated into the design for Alternative 1. Natural lighting will be considered to prevent inadequate illumination conditions within structures from deterring use by fish.

2.3.2 Wetlands and Other Waters of the United States

2.3.2.1 Regulatory Setting

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

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

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

Ordinarily, projects that do not meet the criteria for a regional or nationwide permit may be permitted under one of USACE's individual permits. There are two types of individual permits: standard permits and letters of permission. For individual permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (40 Code of Federal Regulations [CFR] 230), and whether permit approval is in the public's interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a "least environmentally damaging practicable alternative" (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no

practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

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

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

2.3.2.2 Affected Environment

The information provided in this section is summarized from the *Natural Environment Study* prepared for the proposed project by Caltrans dated May 2020.

Wetland and water features are present within the BSA. Cordilleras Creek is within the larger San Mateo Creek-Frontal San Francisco Bay Estuaries watershed (HUC 10: 1805000409) and within the Cordilleras Creek-Frontal San Francisco Bay Estuaries Hydrological Unit (HUC 12: 180500040902) sub-watershed. For most of its length, Cordilleras Creek flows through a suburban landscape beginning from Brittain Heights on the western tip of San Carlos, along Edgewood Road and Eaton Avenue before finally heading under El Camino Real and Highway 101 on the edge of the City Redwood City. Here the creek empties into the tidally influenced Smith Slough.

Caltrans reviewed the National Wetland Inventory and preformed a site assessment to identified wetlands within the BSA. Figure 2.3.1-1 shows where SEW within the BSA are located. SEW are characterized as salt or brackish marshes, consisting mostly of perennial graminoids and forbs, the latter often succulent and suffrutescent, along with algal mats on moist soils and at the base of vascular plant stems. SEW exists primarily on the eastern side of US 101 and consists of the portions of Smith slough within the BSA. In addition, a narrow strip of wetland exists on the southbound shoulder.

2.3.2.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect wetlands, other waters of the U.S., culverts, or potentially non-jurisdictional storm water features.

Build Alternatives 1 and 2

Short-term Construction Impacts

Temporary construction impacts to wetlands of approximately 0.104 acres are anticipated due to installation of the temporary creek dewatering system on the bay side of the project. These impacts are considered temporary as the area would only be utilized during seasonal installation and removal of the dewatering system. In addition, temporary impacts to waters of the U.S. of approximately 0.140 acres will occur due to temporary dewatering (see Table 2.3.1-1). Dewatering will occur between June 15 and October 15 of each construction year, and all dewatering equipment will be removed at the end of each construction season.

Coordination with the USACE and SFRWQCB would be required as impacts are anticipated to agency regulated resources. The project will require a USACE Section 404 permit and a Section 401 Water Quality Certification from the Water Quality Control Board. Permits will be obtained prior to construction. Implementation of BIO-1. Environmentally Sensitive Area Fencing; WQ-1. Water Quality/Erosion Control BMPs; and BIO-2. Construction site BMPs will reduce impacts to wetlands and other waters of the US to a minimal level.

Long-term Construction Impacts

Permanent impacts to wetlands are also anticipated during the construction of the project. Permanent impacts to wetlands of approximately 0.112 acres are anticipated due to widening of the southbound highway shoulder to accommodate stage construction. A narrow strip of wetland (salt marsh) that exists on the southbound shoulder will be impacted by this widening (see Figure 2.3.1-1). Shoulder size will be reduced at the end of the project, but since the widened shoulder will exist for more than 1 year, it is considered a permanent impact to a wetland. Since there are permanent impacts associated with the project, mitigation described in Section 2.3.2.4 will be implemented, which would require compensation for the loss of wetlands.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

The following short-term construction avoidance and minimization measures will be implemented.

BIO-1. *Environmentally Sensitive Area Fencing:* As described in Section 2.3.1, ESAs will be clearly delineated using temporary high-visibility fencing or other visible materials.

WQ-1. *Water Quality/Erosion Control BMPs:* As described in Section 2.2.2, *Water Quality and Storm-Runoff*, WQ-1 would be incorporated to avoid substantial water quality impacts. The Construction General Permit will require the Contractor to submit a SWPPP. The SWPPP must also comply with the goals and restrictions identified in the RWQCB's Basin Plan. Any additional measures included in the Water Quality Certification will be implemented.

WET-1. Compensatory Mitigation Measure for Wetlands: Under Federal and State guidance and rules, adverse, unavoidable impacts to wetlands and other aquatic resources require compensatory mitigation to offset the loss of the functions and values of the feature. Wetland impacts will be mitigated at a minimum 1:1 ratio. A 1:1 ratio is standard for impacts to wetlands and other aquatic resources based on a project's risk of failure to compensate for impacts to wetlands (mitigation project), and the temporal loss, or reduction of functions, during the time it takes a mitigation project to achieve the targeted level of performance for all of its functions.

2.3.3 Plant Species

2.3.3.1 Regulatory Setting

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

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

The regulatory requirements for FESA can be found at 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), found at California Public Resources Code, Sections 21000-21177.

2.3.3.2 Affected Environment

The information provided in this section is summarized from the *Natural Environment Study* prepared for the proposed project by Caltrans dated May 2020.

Prior, during and after field surveys were completed, a literature search was conducted to obtain information on plant species in the BSA. The following sources were consulted: The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants Database (CNPS 2019); the California Natural Diversity Database (CNDDB) RareFind within a 5-mile radius (CDFW 2019) and the USFWS designated Critical Habitat Mapper.

Based on those sources and a review of the geographic ranges, habitat requirements, and proximity of recorded occurrences for the various species, the following four species were found to have a low potential to occur:

Hoover's button-celery

Hoover's button-celery (*Eryngium aristulatum* var. *hooveri*) is an annual or perennial herb that is native to California and is endemic (limited) to California. The plant occurs in alkaline depressions, wetlands, vernal pools, roadside ditches and other wet places near the coast. It is listed on CNPS as 1B.1. The plant has low potential to occur in the BSA. Suitable habitat exists within the BSA, but no recorded occurrences exist within 5 miles.

Long-styled sand-spurrey

Long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*) is a dicot, is a perennial herb that is native to California. It is listed on CNPS as 1B.2. The plant occurs in marshes and swamps, meadows and seeps. The plant has low potential to occur in the BSA. Suitable habitat exists within the BSA, but no recorded occurrences exist within 5 miles.

Point Reyes bird's-beak

Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*) is a dicot and is an annual herb that is native to California and Oregon. The plant occurs in marshes & swamps, salt marshes and wetlands. It is usually in coastal salt marsh with *Salicornia*, *Distichlis*, *Jaumea*, *Spartina*, etc. The plant has a low potential to occur in the BSA. Two occurrences exist, however the recorded sitings are more than 100 years old and are listed as likely extirpated.

Saline clover

Saline clover (*Trifolium hydrophilum*) is a dicot and is an annual herb that is native to California. It occurs in marshes and swamps, wetlands, valley and foothill grassland, and vernal pools. The plant has low potential to occur in the BSA. One occurrence within 5 miles, but the recorded siting is more than 100 years old.

A survey for rare plants was conducted in 2020. The survey was floristic in nature; biologists identified all plant species encountered during the surveys to the taxonomic level necessary to determine rarity. The goal of the survey was to locate, map, and census any special-status plant populations within the BSA. No special-status plant species and no rare or special-status plant species were observed within the BSA.

Plants observed on-site include those associated with ruderal habitats such as Italian thistle (*Carduus pycnocephalus*), fennel (*Foeniculum vulgare*), small melilot (*Melilotus indicus*), slender wild oat (*Avena barbata*), Bermuda buttercup (*Buttercup oxalis*), malva (*Malva sp.*), olive (*Olea europaea*), blackwood (*Acacia melanoxylon*), alkali heath (*Frankenia salina*), Glaswort (*Salicornia pacifica*), pampas grass (*Cortaderia selloana*), rescue brome (*Bromus catharticus*), iceplant (*Carpobrotus edulis*), and wild radish (*Raphanus raphanistrum*).

In addition, plants within SEW may be present within the BSA. These include: cordgrass (*Spartina sp.*), pickleweed (*Salicornia virginica*), glasswort (*Salicornia europaea*), saltwort (*Batis maritima*), marsh jaumea (*Jaumea carnosa*), California seablite (*Suaeda californica*), seaside arrowgrass (*Triglochin maritima*), alkali heath (*Frankenia salina*), seashore saltgrass (*Distichlis spicata*), spearleaf saltweed (*Spearleaf agoseris*), shoregrass (*Distichlis littoralis*), the endangered birdsbeak (*Chloropyron palmatum*), sea-lavender (*Limonium latifolium*), brass-buttons (*Cotula coronopifolia*), saltmarsh dodder (*Cuscuta salina*), gumweed (*Grindelia squarrosa*), salt rush (*Juncus lesueurii*), tufted hairgrass (*Deschampsia cespitosa*), Pacific alkali bulrush (*Bolboschoenus maritimus*), Olney bulrush (*Schoenoplectus Americanus*), tule bulrush (*Schoenoplectus Acutus*), California bulrush (*Schoenoplectus Californicus*), common cattail (*Typha Latifolia*), tropical cattail (*Typha latifolia*), cinquefoil (*Potentilla reptans*), and coast carex (*Carex exilis*).

2.3.3.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect special-status plant species in the project area.

Build Alternatives 1 and 2

During construction of the proposed project, the removal of plants associated with ruderal habitats will occur. The majority of these plants are nonnative and invasive. The vast majority of the project footprint is composed of paved areas or areas which would not support special-status species. Therefore, the project is not expected to result in the permanent loss of special-status plant species or no rare or special-status plant species, as they are absent from the project area. Plant surveys will be conducted again in 2021 to confirm the absence of special-status species. Furthermore, the implementation of avoidance and minimization measures described in Section 2.3.3.4, will reduce impacts to plant species to a minimal level. No removal of trees is anticipated. Furthermore, the implementation of measures BIO-2, BIO-3, BIO-4 and BIO-6 will reduce project effects on plants to a minor level.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

BIO-2. *Avoidance and Minimization Measure for Plants:* Before the commencement of construction activities, a qualified biologist shall conduct appropriately timed surveys for the listed plant species during these species' blooming periods.

If a special-status plant species is discovered at any point, the biologist will work with the Resident Engineer to determine if it can be protected in-place, re-located within the BSA, or salvaged to be re-planted at the end of project construction. If the special-status plant species is federally or state listed, the appropriate natural resource agencies will be contacted immediately, and consultation will be initiated as necessary.

BIO-3. *Minimizing Tree Removal:* The Caltrans design team has worked to design the project to minimize tree removal to the maximum extent practicable, and no removal of trees is anticipated.

BIO-4. *Vegetation Removal:* Vegetation removal will be limited to the designated work areas needed for access and workspace. Where possible, vegetation will be trimmed instead of removed. Removal in temporary work areas will be cut above soil level to promote re-vegetative growth of established plants following construction to the maximum extent feasible. Vegetation will be mowed to a height greater than 4 inches.

BIO-6. *Replant, Reseed, and Restore Disturbed Areas:* Caltrans will restore temporarily disturbed areas to the preconstruction or improved contours and functions to the maximum extent practicable. Where disturbance includes the removal of trees, native species will be replanted at a 3:1 ratio for every native tree removed and 1:1 (native) for every nonnative tree removed, based on the local species composition.

2.3.4 Animal Species

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), and the CDFW are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the Threatened and Endangered Species Section 2.3.5 below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations relevant to wildlife include the following:

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

State laws and regulations relevant to wildlife include the following:

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

2.3.4.2 Affected Environment

The information provided in this section is summarized from the *Natural Environment Study* prepared for the proposed project by Caltrans dated May 2020.

The majority of the BSA is unlikely to support terrestrial wildlife species as it consists of developed land and adjacent ruderal vegetation. US 101 is a major barrier to wildlife movement in the area. It is unlikely that species would disperse or move through vegetated land on the western side of the BSA, as the BSA is bounded on all sides by highway and ramps, local roads, and commercial development. Undeveloped land to the east of US 101 may support wildlife species foraging, dispersing, or otherwise utilizing the area.

No field surveys were conducted for special-status species. Caltrans relied on the best available scientific and commercial data, including a literature search and visual assessment, to evaluate the potential for occurrence of this species in the BSA. The identification of special-status animal species with potential to occur in the region was based on a search of the following databases:

- Official species lists from the Sacramento Office of the USFWS
- The California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants Database search (CNPS 2019)

- The California Natural Diversity Database (CNDDDB) RareFind within a 5-mile radius (CDFW 2019)
- The USFWS designated Critical Habitat Mapper (USFWS 2019a)
- The official species list obtained from NMFS and existing commercial and regulatory agency resources (e.g. CDFW Wildlife Habitat Relationships System, and the Federal Register (FR) and recovery plans for selected species).
- San Francisco Bay Delta USFWS official species list.

Based on those sources and a review of the geographic ranges, habitat requirements, and proximity of recorded occurrences for the various species, the following special-status species that have the potential to occur in the BSA:

- Northern harrier (harrier, *Circus Hudsonian*)
- Alameda song sparrow (*Melospiza melodia pusillula*)
- White-tailed kite (*Elanus leucurus*)

Northern harrier

The northern harrier is a state species of special concern. Harriers breed widely around the central California coast, including the San Francisco Bay Area. Harriers have been found throughout the coastal lowlands in Marin County (Shuford 1993), in Sonoma County, mostly along the Petaluma River and near Tubbs Island (Burrige 1995), and near the Napa Airport and Edgerley Island, in the Napa County portion of the region (Berner et al. 2003).

Northern harriers breed and forage in a variety of open (treeless) habitats that provide adequate vegetative cover, an abundance of suitable prey, and scattered hunting, plucking, and lookout perches such as shrubs or fence posts. In California, such habitats include freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, annual and perennial grasslands (including those with vernal pools), weed fields, ungrazed or lightly grazed pastures, some croplands (especially alfalfa, grain, sugar beets, tomatoes, and melons), sagebrush flats, and desert sinks (MacWhirter and Bildstein 1996).

Foraging habitat for the northern harrier exists within the BSA.

Alameda Song Sparrow

Alameda song sparrow is a State Species of Special Concern (SSC) and is one of nine subspecies of song sparrows found in California. The subspecies is endemic to salt marshes of southern San Francisco Bay. The Alameda song sparrow uses habitat that forms at the marsh-high marsh or marsh-upland interface (Shuford and Gardali 2008). This habitat includes the borders of tidally influenced sloughs. This species nests in shrubs or tall herbaceous growth above the point of highest inundation. The bulk of the diet of the Alameda song sparrow is vegetable matter such as seeds (Shuford and Gardali 2008). Threats to the Alameda song sparrow and other nesting birds include any factors that will lead to nesting failure, predation, disturbance, and nest substrate destruction.

Potential habitat for the Alameda song sparrow exists within the BSA. The most recent occurrences within 5 miles from the BSA were reported in 2004 at Bair Island, Smith Slough and Steinberger Slough.

White-tailed Kite

White-tailed kite is a state Fully Protected Species in California and is a SSC. It is considered to be a fairly common resident in coastal and valley lowlands and inhabits herbaceous and open stages of most habitats within cismontane California (CDFW 2005). It is a medium sized raptor that is known for year-long diurnal, and crepuscular activity. The white-tailed kite preys mostly on voles and other small diurnal mammals, and occasionally on birds, insects, reptiles, and amphibians. The white-tailed kite requires tall, dense tree canopy or tall shrubs for nesting. It makes a nest of loosely piled sticks and twigs and lined with grass, straw, or rootlets. Nests are placed near the top of dense oak, willow, or other tree stands, and are usually 20 to 100 feet above the ground (Dixon et al. 1957), near an open foraging area. The species has not been known to be migratory, but may become nomadic in response to prey abundance (Dunk and Cooper 1994). The kite forages from a central perch over areas as large as 1.9 square miles (Warner and Rudd 1975) and seldom hunts more than 0.5 mile from its nest when breeding (Hawbecker 1942). Increasing numbers and extended range have been noted in recent decades (CDFW 2005).

Foraging habitat exists in the BSA for the white-tailed kite. There are reported occurrences of the white-tailed kite at Bair Island from 1971.

2.3.4.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect animal species in the project area.

Build Alternatives 1 and 2

Approximately 0.90 acres of temporary impacts to potential foraging habitat for northern harrier, Alameda song sparrow and white-tailed kite are anticipated to occur due to construction activities. Currently anticipated impacts are associated with the installation and removal of seasonal temporary coffer dam system and bridge construction activities. Construction activities also have the potential to affect these bird species due to construction-related noise, vibration, and increased human presence. If birds are present in the BSA during project construction, take of birds may occur in the form of harm, harassment, injury, and mortality of individuals. The sources of take may include crushing or injury from construction-related disturbance, modifications to behavior as a result of disturbances (e.g., noise), or capture and relocation. Day-time CIDH piling activities for bridge construction have the potential to cause disturbance, and have the potential to exceed existing levels of anthropogenic disturbance, but will be short-lived. However, the potential habitat within the BSA is located near U.S. 101, which is a heavily traveled roadway with a high level of existing disturbance. The San Francisco Bay Trail adjacent to this potential habitat adds further disturbance, as does an active homeless encampment. As a result, these threatened and endangered species are unlikely to utilize this area due to the high levels of human disturbance and are instead likely to use other nearby foraging areas subject to little or no human disturbance.

Indirect effects are related to increased erosion, sedimentation or changes to hydrology of their habitat. The disturbance of upland areas and removal of vegetation could lead to an increased potential for erosion and sedimentation of soils, affecting habitats outside the project footprint. In addition, construction activities could result in the introduction of chemical contaminants to a work site or staging area, such as oil or toxic chemicals leaking from construction equipment. Construction activities also could introduce new weedy invasive plant species to the BSA. Measures such as WQ-1, described in Section 2.2.2 and BIO-17, described in Section 2.3.6 will avoid adverse indirect effects to these species.

All nesting birds protected under this law will be avoided during project construction. Other protected and migratory bird species have the potential to occur within the BSA. Birds could potentially nest within the shrubs and trees that occur within the BSA. The use of construction equipment to remove vegetation within the project footprint has the potential to impact nesting birds, including migratory birds subject to the Migratory Bird Treaty Act (MBTA) and native birds protected under California Fish and Game Code (CFGF) Section 3503, including causing nest abandonment and/or loss of eggs or young. Destruction or disturbance of an active nest or eggs will conflict with the CFGF and the MBTA.

All nesting birds protected under this law will be avoided during project construction. Any construction occurring during the nesting season for migratory birds (February 1 to September 1) that involves vegetation removal or trimming will require a preconstruction survey for nesting birds. Avoidance will be accomplished by adhering to the general avoidance and minimization measures as outlined in Section 2.3.4.4 including Measures BIO-7 through BIO-11.

With the use of project avoidance and minimization measures, no impacts to protected bird species are anticipated.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures will be implemented during construction activities.

BIO-7. Construction Site BMPs: The following site restrictions will be implemented to avoid or minimize impacts on special-status species and their habitats:

- a. Routes and boundaries of roadwork will be clearly marked before the start of construction or grading.
- b. All food and food-related trash items will be enclosed in sealed trash containers and will be properly disposed off-site.
- c. Sediment and debris removed from the roadway will be disposed of off-site, at an approved location, where it cannot enter surface waters.
- d. No pets belonging to project personnel will be allowed within the BSA at any time during construction.
- e. No firearms will be allowed in the project footprint except for those carried by authorized security personnel, or local, state or federal law enforcement officials.

- f. A Spill Prevention and Control Plan will be prepared in accordance with SWPPP requirements. Hazardous materials (e.g., fuels, oils, solvents) will be stored in sealable containers in a designated location that is at least 100 feet from any hydrologic features.

BIO-8. *Entrapment Avoidance:* To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. All replacement pipes, hoses, culverts, or similar structures less than 12 inches in diameter will be closed, capped, or covered upon entry to the project site. All similar structures greater than 12 inches must be inspected before they are subsequently moved, capped and/or buried.

BIO-9. *Biological Monitor and Protocol for Observation:* The names and qualifications of proposed biological monitor(s) will be submitted to USFWS and CDFW for approval prior to the start of construction. The agency-approved biological monitor (s), in coordination with the Resident Engineer, will have the authority to stop work that may result in the unauthorized take of special-status species. Work will resume after observed listed individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is relocated by the biologist to a release site using Agency-approved handling techniques.

BIO-10. *Preconstruction/Daily Surveys:* Preconstruction surveys for special-status wildlife species listed in this NES, will be conducted by the agency-approved biological monitor(s) no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities.

BIO-11: *Migratory Bird Treaty Act:* To protect migratory birds and their nests, all initial major vegetation clearing, but not grubbing, will be conducted between October 1 and January 31, outside the typical bird nesting season, when possible. A qualified biologist with appropriate construction and species experience will conduct nest and bird surveys and other wildlife surveys before and during tree cutting.

2.3.5 Threatened and Endangered Species

2.3.5.1 Regulatory Setting

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

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFW is the agency responsible for implementing CESA. Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

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

2.3.5.2 Affected Environment

The information provided in this section is summarized from the *Natural Environment Study* prepared for the proposed project by Caltrans dated May 2020.

Based on the information sources listed in Section 2.3.4.2, a review of the geographic ranges and habitat requirements, and the proximity of recorded occurrences for the various species, the following federally and state-listed threatened and endangered species were found to have a potential to occur in the BSA:

- Ridgway's rail (*Rallus longirostris obsoletus*)
- California least tern (*Sterna antillarum browni*)
- western snowy plover (*Charadrius nivosus nivosus*)
- salt marsh harvest mouse (*Reithrodontomys megalotis*)
- California black rail (*Laterallus jamaicensis coturniculus*)
- Central California Coast (CCC) distinct population segment (DPS) Steelhead (*Oncorhynchus mykiss*)

Ridgway's Rail

Ridgway's rail is listed as an endangered species under the CESA and FESA. Ridgway's rails nest and forage in tidal marshes and will occur in upland transitional habitats during high tides or flooding events when marshes are inundated. Ridgway's rails once occurred in coastal marshes from Humboldt Bay south to Morro Bay, with the largest population around San Francisco Bay. However, due to extensive habitat loss, this rail now occurs only in the marshes around San Francisco Bay, where historical population levels are greatly reduced (Albertson and Evens 2000). Ridgway's rails are relatively sedentary and form monogamous pairs that defend their territories year-round. Their diet consists of crustaceans, insects, fish, and other small prey.

Four CNDDDB occurrences of Ridgway's rail have been documented within 5 miles of the BSA. The two most recent occurrences, in 2006, consist of multiple observations of birds in the marshes surrounding Bair Island and nearby sloughs. The second pair of observations are from 1975 and are occurrences are listed as within the marshes bordering Belmont Slough and Smith Slough, but no information on number of individuals observed is provided. The portion of Smith Slough within the BSA contains low to moderate quality foraging habitat for this species.

The most recent occurrences within 5 miles were documented in 2006. CNDDDB occurrence 50 was documented 2.17 miles from the BSA and occurrence 40 was documented 0.95 miles from the BSA. Suitable foraging habitat exists within the BSA, but birds are unlikely to use the area due to high levels of disturbance and the wide availability of habitat nearby. The bird has a low potential to occur in the BSA.

California least tern

California least tern is listed as an endangered species under CESA and FESA. The least tern lives along the coast and nests in old growth forests and forages in coastal waters. Its diet primarily consists of small fish, but also shrimp and occasionally other invertebrates. Their mating begins in April or May.

Suitable foraging habitat exists within the BSA, but there is a lack of recent records supporting presence. Therefore, they have a low potential to occur in the BSA.

Western Snowy Plover

Western snowy plover is listed as a threatened species under FESA. The Pacific Coast breeding population of the Western snowy plover (WSP) currently extends from Washington to Baja California, Mexico (USFWS 2007). The Western Snowy Plover is found on sandy beaches, salt pond levees, and shores of large alkali lakes. They typically forage for small invertebrates in wet or dry beach-sand, among tide-cast kelp, and within low foredune vegetation (FWS 2019).

Western snowy plovers breed primarily above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. The bird needs sandy, gravelly or friable soils for nesting. Less common nesting habitats include bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars (USFWS 2007). Nests typically occur in flat, open areas with sandy or saline substrates where vegetation and driftwood are usually sparse or absent. Nests consist of a shallow scrape or depression, sometimes lined with beach debris (e.g., small pebbles, shell fragments, plant debris, and mud chips (USFWS 2007). Nesting season extends from early March through late September. Snowy plovers winter mainly in coastal areas from southern Washington to Central America. In winter, snowy plovers are found on many of the beaches used for nesting as well as on beaches where they do not nest, in man-made salt ponds, and on estuarine sand and mud flats (USFWS 2007).

The most recent CNDDDB occurrence within 5 miles was documented in 2017. CNDDDB occurrence 137 was seen within 3.37 miles of the BSA. Suitable foraging habitat exists within the BSA, but birds are unlikely to use the area due to high levels of disturbance and the wide availability of habitat nearby.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse (SMHM), which is listed as an endangered species under CESA and FESA, is a small native rodent that looks similar in appearance to the common western harvest mouse (*Reithrodontomys megalotis*). The species is found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Salicornia is the primary habitat. The mouse relies on dense cover of pickleweed to avoid predation (USFWS 1984). The species, which is partly diurnal, uses adjacent upland habitat (i.e., grasslands) during daily or seasonal tidal peaks (USFWS 1984). The mouse does not burrow, but builds loosely organized nests and requires higher areas for flood escape. Males of the species are reproductively active from April through September, although some males appear reproductively active year-round. Females of this species have a breeding season that extends between March and November.

Much of the historical SMHM habitat has been destroyed or converted. Approximately 32 percent of historical tidal marsh has been converted into diked wetland and is marginal or inappropriate habitat for the SMHM. Most of the remaining tidal marshes are fragmented strips situated along outboard dikes and along sloughs, often separated from one another by considerable distances (USFWS 1984).

The most recent occurrences within 5 miles of the BSA were documented in 1992. CNDDDB occurrence 74 was seen 0.75 mile from the BSA at Bair Island. Suitable habitat exists within the BSA, but mice are unlikely to use the area due to high levels of disturbance and the wide availability of habitat nearby.

California black rail

California black rail (CBR) is listed as a threatened species under CESA. This species is a small blackish rail, about the size of a sparrow, speckled with white. California black rail habitat generally includes salt marshes, freshwater marshes, and wet meadows. Most California populations are nonmigratory, and these habitat types serve for breeding, foraging, and overwintering. In tidal areas, the rails also require dense cover of upland vegetation to provide protection from predators when it must leave marsh habitats during high tides. Typical associated vegetation includes pickleweed (*Salicornia virginica*) in salt marshes and bulrush (*Scirpus* spp.) in less saline habitats. California black rail forages in the same habitats that it uses for breeding. This species begins breeding in February and nesting occurs from March to June. Nests often are concealed in dense vegetation, often pickleweed, near upper limits of tidal flooding.

Potential CBR foraging habitat exists in the BSA, in form of saline emergent wetlands within Smith Slough. However, Black rails are less tolerant of disturbance and are unlikely to utilize this area due to the high disturbance levels that exist from pedestrians and bicyclists utilizing the bay trail and vehicles utilizing US 101. Thus, the black rail has a low potential to occur within the BSA.

California Central Coast DPS Steelhead

The CCC DPS Steelhead is listed as threatened under the FESA (NMFS 2006). This DPS includes all steelhead that run from the Russian River in Sonoma County south to Aptos in Santa Cruz County, and also includes all steelhead spawning in streams that flow into the San Francisco Bay. Steelhead enter their natal stream in the winter and spawn almost immediately (Stillwater Sciences 2008). Steelhead reside between 1 to 3 years in freshwater and 1 to 2 years in the ocean. Redds are nests dug by steelhead. Steelhead prefer certain hydraulic conditions, gravel sizes, and temperature ranges for redd construction. Steelhead redds can be found in riffles, tops of riffles and pool tailouts. Depending on temperature and other factors, eggs will incubate for 3 to 14 weeks, and alevins will remain in the redd for another 2 to 5 weeks, emerging as fry in the spring (Shapovalov and Taft 1954).

Once emerged from the gravel, juvenile steelhead are flexible in their habitat requirements. They are able to live and can be found in a wide range of velocities, depths and habitat types (Bisson 1988). They form schools and move to the margins of the stream, close to banks where velocity levels are low (Shapovalov and Taft 1954; Moyle 2008). They exhibit territorial behavior (Shapovalov and Taft 1954) and are found over larger substrates in riffles, runs and higher velocity pools as they continue to grow through the summer and fall (Everest and Chapman 1972). Juvenile steelhead use higher-velocity habitat types, such as glides and runs, in order to exploit greater invertebrate drift for feeding purposes, despite the increased energy costs of swimming (Smith and Li 1983). During winter high flows, juvenile steelhead seek refuge from high flows and predation in the interstitial places between gravels, cobbles, and boulders on the streambed (Bjornn 1971; Bustard and Narver 1975; Swales et al. 1986). One-year-old and older steelhead occupy deeper channels and will use more pools (Bisson et al. 1988).

While migrating toward the ocean, steelhead smolts may either head straight to the open ocean or stay in estuarine waters for up to 9 months (Bond 2006). Steelhead will spend roughly 2 years traveling great distances across the North Pacific, swimming past the coastal waters of their natal

streams towards the Gulf of Alaska where they may stay for a year or more before migrating back (Light et al. 1989).

Critical habitat was designated for CCC steelhead in 2005 (NMFS 2005). Cordilleras Creek within the BSA is designated critical habitat for CCC steelhead.

2.3.5.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not affect threatened or endangered species in the project area.

Build Alternatives 1 and 2

Habitat for threatened and endangered bird species and SMHM will be disturbed during the construction of the project, and impacts to these species could potentially occur if they are present during these activities. Foraging habitat exists in the western portion of the BSA, in the form of saline emergent wetlands within Smith Slough for Ridgway's rail, California least tern, the Western Snowy Plover, and California black rail. Approximately 0.104 acres of temporary impacts to potential these bird's foraging habitat are anticipated due to construction activities. Approximately 0.90 acres of temporary impacts to potential SMHM habitat are anticipated due to construction activities.

Currently anticipated impacts are associated with the installation and removal of seasonal temporary coffer dam system and bridge construction activities. Construction activities also have the potential to affect these threatened and endangered species due to construction related noise, vibration, and increased human presence. If rails are present in the BSA during project construction, take of rail may occur in the form of harm, harassment, injury, and mortality of individuals. The sources of take may include crushing or injury from construction-related disturbance, modifications to behavior as a result of disturbances (e.g., noise), or capture and relocation. Daytime CIDH piling activities for bridge construction have the potential to cause disturbance and have the potential to exceed existing levels of anthropogenic disturbance, but will be short lived. However, the potential habitat within the BSA is located near U.S. 101, which is a heavily traveled roadway with a high level of existing disturbance. The San Francisco Bay Trail adjacent to potential habitat adds further disturbance, as does an active encampment area. As a result, these threatened and endangered species are unlikely to utilize this area due to the high levels of human disturbance and are instead likely to use other nearby foraging areas subject to little or no human disturbance. Implementation of the general avoidance and minimization measures will serve to avoid and minimize potential project-related impacts to these threatened and endangered bird species. Measures BIO-1, BIO-8, BIO-10, BIO-13, BIO-15, and BIO-14 will be implemented during construction activities to avoid adverse effects to bird species.

Indirect effects to these threatened and endangered species could include increased erosion, sedimentation, or changes in hydrology to rail habitat in the BSA. Any of these detrimental effects could occur either during construction or post-construction. The disturbance of upland areas and removal of vegetation could lead to an increased potential for erosion and sedimentation of soils, affecting rail habitats outside the project footprint. In addition, construction activities could result in the introduction of chemical contaminants to a work site or

staging area, such as oil or toxic chemicals leaking from construction equipment. Construction activities also could introduce new weedy invasive plant species to the BSA or could spread invasive species present in the BSA to other sites that support rail. These indirect effects would be avoided through implementation of avoidance and minimization measures for protection of water quality, erosion control (including implementation of construction site BMPs and the SWPPP), and species-specific protection measures. Measures such as WQ-1, described in Section 2.2.2 and BIO-17, described in Section 2.3.6 will avoid adverse indirect effects to these species.

CCC DPS Steelhead Impacts

Construction activities will occur during the dry season when there will likely be little to no water present within the creek and CCC steelhead will not be migrating. Migration for CCC steelhead occurs during the winter months (December to February). Therefore, the potential for direct take of CCC Steelhead is very low. However, any steelhead present may require relocation outside the project footprint. A temporary creek diversion system will be used to allow for in-creek work. These activities may result in take of CCC DPS Steelhead. As a result of the creek diversion, fish present in Cordilleras Creek may become temporarily isolated from the upstream Cordilleras Creek and the estuary. Impact related noise (such as jackhammering, and CIDH piling) is anticipated, but as the creek will be dewatered and no in-water impact related activities are anticipated, sound decibels from project activities are not anticipated to rise to the level of mortality for fish. The project is not anticipated to affect water temperatures. As required under the FESA, Caltrans will implement reasonable and prudent measures to minimize and avoid potential take of the CCC DPS Steelhead. The following measures, as described in Section 2.3.5.4, will be implemented to reduce adverse effects to CCC DPS Steelhead: BIO-8; BIO-12 and BIO-16.

Indirect impacts could also potentially occur to CCC steelhead. Ground disturbance could create an increase in sediment deposition and turbidity that could reduce the quality of migration habitat adjacent to the project footprint. However, existing sediment and turbidity within the project footprint are high, and with the use of a dry season work window, creek dewatering, and Caltrans standard water quality/erosion control BMPs, these indirect effects will be avoided. Bridge replacement is expected to have a net positive long-term impact on the functional values of existing habitat for salmonids, as the project design will ensure adequate flows and conditions for fish passage. The project would not result in detrimental long-term changes to the water chemistry or physical characteristics (e.g., substrate and flow) of the creek after construction is complete. Therefore, no indirect impacts on fish or other aquatic organisms are anticipated.

Critical Habitat Impacts

Critical habitat was designated for CCC steelhead in 2005 (NMFS 2005). Cordilleras Creek within the BSA is designated critical habitat for CCC steelhead.

Due to the nature of the work occurring, impacts to CCC steelhead critical habitat are unavoidable. The project will temporarily impact 0.140 acres of CCC steelhead critical habitat. Temporary impacts will result from the temporary creek diversion system, temporary construction access, and the use of machinery in the creek bed. The project will permanently impact 0.174 acres of critical habitat, due to construction of the new bridge and placement of slope stabilization materials along portions of the creek bank. Indirect impacts could also occur.

Although vegetation removal will be minimal, there is a potential for increased turbidity in Cordilleras Creek due to soil disturbance and storm water runoff. Increased turbidity could adversely affect the quality of aquatic resources as well as negatively affect vegetation in the area, degrading steelhead habitat within the immediate area or downstream. Accidental spills of materials used during construction (e.g., oils, transmission and hydraulic fluids, fuel) could enter the creek because of runoff. The release of pollutants into the creek could adversely affect the quality of habitat it provides CCC DPS Steelhead. WQ-1 will be implemented to reduce impacts to critical habitat.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

BIO-1. *Environmentally Sensitive Area Fencing:* ESAs will be clearly delineated using temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and fully maintained at all times.

BIO-7. *Construction Site BMPs:* Site restrictions will be implemented to avoid or minimize impacts on special-status species and their habitats (described in Section 2.3.4.4)

BIO-8. *Biological Monitor and Protocol for Observation:* The names and qualifications of proposed Biological Monitor(s) will be submitted to the USFWS and CDFW for approval prior to the start of construction. The agency-approved biological monitor(s), in coordination with the Resident Engineer, will have the authority to stop work that may result in the unauthorized take of special-status species. Work will resume after observed listed individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is relocated by the biologist to a release site using Agency-approved handling techniques.

BIO-10. *Preconstruction/Daily Surveys:* Preconstruction surveys for special-status wildlife species listed in this NES, will be conducted by the agency-approved biological monitor no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities.

BIO-12. *Dry Season Work Window:* Construction actions will be scheduled to minimize impacts to the CCC DPS Steelhead and their habitat. To reduce impacts to special-status species and habitat, construction activities within potential steelhead habitat will be conducted during the dry season, between June 15 and October 15.

BIO-13. *Worker Environmental Awareness Training:* Construction personnel will attend a mandatory environmental education program delivered by the agency-approved biological monitor or Caltrans biologist prior to taking part in site construction, including vegetation clearing. The program will focus on the conservation measures that are relevant to an employee's personal responsibility and will include an explanation on how to avoid take of the CCC DPS Steelhead, Ridgway's rail, salt marsh harvest mouse, and western snowy plover.

BIO-14. Proper Use of Erosion Control Devices: To avoid entanglement or injury of wildlife, including the salt marsh harvest mouse, erosion control materials that use plastic or synthetic monofilament netting will not be used.

BIO-15. Light Restrictions. Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas. Lighting per portable tower light will not exceed 2,000 lumens.

BIO-16. Handling of Listed Species. If a listed species is discovered, the Resident Engineer and agency-approved biological monitor will be immediately informed.

- If a CCC DPS Steelhead, Ridgway's rail, salt marsh harvest mouse, or western snowy plover gains access to a construction zone, work will be halted immediately within 50 feet until the animal leaves the site or is captured and relocated by the agency-approved biological monitor.
- The USFWS/NMFS will be notified within one (1) working day if a CCC DPS Steelhead, Ridgway's rail, salt marsh harvest mouse, or western snowy plover is discovered within the construction site.
- Captured CCC DPS Steelhead, Ridgway's rail, salt marsh harvest mouse, or western snowy plover will be released within appropriate habitat outside of the construction area but near the capture location. The release location will be determined by the agency-approved biological monitor.

2.3.6 Invasive Species

2.3.6.1 Regulatory Setting

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

2.3.6.2 Affected Environment

The information provided in this section is summarized from the *Natural Environment Study* prepared for the proposed project by Caltrans on May 2020.

The BSA include nonnatives in ruderal habitats that are deemed high risk by the California Invasive Plant Council (2020). These include Italian thistle (*Carduus pycnocephalus*), red brome (*Bromus madritensis* ssp. *rubens*), Pampas grass (*Cortaderia selloana*), fennel (*Foeniculum vulgare*), and iceplant (*Carpobrotus edulis*).

2.3.6.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not introduce invasive species into the project area.

Build Alternatives 1 and 2

None of the identified species on the California list of noxious weeds is used by Caltrans for erosion control or landscaping. However, project construction activities have the potential to inadvertently spread these species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area will be covered to the extent practicable with heavy black plastic solarization material until completion of construction. All earthmoving equipment, as well as seeding equipment to be used during project construction will be thoroughly cleaned before arriving on the project site. Since the project will be compliance with the requirements under EO 13112, no adverse effects associated with invasive species would occur.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

BIO-17. *Invasive Species Management:* In compliance with the EO on Invasive Species, EO 13112, and guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

2.4 Cumulative Impacts

2.4.1 Regulatory Setting

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

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

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

2.4.2 Cumulative Impact Analysis

This cumulative impact analysis determines whether the Build Alternatives in combination with other past, present, or reasonably foreseeable projects would result in a cumulative effect, and, if so, whether the Build Alternatives' contribution to the cumulative impact would be considerable. Past, present, and reasonably foreseeable future projects include land use developments, infrastructure, and other transportation improvements that are planned and funded and would be located near the proposed Build Alternative improvements. Table 2.4.2-1 lists the known projects in the vicinity of Cordilleras Creek Bridge.

Table 2.4.2-1: Projects Considered for Cumulative Impacts Analysis

Project Proponent/Name	Project Description	Project Status	Jurisdiction
U.S. 101 Pedestrian Undercrossing and Bair Island Road Storm Drain Pump Station Project	The project would include constructing a joint-use path dedicated to bicycles and pedestrians under the U.S. 101 freeway bridge next to Redwood Creek to connect the Bayfront and downtown areas of Redwood City and a new storm drain pump station adjacent to the proposed path.	Under construction	City of Redwood City
U.S. 101 Managed Lanes Project	The project would provide continuous managed lanes in the northbound and southbound directions of U.S. Highway 101 (US 101) in Santa Clara and San Mateo counties from the terminus of the existing high-occupancy vehicle (HOV) lanes in southern San Mateo County to the Interstate 380 (I-380) interchange.	Construction beginning in 2021	Santa Clara to San Mateo Counties

The cumulative effects analysis followed the Caltrans Eight-Step Guidance for identifying and assessing cumulative impacts (Caltrans 2020b). For resource areas that would have no adverse effects from the proposed project, no incremental effects would be cumulatively considerable. The primary impacts associated with the Cordilleras Creek Bridge project are associated with temporary impacts to water quality and potential effects to biological resources associated with Cordilleras Creek. There would be no work within Cordilleras Creek from either the U.S. 101 pedestrian undercrossing or the MLP project. No cumulative effects were identified for any resource areas that overlapped with the proposed project.

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Chapter 3 California Environmental Quality Act Evaluation

3.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and the FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. FHWA'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 USC 327 and the Memorandum of Understanding dated December 23, 2016, and executed by FHWA 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 EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

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

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A "no impact" answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

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 BMPs and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 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.

AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	No	No	No	Yes
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No	No	No	Yes
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 publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	No	No	Yes	No
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	No	No	No	Yes

a) No Impact. The area surrounding the project site is relatively flat; there are no areas of higher elevations or scenic vistas within the vicinity of the project area. Therefore, there would be no adverse impact to scenic vistas from either project alternative.

b) No Impact. The San Francisco Bay offers a scenic view to the project area. As described in Section 2.1.8.4, VIS-1 would be implemented, which would require the median barrier height to be minimized to preserve Bay views for motorists on the southbound side of the highway. Therefore, no impact would occur as a result of the proposed project.

c) Less than Significant. The project area consists of U.S. 101, which is a 10-lane facility as it runs north to south through Redwood City and San Carlos. Adjacent areas include commercial uses to the west and open space and recreational uses to the east. Temporary construction impacts would be visible from the vantage point on the Bay Trail’s bicycle/pedestrian path. Construction materials and equipment in the staging areas would be placed where they are less visible and/or covered when possible. The most obvious change on the highway would be from the removal of large shrubs for the temporary widening and staging of construction equipment. The loss of these shrubs would eliminate visual screening of adjacent commercial buildings and reduce visual quality along this portion of the highway.

Permanent impacts to visual resources are not expected since changes to the bridge are minimal. The new median barrier height would be constructed to minimize the height to preserve Bay views for motorists traveling southbound. Replanting of native plant

species would occur where the removal of exotic plant species is necessary. The proposed project would not conflict with applicable zoning and other regulations governing scenic quality and would have less than significant impacts on scenic resources and visual character.

- d) No Impact.** The existing environment has many sources of light and glare from highway traffic and adjacent commercial and industrial business to the west. Sensitive receptors to light and glare may be from pedestrians and bicyclists on the San Francisco Bay Trail to the east of the project site. No structural work is proposed at night. However, if nighttime work is required, construction lighting shall be limited to the general work area through directional lighting, shielding, and other measures as needed. The operation of the project would not introduce new sources of light or glare. Therefore, there would be no impacts related to light or glare.

AGRICULTURE AND FORESTRY RESOURCES

<p>In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:</p>	<p>Significant and Unavoidable Impact</p>	<p>Less Than Significant with Mitigation Incorporated</p>	<p>Less Than Significant Impact</p>	<p>No Impact</p>
<p>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 nonagricultural use?</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>
<p>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))?</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>
<p>d) Result in the loss of forest land or conversion of forest land to nonforest use?</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>
<p>e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forest land to nonforest use?</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>

a-e) **No Impact.** There are no farmland or forest lands in or adjacent to the project area. Therefore, no changes are anticipated to farmland or forest land as a result of the proposed project.

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:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	No	No	No	Yes
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?	No	No	Yes	No
c) Expose sensitive receptors to substantial pollutant concentrations?	No	No	Yes	No
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	No	No	No	Yes

- a) **No Impact.** The project site is located in the SFBAAB and within the jurisdiction of BAAQMD and the California Air Resources Board (CARB). The proposed project would not interfere with any of the control measures described in BAAQMD’s 2017 Clean Air Plan. The project is not a capacity-increasing project, and therefore is not included in the current Regional Transportation Plan (RTP), *Plan Bay Area 2040*. Nevertheless, the project would not interfere with the implementation of goals set forth in the RTP. Furthermore, the project is exempt per 40 CFR 93.126, and an air quality study is therefore not required. During operation of the project, air emissions would not be changed from existing levels. Therefore, the project would not conflict with or obstruct implementation of the applicable air quality plan.

- b) **Less Than Significant Impact.** During construction of the project, there would be temporary air emissions from the use of construction equipment and vehicles powered by gas and diesel. Table 2.2.5-1 in Section 2.2.5 shows the total estimated construction-related criteria pollutant for Alternative 1 and Alternative 2. San Mateo County is in nonattainment for 8-Hour Ozone (2008), 8-Hour Ozone (2015), and PM_{2.5} (2006) in 2020 (EPA 2020). However, project construction is of limited duration, and a substantial amount of pollutants would not be generated that would result in a cumulatively considerable net increase of criteria pollutants. The project would be in compliance with federal and state ozone standards. It would not increase criteria pollutants or mobile source air toxics (MSAT) over existing conditions or exceed the BAAQMD’s recommended thresholds for construction emissions. The project would not result in a cumulatively considerable net increase of ozone and PM_{2.5}. Therefore, the project would not cause or contribute to any state or federal air

quality violations for criteria air pollutants. Furthermore, the project would not contribute substantially to existing or projected air quality violations.

- c) **Less Than Significant Impact.** Sensitive receptors are children, elderly, asmatics and others whose are at a heightened risk of negative health outcomes due to exposure to air pollution. The project is not located near schools, hospitals, nursing homes or residential communities where sensitive receptors typically occur. The Build Alternatives would not exceed increase criteria pollutants or MSATs over existing conditions, or exceed the BAAQMD's recommended thresholds for construction emissions. The proposed project would also generate a less than significant amount of pollutants during construction. Therefore, the Build Alternatives would not expose sensitive receptors that could occur near the project area to substantial pollutant concentrations.
- d) **No Impact.** The project would not introduce odors that are not already associated with existing traffic.

BIOLOGICAL RESOURCES

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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, or NOAA Fisheries?	No	No	Yes	No
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?	No	No	Yes	No
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	No	Yes	No	No
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?	No	No	Yes	No
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No	No	No	Yes
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	No	No	Yes

- a) **Less Than Significant Impact.** The project is in the vicinity of an Environmental Sensitive Area (ESA) due to the potential presence of special-status species. As described in Sections 2.3.4 and 2.3.5, the Build Alternatives have the potential to result in direct and indirect impacts on special-status plant and animal species, including CESA- and FESA-listed species and their habitats.

These threatened and endangered species and special-status species that have the potential to occur in the BSA include:

- Alameda song sparrow
- California black rail
- CCC DPS steelhead
- California clapper rail
- Northern harrier
- Ridgway's rail
- salt marsh harvest mouse
- western snowy plover
- white-tailed kite

Construction activities such as diverting the creek, removing vegetation, installing and removing the seasonal temporary coffer dam system and bridge could impact these species. Construction activities and use of equipment also have the potential to affect these species due to construction-related noise, vibration, and increased human presence. If these species are present in the BSA during project construction, take of rail may occur in the form of harm, harassment, injury, and mortality of individuals. The sources of take may include crushing or injury from construction-related disturbance, modifications to behavior as a result of disturbances (e.g., noise), or capture and relocation. Daytime CIDH piling activities for bridge construction have the potential to cause disturbance and have the potential to exceed existing levels of anthropogenic disturbance, but will be short lived. Due to the ambient levels of human disturbance coming from U.S. 101 and the San Francisco Bay Trail, it is unlikely that these species would be present within the BSA during construction.

In contrast, CCC steelhead have a high likelihood of being present in the BSA. However, construction activities will occur during the dry season when there will likely be little to no water present within the creek. Therefore, the potential for direct take of CCC DPS steelhead is very low. However, any steelhead present may require relocation outside the project footprint. A temporary creek diversion system will be used to allow for in-creek work. These activities may result in take of CCC DPS steelhead. As a result of the creek diversion, fish present in Cordilleras Creek may become temporarily isolated from the upstream areas of Cordilleras Creek and the estuary.

Avoidance and minimization measures, such as BIO-1, BIO-9, BIO-12, BIO-13 and BIO-15, as described in Sections 2.3.4 and 2.3.5, will bring impacts to special-status species down to a less than significant level.

- b) **Less Than Significant Impact.** As described in Section 2.3.1, Temporary impacts of 0.130 acres to riparian habitats are anticipated due to construction access requirements due to dewatering and replacement of the bridge. Permanent impacts to 0.011 acres of riparian habitat are anticipated due to minor reconfiguration of Cordilleras Creek and installation of slope stabilization. The project will require a USACE Section 404 permit and a Section 401 Water Quality Certification from the RWQCB. Permits will be obtained prior to construction. In addition to complying with permit requirements, Caltrans will implement all applicable avoidance and minimization measures to minimize potential project impacts, such as WQ-1. *Water Quality/Erosion Control BMPs*, BIO-1. *Environmentally Sensitive Area Fencing* and BIO-2. *Construction Site BMPs*, described in Section 2.3.1.3. Therefore, no substantial adverse impacts would occur.
- c) **Less Than Significant Impact with Mitigation Incorporated.** As described in Sections 2.3.1 and 2.3.2, the Build Alternatives will result in temporary and permanent impacts to saline emergent wetland (SEW) habitat. A total of 0.104 acres of wetland habitat is anticipated to be temporarily impacted due to installation of the temporary creek dewatering system on the bay side of the project. A total of 0.112 acres of wetland habitat is anticipated to be permanently impacted due to widening of the southbound highway shoulder to accommodate stage construction. The shoulder size will be reduced at the end of construction. However, since the widened shoulder will exist for more than one year, it is considered a permanent impact to the wetland. Even with the shoulder being reduced after construction, the wetland would need to be actively restored by Caltrans. Plans to restore the wetland are still being determined.

There are wildlife species in the project area that use SEW habitats. Furthermore, SEW habitats can function as bioswales. Permanent impacts may result in the loss of value and function of this wetland habitat. However, impacts would be less than significant with mitigation. Due to permanent impacts, the project would require compensatory mitigation for wetlands, no less than a 1:1 ratio. Exact mitigation ratios will be developed during the project's design phase. Wetland mitigation is needed to offset the temporal loss, or reduction of functions, during the time it takes a mitigation project to achieve the targeted level of performance for all of its functions.

In addition to complying with permit requirements, Caltrans will implement all applicable avoidance and minimization measures to minimize potential project impacts, such as BIO-1 Environmentally Sensitive Area Fencing; WQ-1 *Water Quality/Erosion Control BMPs*; and BIO-2 *Construction Site BMPs* that will reduce impacts to wetlands to a minimal level.

- d) **Less Than Significant Impact.** As described in Sections 2.3.1 and 2.3.5, the project requires work within Cordilleras Creek, which serves as an aquatic movement corridor for the federally threatened CCC steelhead and other aquatic organisms. With avoidance measures carried out during project construction, the project is not expected to adversely impact the movement of any native resident or migratory fish or wildlife species. Construction activities will occur during the dry season when there will be less water present in the creek and CCC steelhead will not be migrating.

Migration for CCC steelhead occurs during the winter months (December to February). Therefore, dewatering and in-creek construction activities will be limited to the dry season (June 15 to October 15) to minimize potential impacts to steelhead. Therefore, impacts related to fish passage are expected to be minimal. Caltrans proposes that the project will be self-mitigating for impacts to CCC steelhead critical habitat by improving fish passage through the bridge by eliminating sedimentation build up that occurs in the existing structure, which restricts fish passage at low flows. Therefore impacts during project construction and operation would be less than significant.

- e) **No Impact.** No removal of trees is anticipated.
- f) **No Impact.** No habitat conservation plan or natural community conservation plan are currently in effect for the project area.

CULTURAL RESOURCES

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	No	No	No	Yes
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	No	No	No	Yes
c) Disturb any human remains, including those interred outside of formal cemeteries?	No	No	No	Yes

a, b) No Impact. No historic properties or historical resources are present in the project's APE. In addition, the project has little or no potential to impact intact prehistoric resources and/or archaeological deposits or features, potentially eligible for listing on the NRHP or CRHR.

c) No Impact. The project area is entirely underlain by artificial fill and Holocene-age deposits. Artificial fill has no potential to contain significant paleontological resources and Holocene sedimentary deposits are generally considered too young geologically speaking to contain significant fossils. However, the project includes avoidance and minimization measures to ensure that if human remains are found, they will immediately be evaluated while construction is halted. No mitigation is required.

ENERGY

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	No	No	Yes	No
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	No	No	No	Yes

- a) **Less than Significant Impact.** Energy in the form of gas and diesel would be consumed during construction and ongoing maintenance activities by construction vehicles and equipment operating on site, trucks delivering equipment and supplies, and construction workers driving to and from the project site.

Energy consumption during project construction would be temporary and minimized to the maximum extent practicable. As such, the project would not result in an inefficient, wasteful, and unnecessary consumption of energy. Following construction activities, there would be no change in the amount of energy consumed.

- b) **No Impact.** The project involves replacing Cordilleras Creek Bridge. It would not conflict with a state or local plan for renewable energy or energy efficiency.

GEOLOGY AND SOILS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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.	No	No	No	Yes
ii) Strong seismic ground shaking?	No	No	No	Yes
iii) Seismic-related ground failure, including liquefaction?	No	No	No	Yes
iv) Landslides?	No	No	No	Yes
b) Result in substantial soil erosion or the loss of topsoil?	No	No	No	No
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	No	No	No	Yes
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	No	No	No	Yes
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	No	No	Yes
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	No	No	No	Yes

- a) **i, ii, iii, iv) No Impact.** The project is located in a seismically active area but is not within the Alquist-Priolo Earthquake Fault Zone. The proposed project would not exacerbate the potential for seismic shaking; the intensity of the earthquake ground motion at the site would depend on the characteristics of the generating fault, distance to the earthquake epicenter, magnitude, and duration of the earthquake, and specific

site geologic conditions. Caltrans' design and construction guidelines incorporate engineering standards that address seismic risks, including ground-failure related to liquefaction, landslides and lateral spreading. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project vicinity and site conditions. Caltrans also requires additional geotechnical subsurface and design investigations to be performed during the final project design and engineering phase. These standards and requirements would avoid the potential for adverse impacts related to seismic activity.

- b) Less Than Significant Impact.** The project site lies entirely on artificial fill that consists of loose to very well consolidated gravel, sand, silt, clay, rock fragments, organic matter and anthropogenic debris in various combinations. The soil-erodibility factor (K) across the project limits is 0.32. This means the soils are susceptible to particle detachment and produce runoff at moderate rates. Thus, there is a potential for erosion during construction activities that involving clearing of vegetation, drilling, grading, and excavation. BMPs will be implemented to reduce erosional impacts during construction activities such as stabilization by paving, rock slope protection, and erosion control. These measures would reduce impacts to a less-than-significant level.
- d) No Impact.** The project would be completely located within Caltrans' ROW. Soils in the surrounding area predominately consist of Urban land-Orthents, reclaimed complex and Novato clays. Novato clay occurs in saltwater marshes along the edges of San Francisco Bay, located east side of the bridge, and have high expansive, swell-shrink qualities. Caltrans' design and construction guidelines incorporate engineering standards that address expansive soils.
- e) No Impact.** The proposed project would not involve incorporating septic tanks or other waste water disposal systems. Therefore, there would be no impact and no and mitigation would be required.
- f) No Impact.** While ground-disturbing activities would occur as a result of this project, the project is not expected to result in the disturbance or overlap with paleontological resources. This assessment was made based on the soil types present; these soils such as Bay mud and artificial fill, which are not thought to harbor fossils or other resources. Thus, the proposed project would not impact paleontological resources. No mitigation is required.

GREENHOUSE GAS EMISSIONS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	No	No	Yes	No
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No	No	Yes	No

- a) Less than Significant Impact.** Similar to the air quality analysis, Caltrans' guidance on calculating greenhouse gas (GHG) emissions for projects in the 2018 State Highway Operations and Protection (SHOPP) was consulted for the purpose of this analysis. A quantitative analysis was made using the Sacramento Metropolitan Air Quality Management District Road Construction Emissions model to estimate construction emissions of the project.

It is estimated Alternative 1 would generate 1,936 metric tons (MT) of CO₂e. Similarly, it is estimated Alternative 2 would generate 2,068 MT of CO₂e. While impacts from GHG emissions can be long-term, GHG emissions would only be generated during construction of the proposed project.

Operation of the project alternatives would not change GHG emissions, as the project is not increasing the capacity of the highway. Therefore, there would be no long-term change in emissions.

- b) Less than Significant Impact.** Caltrans would comply with all local, state, and federal regulations, ordinances and statues that apply to GHG emissions, such as climate action plans. Operation of the proposed project would not increase highway capacity and therefore would not cause a substantial change in operational GHG emissions. Thus, the project would not conflict with plans, policies or regulations aimed at reducing GHG emissions.

HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	No	No	Yes	No
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	No	No	Yes	No
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	No	No	Yes
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	No	Yes	No
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	No	No	Yes
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	No	No	No	Yes
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	No	No	No	Yes

- a) **Less Than Significant Impact.** The proposed project would involve the transport, use, and disposal of hazardous materials used for construction of the project (e.g., fuels, paints, asphalt, and lubricants). Adherence to federal and state regulations during project construction and maintenance reduces the risk of exposure to hazardous materials and accidental hazardous materials releases. Compliance with

existing regulations is mandatory. Therefore, construction of the project is not expected to create a hazard to construction workers, the public, or the environment through the routine transport, use, disposal, or accidental release of hazardous materials.

- b) **Less Than Significant Impact.** Construction of the proposed project could result in the potential disturbance of hazardous materials in soil, groundwater, and building materials in the project area. Shallow soils along the southbound shoulder that would be excavated during construction likely contain aerially deposited lead at concentrations above DTSC-regulated levels. Furthermore, groundwater would likely be encountered during structure foundation work and require dewatering activities. Soil and groundwater testing and characterization would be required. In addition, a bridge survey would be needed to determine the presence or absence of asbestos-containing material (ACM) in the existing triple box culvert to be removed and replaced. The bridge survey and soil and groundwater testing would be conducted during the design phase of the project. If identified, ACM and contaminated soil and groundwater would be handled according to the appropriate project specifications. Compliance with existing regulations is expected to limit the risk of a reasonably foreseeable upset or accident and minimize the impact to the public and environment should an accident occur.
- c) **No Impact.** There are no schools within 0.25 mile of the project area.
- d) **Less Than Significant Impact.** The project is not on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962. However, GeoTracker records identified 5 sites within 0.25 mile of the project area that have impacted or have the potential to impact groundwater and surface water quality. All of the LUST sites have been listed as “Case Closed” since the 1990s and early 2000s, which indicates that a closure letter or other formal closure decision document has been issued for the site. The other two sites are part of the SWRCB Cleanup Program and are still open cases. Given these sites are in close proximity to the project area, there is potential that residual contamination at these sites could affect soils or groundwater in the project area.

The project area potentially contains soils deposited lead, which is aerially deposited lead from the historical use of leaded gasoline. Thus, soil and groundwater testing and characterization would be required. In addition, a bridge survey would be needed to determine the presence or absence of ACM in the existing triple box culvert to be removed and replaced. The bridge survey and soil and groundwater testing would be conducted during the design phase of the project. If identified, ACM and contaminated soil and groundwater would be handled according project specifications.

- e) **No Impact.** The Cordilleras Creek bridge is within State ROW, approximately 1 from San Carlos Airport. Construction and operation of the project would be compatible with airport use and would not result in a safety hazard or excessive noise for people working near the project area.

- f) **No Impact.** The Build Alternative would not impair implementation of an emergency response or emergency evacuation plan. The purpose of the project is to replace Cordilleras Creek Bridge. During construction, implementation of the TMP will minimize construction-related delays and include coordination with CHP and local law enforcement agencies.

- g) **No Impact.** Both project alternatives would not change the alignment of U.S. 101 or any adjacent land uses. Section 3.3.3 describes fire hazard conditions in the project area and the reasons why the project alternatives are not anticipated to exacerbate wildfire risks. Project construction and operation would not expose people or structures to significant risks involving wildland fires.

HYDROLOGY AND WATER QUALITY

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	No	No	Yes	No
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	No	No	Yes	No
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
(i) result in substantial erosion or siltation on- or off-site;	No	No	Yes	No
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	No	No	Yes	No
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	No	No	Yes	No
(iv) impede or redirect flood flows?	No	No	Yes	No
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	No	No	Yes	No
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	No	No	Yes	No

- a) **Less Than Significant Impact.** Temporary impacts to water quality would result from soil disturbance related to construction activities. Alternative 1 would result in approximately 1 acre of disturbed soil and Alternative 2 will result in 1.27 acres of disturbed soil. Although the temporary impacts from soil disturbance and the

operation of construction equipment have the potential to negatively impact water quality, construction site BMPs for erosion and sediment control and material management, as specified in the required SWPPP, would be used during construction to avoid or reduce impacts. These measures are consistent with the practices required under the Construction General Permit. In addition, the proposed project would require a 401 Water Quality Certification from the RWQCB. With implementation of the short-term and long-term BMPs listed in Section 2.2.2.4, effects to surface and groundwater quality would be less than significant.

- b) **Less Than Significant Impact.** The project does not involve pumping and or using groundwater. However, the added impervious surface from the project has the potential to reduce the availability of unpaved area where runoff can infiltrate into native soils and recharge aquifers. Alternative 1 would result in the addition of 0.002 acres of impervious surface by removing 0.16 acre of impervious surface and adding 0.162 acres of new impervious surface. Alternative 2 would result in the addition of 0.026 acres of impervious surface by removing 0.426 acres impervious surface and adding 0.452 acres of new impervious surface. Since the additional impervious area is minimal in comparison with the total area of the local aquifers and groundwater basins, impacts would be less than significant.
- c) **Less Than Significant Impact.** The project would include drainage features that would prevent substantial new sediments or pollutants from impacting water quality. During construction, work in Cordilleras Creek would be required. Temporary dewatering and minor reconfiguration of Cordilleras Creek would occur. However, the existing drainage patterns are not anticipated to be significantly affected, as the goal of the project drainage design is to maintain existing drainage patterns. Furthermore, impervious surface added to the project area would not result in substantially increased runoff as the amount added is small when compared to the surrounding urban landscape as a whole.

As discussed in Section 2.2.2.4, WQ-1 would implement temporary erosion control and water quality measures as required by the Construction General Permit. A Temporary Water Pollution Control Plan has been produced for the project, which includes temporary construction site BMPs that will be implemented for sediment control and material management. Furthermore, disturbed soil areas will be stabilized by paving, rock slope protection, or erosion control. WQ-1 would prevent or reduce the construction impacts to a minor level.

WQ-2 would be implemented to address post-construction water quality impacts and remove pollutants from storm water runoff before it is discharged to receiving waters. WQ-2 would reduce the potential for negative long-term impacts from polluted storm water runoff to receiving waterbodies. Furthermore, the measure would retain, detain, or infiltrate runoff and match post-project flows and durations to pre-project patterns. In addition, the project would be designed to meet trash capture requirements where feasible.

- d) **Less Than Significant Impact.** While the project area is not within a Special Flood Hazard Area, an area that may be inundated by the 100-year flood where base flood

elevations are determined, areas surrounding U.S. 101 are within a Special Flood Hazard Area Zone AE (see Figure 2.2.1-1). The project will minimize impacts to floodway (Cordilleras Creek). Furthermore, it was determined that the proposed work will have no changes in the floodplain. The Build Alternatives would not will not raise any water surface elevations or impede flows that pass 2020 flood events. In addition, the alternatives would not affect the potential for a pollutant release from a flood, tsunami, or seiche event in the project area. A permanent bioswale is proposed within the project limits to treat runoff from the new and reworked impervious area. To some extent, this measure would help with slowing runoff before it leaves the ROW, and would address short-term increases in flood risks.

- e) **Less Than Significant Impact.** The project is required to adhere to the CWA, the Porter-Cologne Water Quality Control Act, the Caltrans MS4 Permit, and the other laws and regulations described in Section 2.2.2.1. As a result, the project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

LAND USE AND PLANNING

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	No	No	No	Yes
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	No	No	Yes

- a) **No Impact.** The proposed project would maintain the same alignment as the existing freeway and would not physically divide an established community.
- b) **No Impact.** The project would be generally consistent with all applicable land use plans, policies, and regulations. The project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted to avoid or mitigate an environmental effect.

MINERAL RESOURCES

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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	No	No	Yes
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	No	No	Yes

- a) and b) **No Impact.** U.S. 101 in the project area is in a Mineral Resource Zone (MRZs) that has been designated as MRZ-1, areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence (Department of Conservation 1982). The project would not require acquisition of lands classified as mineral resource zones; therefore, no impact would occur.

NOISE

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	No	No	Yes	No
b) Generation of excessive groundborne vibration or groundborne noise levels?	No	No	Yes	No
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No	No	No	Yes

- a) **Less Than Significant Impact.** During construction of the project, activities such as pile driving, excavation, and grading would result in a temporary increase in ambient noise. Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The highest maximum instantaneous noise levels would result from special impact tools such as pile drivers. CIDH pile installation would generate much lower noise levels than pile driving and is the recommended choice. Caltrans has not made a decision on whether pile drivers or CIDH would be utilized. As described in Section 2.3.5.4, Minimization Measures NOI-1 through NOI-3 would be implemented during drilling to reduce impacts to a minor effect.

Construction noise would be short-term and intermittent. The Caltrans 2018 Standard Specifications 14-8.02 requires Maximum Sound Level (Lmax) not to exceed 86 dBA at 50 feet from the job site from 9:00 p.m. to 6:00 a.m.

- b) **Less Than Significant Impact.** As described in Section 2.2.6, during project construction, the highest source of vibration anticipated is from concrete pile driving. Caltrans is also considering utilizing CIDH piles with steel pipes or steel casings. CIDH pile installation is recommended because it generates much lower levels of noise and vibration. Under Alternative 1 and 2, a total of 266 piles would be required. No drilling in water would occur, as temporary coffer dams would be installed to dewater portions of the creek were construction work is taking place. Furthermore, Mitigation Measures NOI-1 through NOI-3 would be implemented during drilling to

reduce impacts to a minor effect. The project would not generate excessive vibration after construction or result in ground-borne noise levels.

- c) **No Impact.** The project is about 1 mile from the San Carlos Airport but would not expose people using the freeway, or residing or working in the project area to excessive airport-related noise levels.

POPULATION AND HOUSING

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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	No	No	Yes
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No	No	No	Yes

- a) **No Impact.** The proposed project involves replacing the Cordilleras Creek Bridge on U.S. 101. It would not involve the building of new homes or businesses that could induce population growth. The project would not expand or extend transportation facilities that could indirectly induce population growth.
- b) **No Impact.** The project would not require residential or business relocations, and therefore, would not displace substantial numbers of people or housing, and would not necessitate the construction of replacement housing elsewhere.

PUBLIC SERVICES

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Fire protection?	No	No	Yes	No
Police protection?	No	No	Yes	No
Schools?	No	No	No	Yes
Parks?	No	No	No	Yes
Other public facilities?	No	No	No	Yes

a) **Less Than Significant Impact/No Impact.** Project construction may result in increased traffic delays on U.S. 101 near the project area that could affect response times of emergency response vehicles. However, a TMP would be developed for the project to minimize construction-related delays. The TMP would include using portable changeable message signs and ground mounted signs, CHP’s Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol where possible. It is anticipated that CHP would be required every day during construction for Construction Zone Enhanced Enforcement, due to the high traffic volumes and difficulty of staging. Furthermore, due to stage construction and the widening of the southbound side of U.S. 101, all lanes would remain open on each side of the highway during construction activities. Law enforcement, fire, and/or emergency services would be maintained during project construction and operation of the lanes. With the incorporation of the TMP, the project is not expected to result in significantly decreased response times. Therefore, the project would have less than significant impacts on law enforcement and fire protection services. No parks, schools or other public facilities are in the project area. Therefore, there would be no impacts to these facilities.

RECREATION

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	No	No	No	Yes
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	No	No	No	Yes

- a) **No Impact.** The project alternatives would not induce growth in the surrounding area that would result in increased use of parks and recreational facilities such that physical deterioration of the facility would occur or be accelerated.
- b) **No Impact.** The project would not include recreational facilities or require the construction or expansion of recreational facilities.

TRANSPORTATION

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	No	No	No	Yes
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	No	No	No	Yes
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	No	Yes	No
d) Result in inadequate emergency access?	No	No	Yes	No

- a) **No Impact.** The Build Alternatives would be consistent with applicable programs, plans, ordinances, and policies regarding the circulation system, which are described in Section 2.1.2.2. During construction a TMP would be implemented to minimize impacts to the traveling public. There is a shared bicycle/pedestrian path part of the San Francisco Bay Trail, running parallel to the east side of northbound U.S. 101. The path is part of the San Francisco Bay Trail. The trail would remain open throughout construction.
- b) **No Impact.** Senate Bill (SB) 743 (2013) requires the Governor’s Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts under CEQA. Under SB 743, CEQA Guidelines Section 15064.3(b) was revised to identify Vehicle Miles Traveled (VMT) as the most appropriate measure of assessing transportation impacts. The project would have no impacts on VMT, and therefore would not conflict or be inconsistent with Section 15064.3. During construction activities all traffic lanes would be maintained for vehicle use. There would be a slight increase in VMT because of construction trucks coming to and from the project site. However, this VMT increase will only occur during construction.
- c) **Less Than Significant Impact.** The Build Alternatives would replace Cordilleras Creek Bridge which would make it safer for vehicles to travel over. Stage construction will occur in order to keep 6 general purpose traffic lanes open. As construction of the bridge moves to the east, traffic would need to shift around construction work. This may increase hazards slightly as cars would be driving in

more narrow lanes and have to go around construction. However, implementation of a TMP and presence of CHP would reduce the impacts of these risks.

- d) **Less-Than-Significant Impact.** Project construction may result in increased traffic delays on U.S. 101 near the project area that could affect response times of emergency response vehicles. However, a TMP would be developed for the project to minimize construction-related delays. The TMP would include using portable changeable message signs and ground mounted signs, CHP's Construction Zone Enhanced Enforcement Program, and Freeway Service Patrol where possible. It is anticipated that CHP would be required every day during construction for Construction Zone Enhanced Enforcement, due to high traffic volumes on U.S. 101 and difficulty of staging. Furthermore, due to stage construction and the widening of the southbound side of US 101, all lanes would remain open on each side of the highway during construction activities. Law enforcement, fire, and/or emergency services would be maintained during project construction and operation of the lanes. With the incorporation of the TMP, the project is not expected to result in significantly decreased response times. The project is not expected to result in inadequate emergency access.

TRIBAL CULTURAL RESOURCES

<p>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:</p>	<p>Significant and Unavoidable Impact</p>	<p>Less Than Significant with Mitigation Incorporated</p>	<p>Less Than Significant Impact</p>	<p>No Impact</p>
<p>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</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>
<p>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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Yes</p>

a,b) **No Impact.** As a result of consultation with the Native American Heritage Commission and local Native American tribes, no tribal cultural resources were identified within or near the APE. Therefore, there would be no impact.

UTILITIES AND SERVICE SYSTEMS

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	No	No	Yes	No
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	No	No	No	Yes
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	No	No	Yes
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	No	No	Yes
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	No	No	No	Yes

- a) **Less Than Significant Impact.** Waterlines including a Redwood City reclaimed waterline, overhead PG&E power lines and telecommunication (fiber optic) are located within the project area. The Redwood City reclaimed waterline and fiber optic lines would need to be relocated. Overhead power lines and other utilities will not be affected.
- b) **No Impact.** The proposed project would not require new or expanded water entitlements.
- c) **No Impact.** The proposed project would not affect public utilities for wastewater treatment.
- d) **No Impact.** The proposed project would not generate or require solid waste disposal in excess of state or local standards, or in excess of the capacity of local

infrastructure. Construction waste would be disposed at a certified facility based on the waste type and would not affect landfill capacity.

- e) **No Impact.** The proposed project would comply with statutes and regulations related to solid waste management and reduction.

WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	No	No	No	Yes
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	No	No	No	Yes
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	No	No	Yes	No
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	No	No	Yes	No

- a) **No Impact.** The project area would be subject to the San Mateo County’s Emergency Operations Plan (EOP). The EOP provides guidelines for emergency response planning, preparation, training, and execution throughout the county. Transportation is a component of emergency functions in the EOP and its purpose is to provide organization, mobilization and coordination of transportation services and infrastructure during emergency events. U.S. 101 is identified in the 2015 ITSP as one of the Strategic Interregional Corridors that support emergency response and disaster recovery activities and access to vital medical services.

The proposed project would not impair implementation of an emergency response or emergency evacuation plan. No potential evacuation routes would be impeded or disrupted during project construction and operation. During project construction, all traffic lanes on U.S. 101 would remain in operation. A TMP would be implemented to minimize construction-related delays. Therefore, a substantial reduction in

- emergency response times is not expected. Following construction of the project, there would be no changes in traffic patterns.
- b) **No Impact.** The project area is not in a moderate or high fire severity zone (Cal Fire 2008). Furthermore, the project area does not contain steep slopes or high vegetation. The majority of the work would occur in Caltrans ROW. However, two areas outside of Caltrans ROW would be used for construction staging. During construction, measures for minimizing fire risks would be incorporated.
 - c) **Less Than Significant Impact.** The Build Alternatives would construct a new bridge over Cordilleras Creek and extend the shoulder on the southbound side of the highway. During construction, overhead power lines and other utilities will not be affected. The project does not involve constructing any electrical equipment or other utilities that could exacerbate fire risks. Therefore, the project is not anticipated to increase the risk of wildland fires.
 - d) **Less Than Significant Impact.** Implementation of standard Caltrans practices for erosion control and measures WQ-1 and WQ-2 (Section 2.2.2.4) would avoid or minimize the project's potential to result in downslope or downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. These measures are incorporated into the project design as a matter of Caltrans practice and are not mitigation.

MANDATORY FINDINGS OF SIGNIFICANCE

MANDATORY FINDINGS OF SIGNIFICANCE	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	No	No	Yes	No
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	No	No	Yes	No
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	No	No	Yes	No

a-c) **Less Than Significant Impact.** As noted in the previous CEQA checklist items, the proposed project would have a less than significant impact, or an impact that is mitigated to a level of non-significance, including habitat and threatened and endangered species and cultural resources.

The project has been evaluated for cumulative impacts in Section 2.4 and is found to not contribute to a cumulatively considerable impact.

The proposed project would result in temporary construction impacts such as noise, dust, and visual changes. However, the proposed project would have a less-than-significant impact to all resource areas evaluated in this CEQA checklist, and would, therefore, not have an environmental effect that will cause substantial adverse effects on human beings, either directly or indirectly.

3.3 Wildfire

3.3.1 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.

3.3.2 Affected Environment

The project area would be subject to the San Mateo County’s Emergency Operations Plan (EOP). The EOP provides guidelines for emergency response planning, preparation, training, and execution throughout the County. Transportation is a component of emergency functions in the EOP and its purpose is to provide organization, mobilization and coordination of transportation services and infrastructure during emergency events. The project area is not in a moderate or high fire severity zone (Cal Fire 2008). Furthermore, the project area does not contain steep slopes or high vegetation. The majority of the work would occur in Caltrans ROW. However, two areas outside of Caltrans ROW would be used for construction staging.

3.3.3 Environmental Consequences

No Build Alternative

The No Build Alternative would not impair emergency response or evacuation or change fire hazard risk in the project area.

Build Alternatives 1 and 2

The proposed project would not impair implementation of an emergency response or emergency evacuation plan. No potential evacuation routes would be impeded or disrupted during project construction and operation. During project construction, all traffic lanes on U.S. 101 would remain in operation. A TMP would be implemented to minimize construction-related delays. Therefore, a substantial reduction in emergency response times is not expected. Following construction of the project, there would be no changes in traffic patterns. The majority of the work would occur in Caltrans ROW. During construction, measures for minimizing fire risks would be incorporated.

3.3.4 Avoidance, Minimization, and/or Mitigation Measures

No additional avoidance, minimization, or mitigation is required.

3.4 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 GHG emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO₂), methane, nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, and various hydrofluorocarbons (HFCs). CO₂ is the most abundant GHG; while it is a naturally occurring component of the Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO₂.

Two terms are typically used when discussing how to address the impacts of climate change: *greenhouse gas mitigation* and *adaptation*. Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG 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.

3.4.1 Regulatory Setting

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

3.4.1.1 Federal

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

NEPA (42 USC Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

FHWA recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 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” (FHWA 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 USC Section 6201) and Corporate Average Fuel Economy (CAFE) 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 CAFE 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 USEPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) is responsible for setting GHG 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 GHG emissions.

3.4.1.2 State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to the following:

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

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

EO S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. CARB 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 GHG reduction goals.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan

Planning Organization for each region must then develop a "Sustainable Communities Strategy" that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

SB 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 AB 32.

EO B-16-12 (March 2012) orders State entities under the direction of the Governor, including CARB, 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.

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

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

SB 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."

AB 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.

SB 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 travelled, to promote the state's goals of reducing GHG emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires CARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

EO 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 GHG emissions.

EO 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 GHG emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This EO also directs ARB 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.

3.4.2 Environmental Setting

The proposed project is in the City of Redwood City, which is an urban area within San Mateo County. The project area is mainly commercial and industrial with open-space and recreation to the east. US 101 is a vital link between Silicon Valley to the south and San Francisco to the north. It is identified as a Strategic Interregional Corridor that provides communities access to local and interregional markets, recreational facilities, vital medical and social services and supports emergency response and disaster recovery activities. As such, traffic congestion during peak hours is very common within San Mateo County. Current traffic volumes for the project limits along US 101 is 240,000 AADT (Caltrans 2020).

Plan Bay Area 2040, the regional planning document of the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), guides transportation development in San Mateo County. To inform *Plan Bay Area 2050*, MTC and ABAG collaborated in 2018 on Horizon, a new initiative to explore issues and challenges the region may face by 2050. The Bay Area Air Quality Management District's 2017 clean air plan addresses GHGs in the project region.

3.4.2.1 National GHG Inventory

The U.S. EPA has prepared *the Inventory of the US Greenhouse Gas Emissions and Sinks* every year since the 1990s 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 GHGs in the United States, reporting emissions of CO₂, CH₄, N₂O, HFCs, perfluorocarbons, SF₆, and nitrogen trifluoride. It also accounts for emissions of CO₂ that are removed from the atmosphere by "sinks" such as forests, vegetation, and soils that uptake and store CO₂ (carbon sequestration). In 2018, GHG emissions from the transportation sector accounted for 28 percent of US GHG emissions (U.S. EPA 2020).

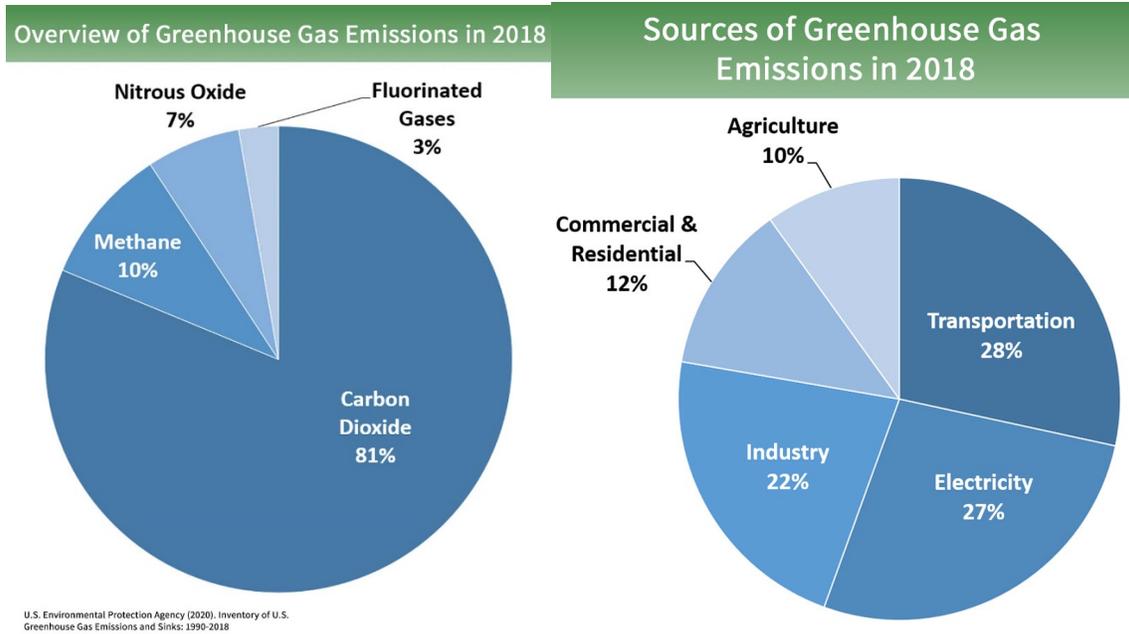


Figure 3.4.2-1: U.S. 2018 Greenhouse Gas Emissions

3.4.2.2 State GHG Inventory

ARB collects GHG emissions data for transportation, electricity, commercial/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 GHG reduction goals. The 2019 edition of the GHG emissions inventory found total California emissions of 424.1 MMTCO₂e for 2017, with the transportation sector responsible for 41 percent of total GHGs. It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (CARB 2019a).

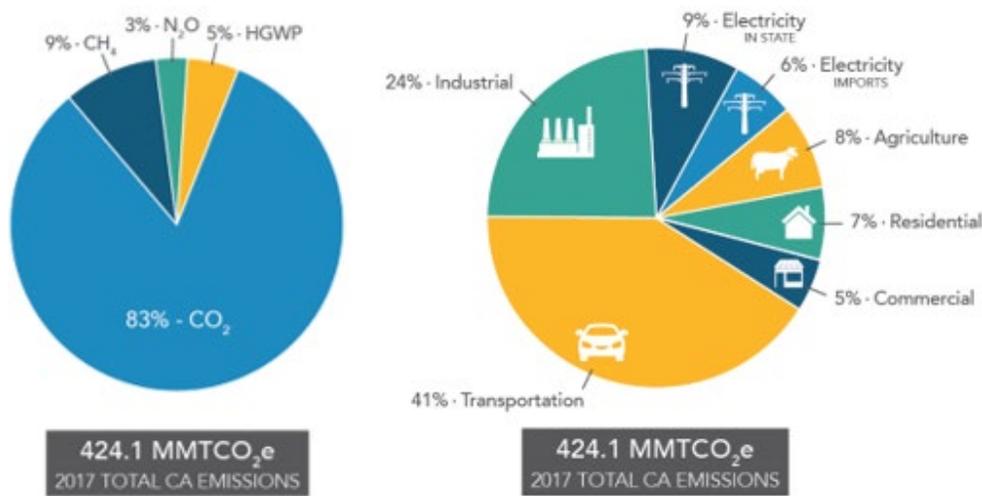


Figure 3.4.2-2: California 2017 Greenhouse Gas Emissions

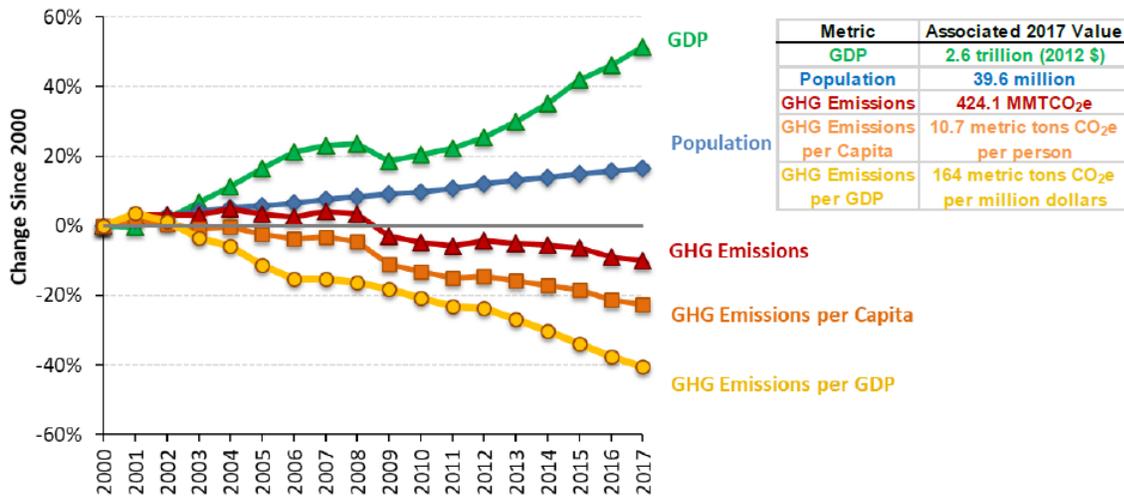


Figure 3.4.2-3. Change in California GDP, Population, and GHG Emissions since 2000 (Source: CARB 2019b)

AB 32 required ARB to develop a scoping plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. ARB 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 EO B-30-15 and SB 32. The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions.

3.4.2.3 Regional Plans

ARB sets regional targets for California’s 18 MPOs to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. MTC is the MPO and regional transportation planning agency for the project region, for which ARB has established GHG reduction targets of 10 percent by 2020 and 19 percent by 2035. However, the proposed project is not included in the RTP/SCS project list.

Plan Bay Area goals align with those of the California Transportation Plan 2040, which include CO₂ emissions reduction to tackle future climate change and fixing an aging transportation system (MTC and ABAG 2017:26).

The Bay Area Air Quality Management District’s 2017 clean air plan, *Spare the Air, Cool the Climate*, defines strategies for climate protection in the Bay Area that support goals laid out in *Plan Bay Area*. Goals include transforming the transportation sector to reduce motor vehicle travel, promote zero-emissions vehicles and renewable fuels, adopt fixed- and flexible-route transit services, and support infrastructure and planning that enable a large share of trips by bicycling, walking, and transit.

San Mateo County adopted an energy efficiency climate action plan (CAP) in 2013 with a GHG reduction target of 17 percent below 2005 emissions levels by 2020. The CAP aligns with GHG-reduction goals and policies of the San Mateo County General Plan that focus on energy efficiency, waste reduction, and efficient land use in the unincorporated county (County of San Mateo 2013:9).

Redwood City's CAP targets reducing municipal sources of GHG and encouraging community measures and strategies that minimize vehicle trips and VMT (Redwood City 2013:15).

The City of San Carlos' CAP combines transportation and land use GHG-reduction measures because they are so highly integrated. Measures include supporting mode shifts to walking and biking, increased bike parking, alternatively fueled vehicles, car sharing, shuttle services, and tree planting. Goals and strategies are intended to be integrated with the City's general plan (City of San Carlos 2009: iii-iv).

3.4.3 Project Analysis

3.4.3.1 Construction Emissions

Caltrans' Guidance for including greenhouse gas (GHG) emission calculations for 2018 State Highway Operations and Protection (SHOPP) was consulted for the purpose of this analysis. A quantitative analysis was made using the FHWA Infrastructure Carbon Estimator (ICE) tool for GHG emissions during the construction of the project and ongoing maintenance.

Alternative 1 is estimated to generate a total of 1,936 MT/construction project of CO₂e. Alternative 2 is estimated to generate 2,068 MT/construction project of CO₂e. While impacts from GHG can be long-term, GHG emissions will only be generated during the construction of the project. Alternative 1 construction is estimated to take 185 working days over approximately 2 years, and Alternative 2 construction is likely to require 235 working days over 2 years.

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 ARB emission reduction regulations. All contracts also include 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, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce GHG emissions. Furthermore, a TMP will minimize construction-related delays and emissions from idling traffic.

3.4.3.2 Operational Emissions

The proposed project would not change GHG emissions following project completion, because it would not change the number of travel lanes or the capacity of US 101. Therefore, it would not affect vehicle miles traveled so as to increase operational GHG emissions.

3.4.3.3 CEQA Conclusion

While the proposed project will result in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. The proposed

project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. With implementation of construction GHG-reduction measures, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

3.4.4 Greenhouse Gas Reduction Strategies

3.4.4.1 Statewide Efforts

Major sectors of the California economy, including transportation, will need to reduce emissions to meet the 2030 and 2050 GHG emissions targets. Former Governor Edmund G. Brown promoted GHG reduction goals that involved (1) reducing today’s petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farms and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, Safeguarding California.

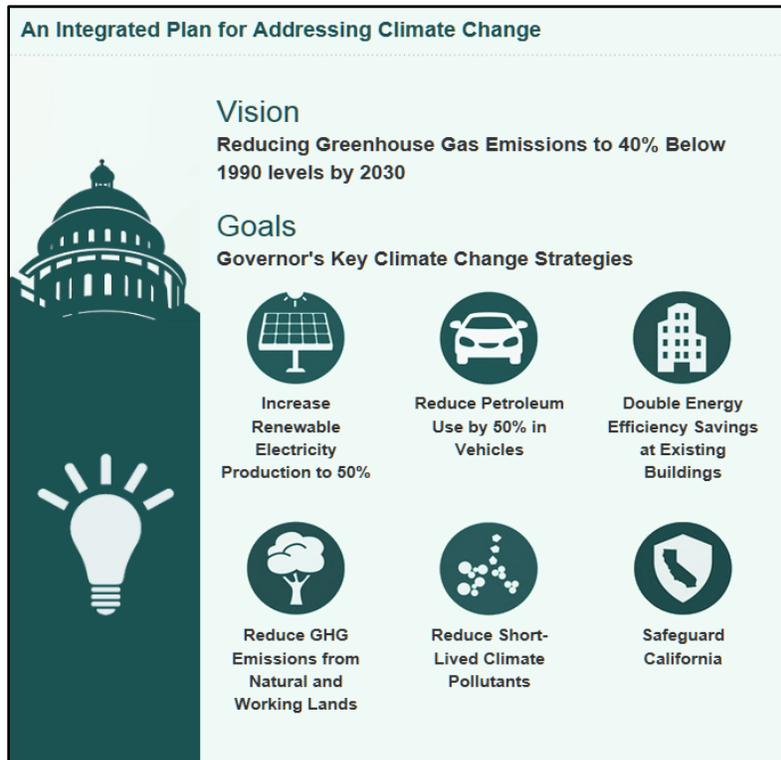


Figure 3.4.4-1: California Climate Strategy

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will

come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled (VMT). A key state goal for reducing GHG 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, SB 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- and below-ground matter.

3.4.4.2 Caltrans Activities

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

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. In 2016, Caltrans completed the California Transportation Plan 2040, which establishes a new model for developing ground transportation systems, consistent with CO2 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 developing a comprehensive assessment of climate-related transportation demand management and new technologies rather than continuing to expand capacity on existing roadways. SB 391 (Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans' Strategic Management Plan

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

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

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and

regional multimodal transportation, housing, and land use planning that furthers the region's RTP/SCS; contribute to the State's GHG reduction targets and advance transportation-related GHG emission reduction project types/strategies; and support other climate adaptation goals (e.g., Safeguarding California).

Caltrans Policy Directives and Other Initiatives

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

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

Project-Level GHG Reduction Strategies

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

1. Caltrans Standard Specifications such as Section 14-9.02, Air Pollution Control, require contractors to comply with all federal, state, and local air pollution control rules, regulations, and ordinances. Requirements such as idling restrictions and keeping engines properly tuned reduce emissions, including GHG emissions.
2. As noted in Section 1.4.1.5, a TMP will be prepared during the design phase of the project to minimize traffic disruptions from project construction. Minimizing traffic delays during construction will help reduce GHG emissions from idling vehicles.
3. Removed vegetation would be replanted with native species, to preserve carbon sequestration by plants, and reduce energy used for irrigation.
4. BIO-6, Replant, Reseed, and Restore Disturbed Areas: Where disturbance includes the removal of trees, native species shall be replanted.

3.4.5 Adaptation

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the State's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Reducing GHG 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. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded 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.

3.4.5.1 Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The U.S. Global Change Research Program (USGCRP) delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. 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).

The U.S. DOT 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 DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions” (U.S. DOT 2011).

FHWA order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

3.4.5.2 State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. California’s Fourth Climate Change Assessment (2018) is the state’s effort to “translate the state of climate science into useful information for action” in a variety of sectors at both statewide and local scales. 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 factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality.² 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.

EO 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.

EO S-13-08 also led to the publication of a series of sea-level rise (SLR) assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR 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.

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California’s infrastructure. At the direction of EO 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.

AB 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 anticipated climate change impacts.

3.4.5.3 Caltrans Adaptation Efforts

Sea Level Rise

The project area in the San Mateo County is within an area that is subject to SLR. The project borders the San Francisco Bay at Cordilleras Creek at Blair Island and Redwood Creek in Redwood City. The potential for SLR impacts at the project site was reviewed based on current guidance in the State of California Sea-Level Rise Guidance (2018 update), prepared by a working group of the California Ocean Protection Council's Science Advisory Team (OPC-SAT 2018). This guidance synthesizes the best available science on SLR projections and rates for California, based on an increased understanding of the interactions of SLR projections and polar ice sheet loss. The guidance applies a probabilistic projection to estimate the range of height of SLR over various timescales that correspond to low to high emission scenarios. Table 3.4.5-1 below shows these scenarios by year, and probability.

The "likely range" for the year 2050 listed in the above table indicates a lower risk of SLR of 0.6 to 1.1 feet. By end of century (2100) the low risk rise ranges from 1.0 to 2.4 feet. Assuming continued high emissions of GHGs, the 2018 State of California Sea-Level Rise Guidance estimates the probability of a 1-foot rise by 2050 at 31 percent, and by 2100 at 96 percent. The same high emissions scenario probability of a 2-foot rise by 2050 is estimated at less than 1 percent and by 2100 at 70 percent.

The vertical elevation of the existing bridge culvert is 8.7 feet. Alternative 1 is proposing an elevation of 8.4 feet for the new culvert and Alternative 2 is proposing an elevation of 8.4 feet for the soffit.

SLR mapping was reviewed, that is consistent with San Mateo County's sea-level rise vulnerability assessment ("Sea Change;" San Mateo County 2017). The following scenarios indicate the vulnerability of the shoreline in the Redwood City area:

- Mean Higher High Water (MHHW) + 12 inches of SLR (Figure 3.4.5-1). This scenario indicates inundation approaching the Caltrans ROW along U.S. 101 in the Redwood City area. With the highway above 8 feet of elevation and the existing bridge culvert at elevations of approximately 8 feet, the inundation may be a low risk to the U.S. 101 facility.
- MHHW + 24 inches of SLR (Figure 3.4.5-2). The inundation areas are similar to the 12 inch increase, but more widespread south of Redwood City.
- MHHW + 52 inches of sea level rise (Figure 3.4.5-3). This is the equivalent of a 100-year storm event/flood with 12 inches of sea-level rise. This type of event would be a relatively high level of sea-level increase and could represent periodic flooded conditions (temporary inundation during heavy storm events). This scenario could affect an extended portion of the freeway within the project limits during these periodic large storm events.

SLR would increase the elevation of the receiving waters at the project location, over time. The above evaluation indicates that during storm events in the future under flood type conditions, increased water elevations could interfere with adequate drainage. The project would replace the existing triple box culvert with a higher capacity triple box culvert (Alternative 1) or a single span bridge (Alternative 2). Therefore, either alternative would allow for a greater amount of drainage to pass beneath U.S. 101 which would help adapt the freeway to future SLR increases. This is considered a beneficial change.

Table 3.4.5-1: Sea Level Rise Scenarios By Year

		Probabilistic Projections (in feet) (based on Kopp et al. 2014)				H++ scenario (Sweet et al. 2017) *Single scenario
		MEDIAN	LIKELY RANGE	1-IN-20 CHANCE	1-IN-200 CHANCE	
		50% probability sea-level rise meets or exceeds...	66% probability sea-level rise is between...	5% probability sea-level rise meets or exceeds...	0.5% probability sea-level rise meets or exceeds...	
				Low Risk Aversion	Medium - High Risk Aversion	Extreme Risk Aversion
High emissions	2030	0.4	0.3 - 0.5	0.6	0.8	1.0
	2040	0.6	0.5 - 0.8	1.0	1.3	1.8
	2050	0.9	0.6 - 1.1	1.4	1.9	2.7
Low emissions	2060	1.0	0.6 - 1.3	1.6	2.4	
High emissions	2060	1.1	0.8 - 1.5	1.8	2.6	3.9
Low emissions	2070	1.1	0.8 - 1.5	1.9	3.1	
High emissions	2070	1.4	1.0 - 1.9	2.4	3.5	5.2
Low emissions	2080	1.3	0.9 - 1.8	2.3	3.9	
High emissions	2080	1.7	1.2 - 2.4	3.0	4.5	6.6
Low emissions	2090	1.4	1.0 - 2.1	2.8	4.7	
High emissions	2090	2.1	1.4 - 2.9	3.6	5.6	8.3
Low emissions	2100	1.6	1.0 - 2.4	3.2	5.7	
High emissions	2100	2.5	1.6 - 3.4	4.4	6.9	10.2
Low emissions	2110*	1.7	1.2 - 2.5	3.4	6.3	
High emissions	2110*	2.6	1.9 - 3.5	4.5	7.3	11.9
Low emissions	2120	1.9	1.2 - 2.8	3.9	7.4	
High emissions	2120	3	2.2 - 4.1	5.2	8.6	14.2
Low emissions	2130	2.1	1.3 - 3.1	4.4	8.5	
High emissions	2130	3.3	2.4 - 4.6	6.0	10.0	16.6
Low emissions	2140	2.2	1.3 - 3.4	4.9	9.7	
High emissions	2140	3.7	2.6 - 5.2	6.8	11.4	19.1
Low emissions	2150	2.4	1.3 - 3.8	5.5	11.0	
High emissions	2150	4.1	2.8 - 5.8	5.7	13.0	21.9



Caltrans
 San Mateo 101 Cordilleras Creek Bridge Replacement Project
 CITY OF SAN CARLOS, SAN MATEO COUNTY, CA

FIGURE 3.4.5-1
 Sea Level Rise (mean higher high water + 12 inches)



Caltrans
 San Mateo 101 Cordilleras Creek Bridge Replacement Project
 CITY OF SAN CARLOS, SAN MATEO COUNTY, CA

FIGURE 3.4.5-2
 Sea Level Rise (mean higher high water + 24 inches)

Floodplains

While U.S. 101 is not within a FEMA Special Flood Hazard Area Zone, the area that surrounds the highway is within Zones AE and Zone X. The 2010 average precipitation is approximately 26.6 inches.

The Caltrans Climate Change Vulnerability Assessment District 4 technical report (Caltrans 2018) estimated changes in 100-year storm precipitation depth, a variable commonly considered in the design of transportation assets such as bridges and culverts. Mapping shows that storm precipitation depth in the project area could increase by up to 4.9 percent by 2025, and by as much as 9.9 percent by 2055 and beyond. As mentioned above, SLR has the potential to increase the frequency of flooding, damage from flooding and the size of the floodplain area of risk. This may cause undesirable hydraulic effects by the year 2100. These effects include backflow into the creek, increased turbulence, and scour.

Wildfire

The project area is not in a moderate or high fire hazard severity zone (Cal Fire 2008). Furthermore, the project area does not contain steep slopes or high vegetation that contribute to fire risk. Caltrans 2018 revised Standard Specification 7-1.02M(2) mandates fire prevention procedures during construction, including a fire prevention plan. Accordingly, the project is not anticipated to exacerbate the risk or impacts of wildfires intensified by climate change.

Chapter 4 Comments and Coordination

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

4.1 Public Participation

Public review and an opportunity to comment on this IS/EA will be completed, and comments will be addressed in a final IS/EA. The purpose of the meeting is to notify community members and stakeholders about the project to increase project awareness, encourage participation, seek feedback, and address concern. It will inform the public about the status of the project and to request public comments regarding the scope of the environmental document.

4.2 Consultation and Coordination with Public Agencies

4.2.1 Federal Agencies

U.S. Army Corps of Engineers

The proposed project will affect waters of the U.S. as defined in Section 404 of the CWA, as described in Section 2.3.2.3. A preliminary jurisdictional wetland delineation will be submitted to the USACE. A permit application will be submitted to the USACE during the detailed design phase.

U.S. Fish and Wildlife Service and National Marine Fisheries Service

A USFWS species list was created for the project and used to identify target species for reconnaissance-level surveys for terrestrial plants and animals. The project will require consultation with USFWS under section 7 of FESA. A biological assessment for the project was submitted to the USFWS, to initiate consultation under Section 7.

A species list was also obtained from NMFS and was used to identify the potential presence of protected fish in the project area. The project will also require consultation with NMFS.

4.2.2 Tribal Entities

The NAHC provided a list of Native American parties and individuals with potential interest in the project and their contact information. On February 19, 2019, letters providing project information and requesting input were sent to each individual and organization on the list.

4.2.3 State Agencies

California Department of Fish and Wildlife

The project has the potential to affect state-listed species. Biological permits are expected to include a 1602 Streambed Alteration Agreement and possibly an Incidental Take Permit from CDFW.

A Section 1600 Lake or Streambed Alteration Agreement with CDFW is necessary when a project would alter the flow, bed, channel, or bank of a stream or lake. A 1600 permit application will be submitted to the CDFW during the project's design phase.

4.2.4 Regional Agencies

San Francisco Bay Regional Water Quality Control Board

Project construction could affect waters of the United States. Pursuant to Section 401 of the CWA, a Notice of Intent will be submitted to the RWQCB. The project would implement any general WDRs issued by the RWQCB.

San Francisco Bay Conservation and Development Commission (BCDC)

The project is within BCDC jurisdiction. Consultation and a permit from BCDC will be required. Caltrans initiated consultation with BCDC on this project in May 2020.

4.3 Circulation, Review, and Comment on the Draft Environmental Document

Public input on the project will be solicited during the review period for this IS/EA, which will last a minimum of 30 days. The public will be notified of the availability of the IS/EA by a number of methods, including postings on the Caltrans websites and a mailed announcement to interested agencies and individuals. During the review period, Caltrans will hold a public meeting to share information about the project and collect comments on the IS/EA from interested parties. The review period and instructions for submitting comments are included on the first page of this document. All formal comments will be addressed and responses published in the Final IS/EA. If the Final IS/EA is approved, an ND and a Finding of No Significant Impact will be signed and included with the Final IS/EA.

Chapter 5 List of Preparers

The preparation of the environmental document and project design involved a joint team of Caltrans personnel and consultants.

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Chapter 7 References

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Appendix A. Title VI Policy Statement

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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."*

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

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page:
<https://dot.ca.gov/programs/business-and-economic-opportunity/title-vi>.

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.

A handwritten signature in blue ink, appearing to read 'Toks Omishakin'.

Toks Omishakin
Director

Appendix B. Avoidance, Minimization, and/or Mitigation

To be sure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated in the proposed Environmental Commitments Record [ECR] that follows) will be implemented. During project design, the following avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR.

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Coastal Zone			
WQ-1. Water Quality/Erosion Control BMPs: Implement temporary erosion control and water quality measures as required by the Construction General Permit.	2.2.2.4	Caltrans	Construction
Visual/Aesthetics			
VIS-1. Median barrier height shall be minimized to preserve Bay views for motorists on the southbound side of the highway.	2.1.8.4	Caltrans	At Completion
VIS-2. Bridge design shall include measures to reduce visual prominence of the City of Redwood City's 24-inch reclaimed waterline.	2.1.8.4	Caltrans	At Completion
VIS-3. Tree and vegetation removal shall be minimized to the extent feasible.	2.1.8.4	Caltrans	Construction
VIS-4. Trees and vegetation outside of clearing and grubbing limits shall be protected from the contractor's operations, equipment, and materials storage.	2.1.8.4	Caltrans	Construction
VIS-5. All disturbed ground surfaces shall be restored and treated with erosion control.	2.1.8.4	Caltrans	After Construction
VIS-6. Replacement planting shall be provided in areas where shrub removal is necessary.	2.1.8.4	Caltrans	After Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Visual/Aesthetics			
VIS-7. During construction operations, unsightly material and equipment in staging areas shall be placed where they are less visible and/or covered where possible.	2.1.8.4	Caltrans	After Construction
VIS-8. Construction activities shall limit all construction lighting to within the area of work and avoid light trespass in residential areas through directional lighting, shielding, and other measures as needed.	2.1.8.4	Caltrans	After Construction
Cultural Resources			
CUL-1. Avoidance of Cultural Resources: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area shall be diverted until a qualified archaeologist can assess the nature and significance of the find.	2.1.9.4	Caltrans	Construction
CUL-2. Avoidance of Human Remains: If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains. The Caltrans Branch Chief of Archaeology shall be notified, and then the County Coroner contacted. If the remains are thought by the County Coroner to be Native American, the County Coroner will notify the NAHC, who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact the Branch Chief of Cultural Resources, Archaeology, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.	2.1.9.4	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Water Quality and Stormwater Runoff			
<p>WQ-1. Water Quality/Erosion Control BMPs: Implement temporary erosion control and water quality measures as required by the Construction General Permit.</p> <p>To prevent or reduce impacts, temporary construction site BMPs will be implemented for sediment control and material management. In addition, requirements under the SWPPP would require the construction contractor to implement BMPs for water quality.</p>	2.2.2.4	Caltrans	Construction
<p>NOI-1. Public Notices: Require public outreach to inform residents, business and others with upcoming major activities and time frame.</p>	2.2.6.4	Caltrans	At least two weeks in advance of major construction activities.
<p>NOI-2. Noise Scheduling Measure: When possible, schedule major activities separately with others to reduce significant vibration impacts.</p>	2.2.6.4	Caltrans	Before major construction activities
<p>NOI-3. CIDH Piles to Reduce Vibration: Caltrans has made the decision to use CIDH piles instead of concrete pile driving to reduce vibration. They will drill pile hole to a depth prescribed by the engineer and then drive the concrete pile to the full depth.</p>	2.2.6.4	Caltrans	Construction
Natural Communities			
<p>BIO-1. Environmentally Sensitive Area Fencing: ESAs will be clearly delineated using temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and fully maintained at all times.</p>	2.3.1.3	Caltrans	Before construction
<p>BIO-2. Construction Site BMPs: The following site restrictions shall be implemented to avoid or minimize impacts on special-status species and their habitats.</p>	2.3.1.3	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Natural Communities			
BIO-3. Avoidance and Minimization Measure for Plants: As described in Section 2.3.3.4 in more detail, a qualified biologist shall conduct appropriately timed surveys for the listed plant species during these species' blooming periods before construction activities.	2.3.1.3	Caltrans	Before Construction
BIO-3. Minimizing Tree Removal: The Caltrans design team has worked to design the project to minimize tree removal to the maximum extent practicable, and no removal of trees is anticipated.	2.3.1.3	Caltrans	Construction
BIO-4. Vegetation Removal: Vegetation removal will be limited to the designated work areas needed for access and workspace. Where possible, vegetation will be trimmed instead of removed. Removal in temporary work areas will be cut above soil level to promote re-vegetative growth of established plants following construction to the maximum extent feasible. Vegetation will be mowed to a height greater than 4 inches.	2.3.1.3	Caltrans	Construction
BIO-5. Fish Passage: Design of the proposed replacement structures will incorporate hydraulic modeling to ensure structures provide adequate fish passage. A natural channel bottom design has also been incorporated into the design for alternative 1. Lighting will be installed to prevent inadequate illumination conditions within structures from deterring use by fish.	2.3.1.3	Caltrans	Construction
Wetlands and Other Waters of the United States			
BIO-1. Environmentally Sensitive Area Fencing: As described in Section 2.3.1, ESAs will be clearly delineated using high-visibility fencing or similar materials.	2.3.1.3	Caltrans	Before Construction
WQ-1. Water Quality/Erosion Control BMPs: As described in Section 2.2.2, <i>Water Quality and Storm-Runoff</i> , WQ-1 would be incorporated to avoid substantial water quality impacts. The Construction General Permit will require the Contractor to submit a SWPPP. The SWPPP must also comply with the goals and restrictions identified in the RWQCB's Basin Plan. Any additional measures included in the Water Quality Certification will be implemented.	2.2.2.4	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Wetlands and Other Waters of the United States			
<p>WET-1. Compensatory Mitigation Measure for Wetlands Compensatory Mitigation Measure for Wetlands. Under federal and state guidance and rules, adverse, unavoidable impacts to wetlands and other aquatic resources require compensatory mitigation to offset the loss of the functions and values of the feature. Wetland impacts will be mitigated at a minimum 1:1 ratio. A 1:1 ratio is standard for impacts to wetlands and other aquatic resources based on a project's risk of failure to compensate for impacts to wetlands (mitigation project), and the temporal loss, or reduction of functions, during the time it takes a mitigation project to achieve the targeted level of performance for all of its functions.</p>	2.3.2.4	Caltrans	After Construction
Plant Species			
<p>BIO-2. Avoidance and Minimization Measure for Plants: Before the commencement of construction activities, a qualified biologist shall conduct appropriately timed surveys for the listed plant species during these species' blooming periods.</p> <p>If a special-status plant species is discovered at any point, the biologist will work with the Resident Engineer to determine if it can be protected in-place, re-located within the BSA, or salvaged to be re-planted at the end of project construction. If the special-status plant species is federally or state listed, the appropriate natural resource agencies will be contacted immediately, and consultation will be initiated as necessary.</p>	2.3.3.4	Caltrans	Construction
<p>BIO-3. Minimizing Tree Removal: The Caltrans design team has worked to design the project to minimize tree removal to the maximum extent practicable, and no removal of trees is anticipated.</p>	2.3.3.4	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Plant Species			
BIO-4. <i>Vegetation Removal:</i> Vegetation removal will be limited to the designated work areas needed for access and workspace. Where possible, vegetation will be trimmed instead of removed. Removal in temporary work areas will be cut above soil level to promote re-vegetative growth of established plants following construction to the maximum extent feasible. Vegetation will be mowed to a height greater than 4 inches.	2.3.3.4	Caltrans	Construction
BIO-6. <i>Replant, Reseed, and Restore Disturbed Areas:</i> Caltrans will restore temporarily disturbed areas to the preconstruction or improved contours and functions to the maximum extent practicable.	2.3.3.4	Caltrans	After Construction
Animal Species			
BIO-7. <i>Construction Site BMPs:</i> BMPs will be implemented to avoid or minimize impacts on special-status species and their habitats.	2.3.4.4	Caltrans	Construction
BIO-8. <i>Entrapment Avoidance:</i> To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. All replacement pipes, hoses, culverts, or similar structures less than 12 inches in diameter will be closed, capped, or covered upon entry to the project site. All similar structures greater than 12 inches must be inspected before they are subsequently moved, capped and/or buried.	2.3.4.4	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Animal Species			
BIO-9. Biological Monitor and Protocol for Observation: The names and qualifications of proposed biological monitor(s) will be submitted to USFWS and CDFW for approval prior to the start of construction. The agency-approved biological monitor(s), in coordination with the Resident Engineer, will have the authority to stop work that may result in the unauthorized take of special-status species. Work will resume after observed listed individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is relocated by the biologist to a release site using Agency-approved handling techniques.	2.3.4.4	Caltrans	Construction
BIO-10. Preconstruction/Daily Surveys: Preconstruction surveys for special-status wildlife species listed in this NES, will be conducted by the agency-approved biological monitor no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities.	2.3.4.4	Caltrans	Preconstruction
BIO-11. Migratory Bird Treaty Act: To protect migratory birds and their nests, all initial major vegetation clearing, but not grubbing, will be conducted between October 1 and January 31, outside the typical bird nesting season, when possible. A qualified biologist with appropriate construction and species experience will conduct nest and bird surveys and other wildlife surveys before and during tree cutting activities.	2.3.4.4	Caltrans	Preconstruction
Threatened and Endangered			
BIO-1. Environmentally Sensitive Area Fencing: ESAs will be clearly delineated using high-visibility fencing or suitable material. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and fully maintained at all times.	2.3.5.4	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Threatened and Endangered			
BIO-7. Construction Site BMPs: The following site restrictions will be implemented to avoid or minimize impacts on special-status species and their habitats (described in Section 2.3.4.4).	2.3.5.4	Caltrans	Construction
BIO-8. Biological Monitor and Protocol for Observation: The names and qualifications of proposed biological monitor(s) will be submitted to the USFWS and CDFW for approval prior to the start of construction. The agency-approved biological monitor(s), in coordination with the resident engineer, will have the authority to stop work that may result in the unauthorized take of special-status species. Work will resume after observed listed individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is relocated by the biologist to a release site using Agency-approved handling techniques.	2.3.5.4	Caltrans	Preconstruction
BIO-10. Preconstruction/Daily Surveys: Preconstruction surveys for special-status wildlife species listed in this NES, will be conducted by the agency-approved biological monitor no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities.	2.3.5.4	Caltrans	Preconstruction
BIO-12. Dry Season Work Window: Construction actions will be scheduled to minimize impacts to the CCC DPS Steelhead and their habitat. To reduce impacts to special-status species and habitat, construction activities within potential steelhead habitat will be conducted during the dry season, between June 15 and October 15.	2.3.5.4	Caltrans	Construction

Table B-1: Environmental Commitments

Minimization and/or Mitigation Measure	IS/EA Section Reference	Responsible Party	Timing
Threatened and Endangered			
BIO-13. Worker Environmental Awareness Training: Construction personnel shall attend a mandatory environmental education program delivered by the agency-approved biological monitor or Caltrans biologist prior to taking part in site construction, including vegetation clearing. The program will focus on the conservation measures that are relevant to an employee's personal responsibility and will include an explanation on how to avoid take of CCC steelhead, Ridgway's rail, salt marsh harvest mouse, and western snowy plover.	2.3.5.4	Caltrans	Preconstruction
BIO-14. Proper Use of Erosion Control Devices: To avoid entanglement or injury of wildlife, including the salt marsh harvest mouse, erosion control materials that use plastic or synthetic monofilament netting will not be used.	2.3.5.4	Caltrans	Construction
BIO-15. Light Restrictions. Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas. Lighting per portable tower light will not exceed 2,000 lumens.	2.3.5.4	Caltrans	Construction
BIO-16. Handling of Listed Species. If a listed species is discovered, the Resident Engineer and agency-approved biological monitor will be immediately informed.	2.3.5.4	Caltrans	Construction
Invasive Species			
BIO-17. Invasive Species Management: In compliance with the Executive Order 13112 on invasive species and guidance from FHWA, landscaping and erosion control measures included in the project would not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.	2.3.6.4	Caltrans	Construction

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Appendix C. Species List



United States Department of the Interior



FISH AND WILDLIFE SERVICE
San Francisco Bay-Delta Fish And Wildlife
650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
Phone: (916) 930-5603 Fax: (916) 930-5654
[http://kira_squires@fws.gov](mailto:kira_squires@fws.gov)

In Reply Refer To:

May 08, 2020

Consultation Code: 08FBDT00-2020-SLI-0170

Event Code: 08FBDT00-2020-E-00388

Project Name: 2J730 Caltrans - Cordilleras Creek Bridge Replacement

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

San Francisco Bay-Delta Fish And Wildlife

650 Capitol Mall

Suite 8-300

Sacramento, CA 95814

(916) 930-5603

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Sacramento Fish And Wildlife Office

Federal Building

2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

(916) 414-6600

Project Summary

Consultation Code: 08FBDT00-2020-SLI-0170

Event Code: 08FBDT00-2020-E-00388

Project Name: 2J730 Caltrans - Cordilleras Creek Bridge Replacement

Project Type: TRANSPORTATION

Project Description: This project is located at the Cordilleras Creek Bridge (BR# 35-0019) on US Route 101 in San Mateo County in the city of Redwood City at PM 7.13. The project proposes to replace the existing box culvert with a new structure. The existing bridge is a 180-ft long, 3-cell Reinforced Concrete (RC) box culvert with stepped wing walls and stepped guide walls at the ends of the pier walls. The original structure was built in 1930 as a 100-ft long, 3-cell RC box culvert. The structure was widened 55-ft on the downstream (east) side in 1958 and again in 1971 by an additional 25-ft on the same downstream (east) side to the current width of 180-ft. There are two alternatives being considered for the improvement of the bridge.

Alternative 1:

Alternative 1 proposes to replace the existing triple box culvert with three new precast, Reinforced Concrete (RC) box culverts. This alternative proposes to replace the existing drainage system, construct a new box culvert wing wall Type-B on the east side of the freeway and a new box culvert wing wall Type-A on the westside of the freeway, temporarily realign Cordilleras Creek, and line Cordilleras Creek west of the highway with vegetated rock stabilized embankment.

Alternative 2:

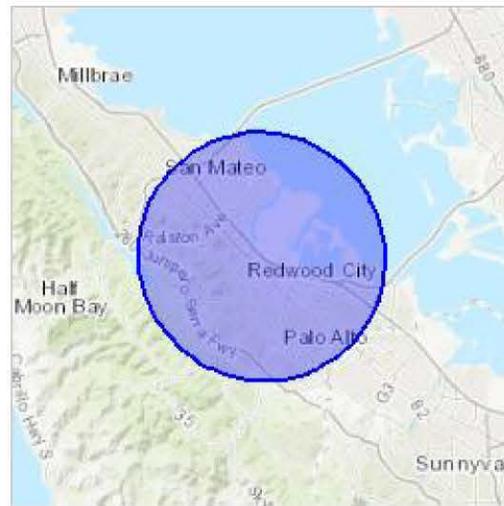
Alternative 2 proposes to replace the existing triple box culvert with a new single-span precast, prestressed bridge. This alternative proposes to replace 30ft of the approach slabs on each side of the structure, replace the existing drainage system, construct new retaining walls on the west side of the freeway, realign Cordilleras Creek, and line Cordilleras Creek with

vegetated rock stabilized embankment.

Construction is to occur over three seasons and take place from June 15 through October 15, and work is scheduled to begin in 2023.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/37.49984817152605N122.24061415599479W>



Counties: San Mateo, CA

Endangered Species Act Species

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

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

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

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

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

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse <i>Reithrodontomys raviventris</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Western Snowy Plover <i>Charadrius nivosus nivosus</i> Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is proposed critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

Reptiles

NAME	STATUS
Alameda Whipsnake (=striped Racer) <i>Masticophis lateralis euryxanthus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5524	Threatened
San Francisco Garter Snake <i>Thamnophis sirtalis tetrataenia</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander <i>Ambystoma californiense</i> Population: U.S.A. (Central CA DPS) There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2076	Threatened

Fishes

NAME	STATUS
Delta Smelt <i>Hypomesus transpacificus</i> There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Bay Checkerspot Butterfly <i>Euphydryas editha bayensis</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2320	Threatened
Mission Blue Butterfly <i>Icaricia icarioides missionensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6928	Endangered
Myrtle's Silverspot Butterfly <i>Speyeria zerene myrtleae</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6929	Endangered
San Bruno Elfin Butterfly <i>Callophrys mossii bayensis</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i> 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
Fountain Thistle <i>Cirsium fontinale</i> var. <i>fontinale</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7939	Endangered

Critical habitats

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



United States Department of the Interior



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

In Reply Refer To:

May 08, 2020

Consultation Code: 08ESMF00-2020-SLI-1856

Event Code: 08ESMF00-2020-E-05737

Project Name: 2J730 Caltrans - Cordilleras Creek Bridge Replacement

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

San Francisco Bay-Delta Fish And Wildlife

650 Capitol Mall
Suite 8-300
Sacramento, CA 95814
(916) 930-5603

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Species List

Tables C-1 and C-2 describe the potential for plant and animal species to occur in the BSA. The majority of the species addressed in Tables C-1 and C-2 are not expected to occur within the BSA, either because of a lack of suitable habitat, local range/elevation restrictions, regional extirpations, or lack of connectivity between areas of suitable or occupied habitat. Only those species having some potential to occur within the BSA are addressed further in Section 2.3, Biological Environment.

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Alkali milk-vetch (<i>Astragalus tener</i> var. <i>tener</i>)	- / - / 1B.2	Occupies alkali playa, valley and foothill grassland, vernal pools. Prefers low ground, alkali flats, and flooded lands.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Anderson's manzanita (<i>Arctostaphylos andersonii</i>)	- / - / 1B.2	Broadleaved upland forest Chaparral North coast coniferous forest. Open sites, redwood forest.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Arcuate bush-mallow (<i>Malacothamnus arcuatus</i>)	- / - / 1B.2	Occurs on gravelly alluvium in chaparral, and cismontane woodland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Ben Lomond buckwheat (<i>Eriogonum nudum</i> var. <i>decurrens</i>)	- / - / 1B.1	Chaparral, Cismontane woodland, Lower montane coniferous forest.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Bent-flowered fiddleneck (<i>Amsinckia lunaris</i>)	- / - / 1B.2	Occupies cismontane woodland, valley and foothill grassland, coastal bluff scrub.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Big-scale balsamroot (<i>Balsamorhiza macrolepis</i>)	- / - / 1B.2	Chaparral Cismontane woodland Ultramafic Valley & foothill grassland. Sometimes on serpentine.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
California seablite (<i>Suaeda californica</i>)	FE / - / 1B.1	Margins of coastal salt marshes and swamps.	Present	No potential to occur. Suitable habitat exists within the BSA, but no recorded occurrences exists within 5 miles and species is believed to be extirpated from San Francisco Bay.	No effect
Caper-fruited tropicocarpum (<i>Tropidocarpum capparideum</i>)	- / - / 1B.1	Occupies valley and foothill grassland (alkaline clay).	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Chaparral ragwort (<i>Senecio aphanactis</i>)	- / - / 2B.2	Chaparral, Cismontane woodland, Coastal scrub	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Choris' popcornflower (<i>Plagiobothrys chorisianus var. chorisianus</i>)	- / - / 1B.2	Occupies mesic areas in chaparral, coastal prairie, and coastal scrub.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Coast lily (<i>Lilium maritimum</i>)	- / - / 1B.1	Closed-cone coniferous forest, coastal prairie, coastal scrub, broadleafed upland forest, north coast coniferous forest, marshes and swamps. Historically in sandy soil, often on raised hummocks or bogs; today mostly in roadside ditches.	Present	No potential to occur. Suitable habitat exists within the BSA, but no recorded occurrences exists within 5 miles and species is believed extirpated south of San Francisco.	-
Coastal marsh milk-vetch (<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>)	- / - / 1B.2	Coastal dunes Coastal scrub Marsh & swamp Wetland. Mesic sites in dunes or along streams or coastal salt marshes.	Present	No potential to occur. Suitable habitat exists within the BSA, but no recorded occurrences exists within 5 miles and location is outside of known range.	-
Congdon's tarplant (<i>Centromadia parryi</i> ssp. <i>congdonii</i>)	- / - / 1B.1	Valley and foothill grassland (alkaline)	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	FE / - / 1B.1	Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland. Vernal pools, swales, low depressions, in open grassy areas.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect
Crystal Springs fountain thistle (<i>Cirsium fontinale</i> var. <i>fontinale</i>)	FE / SE / 1B.1	Occurs in serpentinite seeps in chaparral (openings), cismontane woodland, meadows, and valley/foothill grassland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Crystal Springs lessingia (<i>Lessingia arachnoidea</i>)	- / - / 1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland. Grassy slopes on serpentine; sometimes on roadsides.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Davidson's bush-mallow (<i>Malacothamnus davidsonii</i>)	- / - / 1B.2	Occurs on sandy washes in chaparral, cismontane woodland, coastal scrub, and riparian woodland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Diablo helianthella (<i>Helianthella castanea</i>)	- / - / 1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Dudley's lousewort (<i>Pedicularis dudleyi</i>)	- / SR / 1B.2	Chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland. Deep shady woods of older coast redwood forests; also in maritime chaparral.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Fragrant fritillary (<i>Fritillaria liliacea</i>)	- / - / 1B.2	Occurs in cismontane woodland, coastal prairie, coastal scrub, and valley/foothill grassland. Often on serpentine. Various soils reported, though usually on clay in grassland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Franciscan onion (<i>Allium peninsulare</i> var. <i>franciscanum</i>)	- / - / 1B.2	Occurs on cismontane woodland, valley and foothill grassland. Prefers clay soils and dry hillsides. Weak affinity to serpentine and sometimes on volcanics.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Hairless popcornflower (<i>Plagiobothrys glaber</i>)	- / - / 1A	Meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. 5	Present	No potential to occur. Suitable habitat exists within the BSA, but no recorded occurrences exists within 5 miles and species is believed extirpated in California.	-
Hillsborough chocolate lily (<i>Fritillaria biflora</i> var. <i>ineziana</i>)	- / - / 1B.1	Cismontane woodland Ultramafic Valley & foothill grassland. Probably only on serpentine; most recent site is in serpentine grassland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Hoover's button-celery (<i>Eryngium aristulatum</i> var. <i>hooveri</i>)	- / - / 1B.1	Vernal pool Wetland. Alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. 1-50 m.	Present	Low potential to occur. Suitable habitat exists within the BSA, but no recorded occurrences exists within 5 miles.	-
Jepson's coyote thistle (<i>Eryngium jepsonii</i>)	- / - / 1B.2	Occupies clay soils in valley/foothill grassland and vernal pools.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Kings Mountain manzanita (<i>Arctostaphylos regismontana</i>)	- / - / 1B.2	Occupies granitic or sandstone outcrops in broadleaved upland forest, chaparral, and North Coast coniferous forest.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Legenere (<i>Legenere limosa</i>)	- / - / 1B.1	In beds of vernal pools.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Loma Prieta hoita (<i>Hoita strobilina</i>)	- / - / 1B.1	Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Long-styled sand-spurrey (<i>Spergularia macrotheca</i> var. <i>longistyla</i>)	- / - / 1B.2	Marshes and swamps, meadows and seeps. Alkaline.	Present	Low potential to occur. Suitable habitat exists within the BSA, but no recorded occurrences exists within 5 miles.	-
Lost thistle (<i>Cirsium praeteriens</i>)	- / - / 1A	Habitat unknown, known only from two collections from Palo Alto (last in 1901). Perhaps represents a casual introduction from the Old World.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Marin western flax (<i>Hesperolinon congestum</i>)	FT / ST / 1B.1	Occupies serpentinite in chaparral and valley/foothill grassland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect
Minute pocket moss (<i>Fissidens pauperculus</i>)	- / - / 1B.2	North coast coniferous forest Redwood. Moss growing on damp soil along the coast. In dry streambeds and on stream banks.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Montara manzanita (<i>Arctostaphylos montaraensis</i>)	- / - / 1B.2	Chaparral (maritime), Coastal scrub	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Most beautiful jewelflower (<i>Streptanthus albidus</i> ssp. <i>peramoenus</i>)	- / - / 1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Serpentine outcrops, on ridges and slopes.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Oregon polemonium (<i>Polemonium carneum</i>)	- / - / 2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Patterson's navarretia (<i>Navarretia paradoxiclora</i>)	- / - / 1B.3	Serpentinite, openings, vernal mesic, often drainages. Meadows and seeps.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Pincushion navarretia (<i>Navarretia myersii</i> ssp. <i>myersii</i>)	- / - / 1B.1	Vernal pools, often acidic.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Point Reyes bird's-beak (<i>Chloropyron maritimum</i> ssp. <i>palustre</i>)	- / - / 1B.2	Marsh and swamp Salt marsh Wetland. Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc.	Present	Low potential to occur. 2 occurrences exist, however they are 100+ years old and listed as likely extirpated.	-
Round-headed Chinese- houses (<i>Collinsia</i> <i>corymbosa</i>)	- / - / 1B.2	Occurs in coastal dunes.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Saline clover (<i>Trifolium</i> <i>hydrophilum</i>)	- / - / 1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Wetlands. Mesic, alkaline sites.	Present	Low potential to occur. One occurrence within 5 miles, but record is 100+ years old.	-
San Francisco Bay spineflower (<i>Chorizanthe</i> <i>cuspidata</i> var. <i>cuspidata</i>)	- / - / 1B.2	Occurs in coastal bluff scrub, coastal dunes, coastal prairie, and coastal scrub.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
San Francisco campion (<i>Silene verecunda</i> ssp. <i>verecunda</i>)	- / - / 1B.2	Occurs in coastal bluff scrub, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

BSA = Biological Study Area

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
San Francisco collinsia (<i>Collinsia multicolor</i>)	- / - / 1B.2	Occurs on decomposed shale (mudstone) mixed with humus; sometimes on serpentine in closed-cone coniferous forest and coastal scrub.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
San Francisco owl's-clover (<i>Triphysaria floribunda</i>)	- / - / 1B.2	Occurs in coastal prairie, coastal scrub, valley and foothill grassland	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
San Joaquin spearscale (<i>Extriplex joaquinana</i>)	- / - / 1B.2	Alkali playa Chenopod scrub Meadow & seep Valley & foothill grassland. In seasonal alkali wetlands or alkali sink scrub with <i>Distichlis spicata</i> , <i>Frankenia</i> , etc.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
San Mateo thorn-mint (<i>Acanthomintha duttonii</i>)	FE / SE / 1B.1	Occupies uncommon serpentinite vertisol clays in chaparral and valley/foothill grassland. Strict endemic to serpentine. Found in relatively open areas.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect
San Mateo woolly sunflower (<i>Eriophyllum latilobum</i>)	FE / SE / 1B.1	Occurs in cismontane woodland, found on and off serpentine.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect
Santa Cruz tarplant (<i>Holocarpha macradenia</i>)	FT / SE / 1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Light, sandy soil or sandy clay; often with nonnatives.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect
Scouler's catchfly (<i>Silene scouleri</i> ssp. <i>scouleri</i>)	- / - / 2B.2	Occurs in coastal bluff scrub, coastal prairie, valley and foothill grassland	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presence	Potential to Occur	Effect Determination
Short-leaved evax (<i>Hesperevax sparsiflora</i> <i>var. brevifolia</i>)	- / - / 1B.2	Occurs in coastal bluff scrub (sandy), Coastal dunes, Coastal prairie	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Slender-leaved pondweed (<i>Stuckenia filiformis</i> <i>ssp.</i> <i>alpina</i>)	- / - / 2B.2	Occurs in marshes and swamps (assorted shallow freshwater)	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Two-fork clover (<i>Trifolium</i> <i>amoenum</i>)	FE / - / 1B.1	Occurs in coastal bluff scrub, Valley and foothill grassland (sometimes serpentinite)	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect
Western leatherwood (<i>Dirca occidentalis</i>)	- / - / 1B.2	Occurs in mesic areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland. On brushy slopes and mesic sites. Mostly in mixed evergreen and foothill woodland communities.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
White-flowered rein orchid (<i>Piperia candida</i>)	- / - / 1B.2	North Coast coniferous forest, lower montane coniferous forest, broadleaved upland forest. Sometimes on serpentine. Forest duff, mossy banks, rock outcrops, and muskeg.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
White-rayed Pentachaeta (<i>Pentachaeta bellidiflora</i>)	FE / SE / 1B.1	Valley and foothill grassland, cismontane woodland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No effect

Table C-1: Potential for Special Status Plants to Occur in the BSA

Common Name (Scientific Name)	Federal / State/ Rare Plant Rank	Habitat Description	Habitat Presenc e	Potential to Occur	Effect Determination
Woodland woollythreads (<i>Monolopia gracilens</i>)	- / - / 1B.2	Occupies chaparral (maritime), cismontane woodland, north coast coniferous forest, and valley /foothill grassland. Prefers grassy sites, in openings with sandy to rocky soils. Often seen on serpentine after burns, but may have only weak affinity to serpentine	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

Notes:

^a Scientific nomenclature based on the California Natural Diversity Data Base (CNDDDB; CDFW 2018); common names from CNDDDB and other sources.

^b Acronym definitions are as follows:

BSA Biological Study Area

United States Fish and Wildlife Service Designations:

FE Endangered: any species in danger of extinction throughout all or a significant portion of its range.

FT Threatened: any species likely to become endangered within the foreseeable future.

California Department of Fish and Wildlife Designations:

SE Endangered: any species in danger of extinction throughout all or a significant portion of its range.

ST Threatened: any species likely to become endangered within the foreseeable future.

California Native Plant Society (CNPS) Rankings:

1A Plant presumed extinct in California

1B Plants rare, threatened or endangered in California and elsewhere.

CNPS threat categories:

.1 Seriously endangered in California.

.2 Moderately threatened in California.

^c Blooming period and habitat information from CNPS (2018).

Sources:

CDFW 2018. *California Natural Diversity Database (CNDDDB) Rarefind 5*: Habitat Conservation Division. Sacramento, California.

<https://www.wildlife.ca.gov/Data/CNDDDB/Maps-and-Data>

CNPS 2018. *The California Native Plant Society's Inventory of Rare and Endangered Plants of California* (Online edition, version 7.7).

<http://www.rareplants.cnps.org>

USFWS 2018. *The Information, Planning, and Consultation System (IPAC System)*. <https://ecos.fws.gov/ipac/>

Table C-2: Potential for Special Status Wildlife to Occur Within the BSA

Common Name (<i>Scientific name</i>)	Federal Status	Habitat	Habitat Presence	Potential to Occur	Effect Determination
Birds					
California clapper rail (<i>Rallus longirostris obsoletus</i>)	Endangered	Nests and forages in tidal marshes, and will occur in upland transitional habitats during high tides or flooding events when marshes are inundated.	Present	Low potential to occur. Suitable foraging habitat exists within the BSA, but birds are unlikely to use the area due to high levels of disturbance and the wide availability of habitat nearby.	Not likely to adversely affect
California least tern (<i>Sterna antillarum browni</i>)	Endangered	Nests in old growth forests and forages in coastal waters.	Present	Low potential to occur. Suitable foraging habitat exists within the BSA, but there is a lack of recent records supporting presence.	No effect
Marbled Murrelet (<i>Brachyramphus marmoratus</i>)	Threatened	Marine subtidal and pelagic habits from Oregon to Point Sal, Santa Barbara. Uses stands of mature Douglas fir and redwoods up to 40 miles inland for nesting.	Absent	No: The footprint does not contain suitable habitat.	No effect
Western Snowy Plover (<i>Charadrius nivosus nivosus</i>)	Threatened	Found on sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Present	Low potential to occur. Suitable foraging habitat exists within the BSA, but birds are unlikely to use the area due to high levels of disturbance and the wide availability of habitat nearby.	Not likely to adversely affect
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Threatened	Nesting habitat is cottonwood/willow riparian forest. Occurs only along the upper Sacramento Valley portion of the Sacramento River, the Feather River in Sutter Co., the south fork of the Kern River in Kern Co., and along the Santa Ana, Amargos, and lower Colorado Rivers.	Absent	No: The footprint does not contain suitable habitat.	No effect

Table C-2: Potential for Special Status Wildlife to Occur Within the BSA

Common Name (<i>Scientific name</i>)	Federal Status	Habitat	Habitat Presence	Potential to Occur	Effect Determination
Mammals					
Salt Marsh Harvest Mouse (<i>Reithrodontomys raviventris</i>)	Endangered	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Salicornia is the primary habitat. Does not burrow, but builds loosely organized nests. Requires higher areas for flood escape.	Present	Low potential to occur. Suitable habitat exists within the BSA, but mice are unlikely to use the area due to high levels of disturbance and the wide availability of habitat nearby.	Not likely to adversely affect
Amphibians					
California Red-legged Frog (<i>Rana draytonii</i>)	Threatened	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Absent	No: The footprint does not contain suitable habitat.	No effect
California Tiger Salamander (<i>Ambystoma californiense</i>)	Threatened	Cismontane woodland, meadow and seep, riparian woodland, valley and foothill grassland, vernal pool, wetland. Needs underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Absent	No: The footprint does not contain suitable habitat.	No effect
Fish					
CCC DPS Steelhead (<i>Oncorhynchus mykiss</i>)	Threatened	The Central California Coast DPS extends from the Russian River to Soquel Creek, and includes Cordilleras Creek.	Present	High potential to occur: The species is known to occur in nearby tributaries and historical records support use of Cordilleras Creek.	Likely to adversely affect

Table C-2: Potential for Special Status Wildlife to Occur Within the BSA

Common Name (<i>Scientific name</i>)	Federal Status	Habitat	Habitat Presence	Potential to Occur	Effect Determination
Fish					
Delta Smelt (<i>Hypomesus transpacificus</i>)	Candidate	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Absent	No: The Action will not occur in suitable aquatic habitat.	No effect
Tidewater Goby (<i>Eucyclogobius newberryi</i>)	Endangered	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River, Humboldt County. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Absent	No: The Action will not occur in suitable aquatic habitat.	No effect
Reptiles					
Alameda Whipsnake	Threatened	Typically found in chaparral - northern coastal sage scrub and coastal sage. Rock outcrops, rock crevices and mammal burrows are important features	Absent	No: The footprint does not contain suitable habitat.	No effect
East Pacific Green Sea Turtle (<i>Chelonia mydas</i>)	Threatened	Marine species that needs adequate supply of seagrasses and algae. The species primarily uses three types of habitat: beaches for nesting open ocean convergence zones, and coastal areas for "benthic" feeding.	Absent	No: The Action will not occur in marine habitat.	No effect
San Francisco Gartersnake (<i>Thamnophis sirtalis tetrataenia</i>)	Endangered	Freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	Absent	No: The footprint does not contain suitable habitat.	No effect

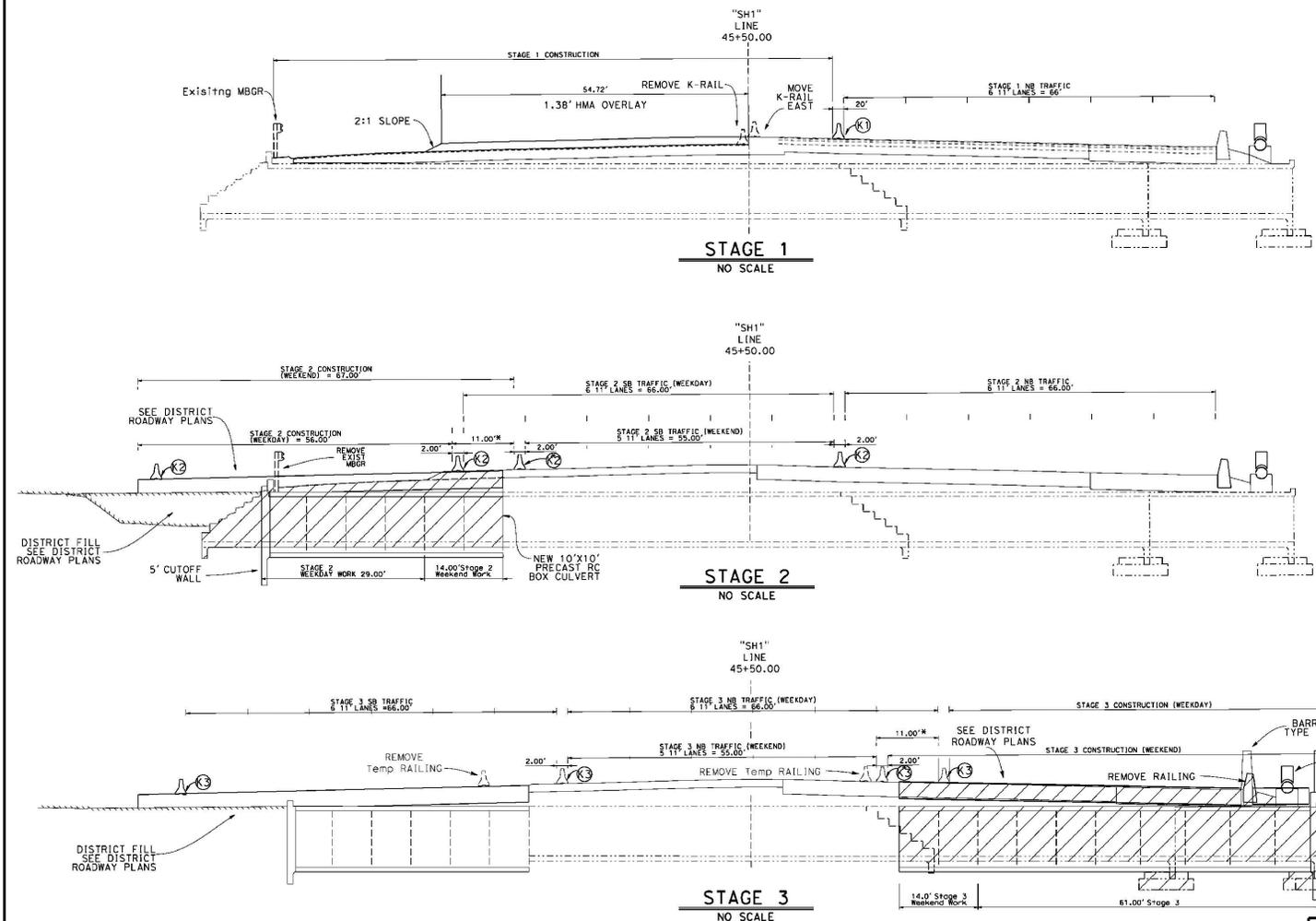
Table C-2: Potential for Special Status Wildlife to Occur Within the BSA

Common Name (<i>Scientific name</i>)	Federal Status	Habitat	Habitat Presence	Potential to Occur	Effect Determination
Crustaceans					
Vernal Pool Tadpole Shrimp (<i>Lepidurus packardii</i>)	Endangered	Vernal pools and swales in valley grassland in the Central Valley from Shasta County to Merced County. It also known to occur in the San Francisco bay area at the Don Edwards San Francisco Bay National Wildlife Refuge.	Absent	No: The footprint does not contain suitable habitat.	No effect
Insects					
Bay Checkerspot Butterfly (<i>Euphydryas editha bayensis</i>)	Threatened	Coastal dunes, and valley and foothill grassland. Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. <i>Plantago erecta</i> is the primary host plant, and <i>Orthocarpus densiflorus</i> and <i>O. purpurscens</i> are the secondary host plants.	Absent	No: The footprint does not contain suitable habitat.	No effect
Mission Blue Butterfly (<i>Plebejus icarioides missionensis</i>)	Endangered	Hills and ridgetops, as well as slopes with southern exposure with caterpillar food plants, <i>Lupinus spp.</i>	Absent	No: The footprint does not contain suitable habitat.	No effect
Myrtle's Silverspot Butterfly (<i>Speyeria zerene myrtleae</i>)	Endangered	Coastal terrace prairie, coastal bluff scrub, and associated nonnative grassland habitats where the larval foodplant, <i>Viola sp.</i> , occurs.	Absent	No: The footprint does not contain suitable habitat.	No effect
San Bruno Elfin Butterfly (<i>Callophrys mossii bayensis</i>)	Endangered	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is <i>Sedum spathulifolium</i> .	Absent	No: The footprint does not contain suitable habitat.	No effect

Appendix D. Stage Construction Designs

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
04	X	X	X



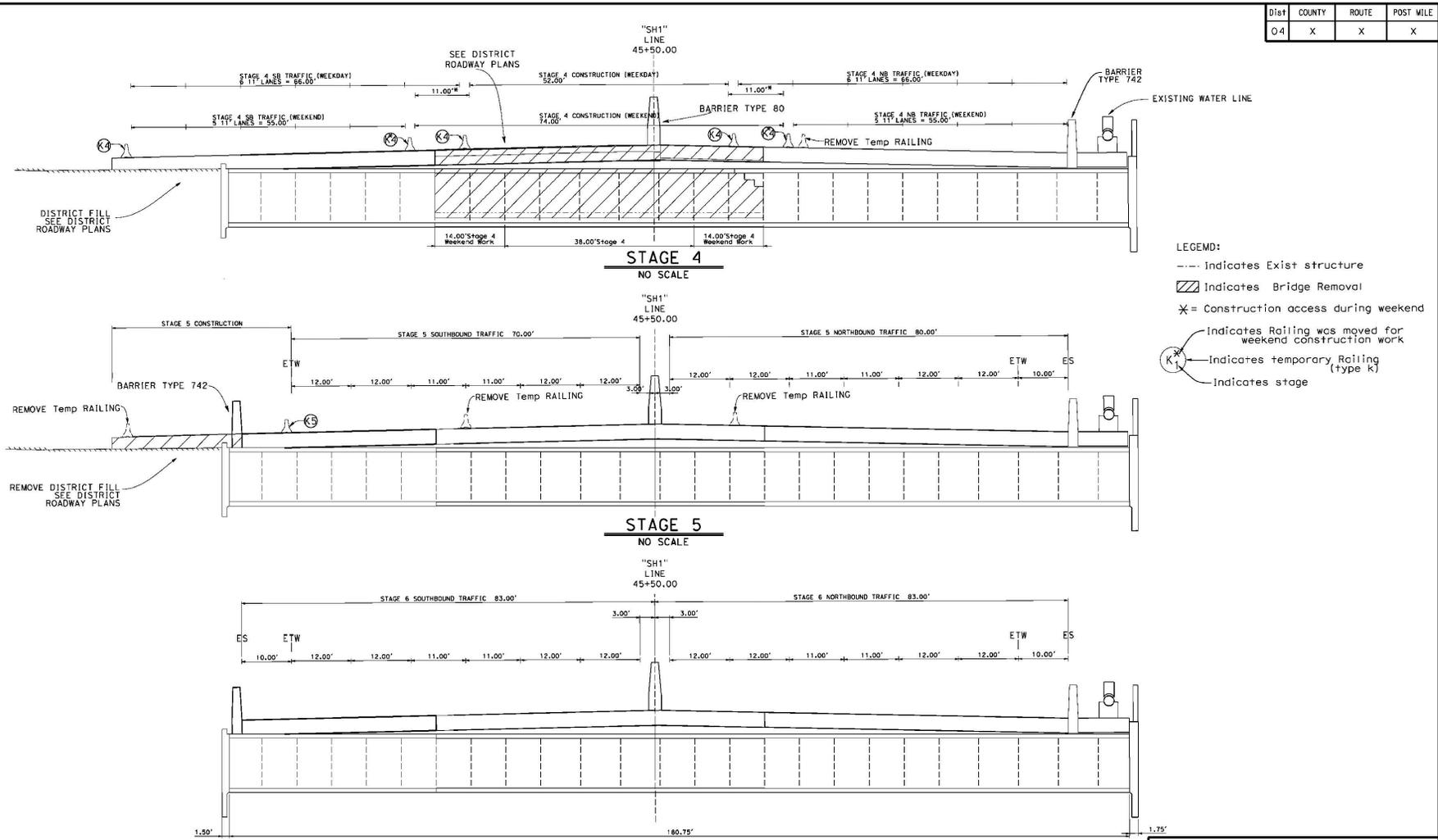
LEGEND:
 --- Indicates Exist structure
 [Hatched] Indicates Bridge Removal
 * = Construction access during weekend
 [K] Indicates Railing was moved for weekend construction work
 [K] Indicates temporary Railing (type k)
 [---] Indicates stage

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENCLOSURE) (REVISION 1, 2, 3, 4)		DATE PLOTTED => 5/9/2020 FILE => ...35-0019-000-1101-02-ar\K2009RMC -> 141508407	TIME PLOTTED => 2:59:40 PM	ALTERNATIVE 1	
DESIGNED BY Eduardo Gomez	DATE X	STRUCTURE DESIGN		PLANNING STUDY (2 OF 3)	
DRAWN BY Sumaia Hossen	DATE X				
CHECKED BY X	DATE X	DESIGN BRANCH		CORDILLERAS CREEK BRIDGE	
APPROVED X	DATE X				
4		4		UNIT: 3579	BRIDGE No.: 35-0019
				PROJECT EA: 2J730K	PROJECT No. & PHASE: 0415000040

Source: State of CA, DOT, 2020

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
04	X	X	X



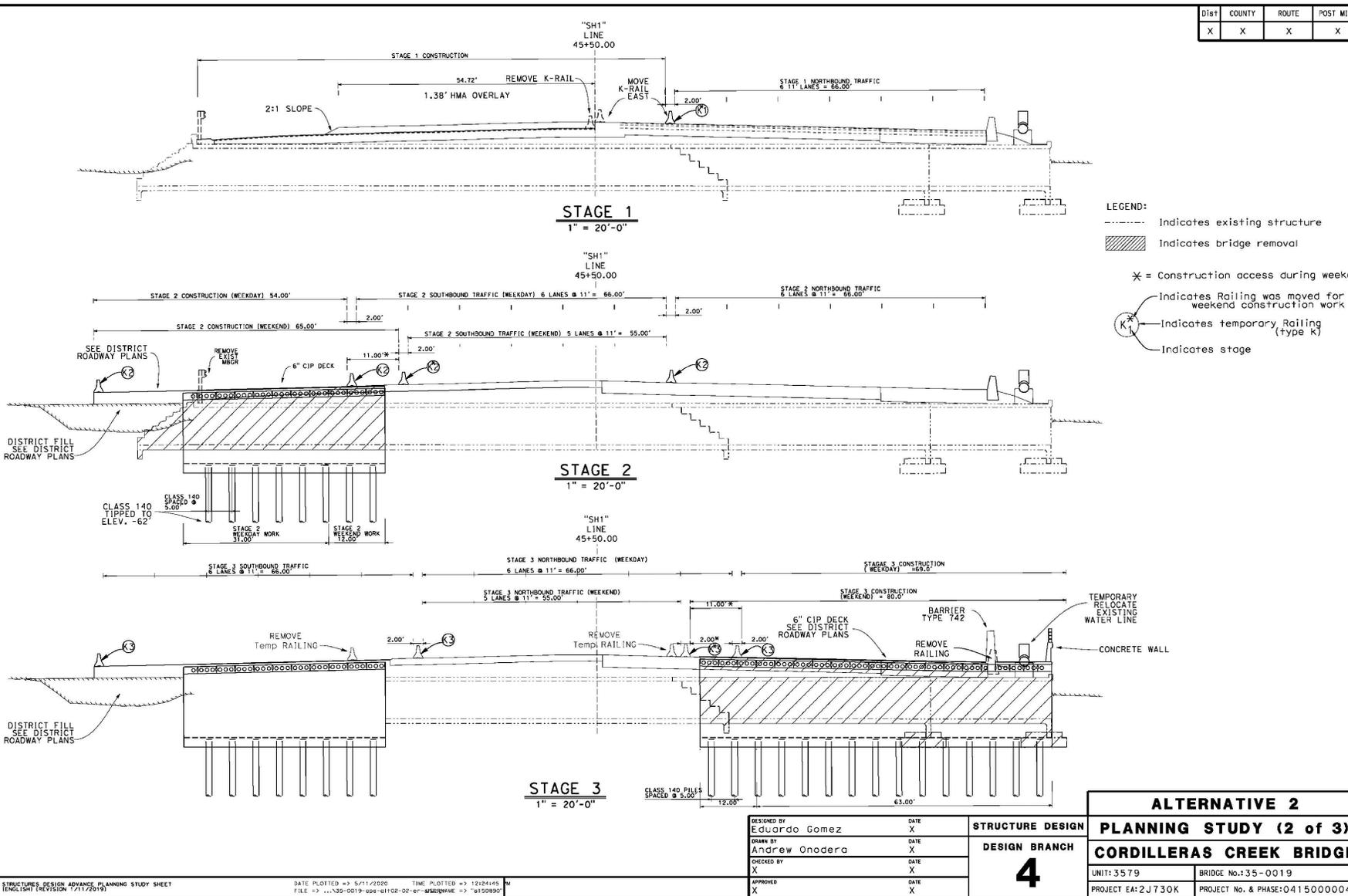
FINAL CONFIGURATION
NO SCALE

DESIGNED BY Eduardo Gomez		DATE X	STRUCTURE DESIGN	ALTERNATIVE 1	
DRAWN BY Sumaia Hossen		DATE X		PLANNING STUDY(3 of 3)	
CHECKED BY X		DATE X	DESIGN BRANCH	CORDILLERAS CREEK BRIDGE	
APPROVED X		DATE X		4	UNIT: 3579
STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET (ENGLISH DIRECTION 1/11/2019)			PROJECT EA: 2J730K PROJECT No. & PHASE: 0415000040		

Source: State of CA, DOT, 2020

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
X	X	X	X



- LEGEND:
- Indicates existing structure
 - ▨ Indicates bridge removal
 - * = Construction access during weekend
 - ⊗ Indicates Railing was moved for weekend construction work
 - (K) Indicates temporary Railing (type K)
 - ① Indicates stage

ALTERNATIVE 2	
PLANNING STUDY (2 of 3)	
CORDILLERAS CREEK BRIDGE	
UNIT: 3579	BRIDGE No.: 35-0019
PROJECT EA: 2J730K	PROJECT No. & PHASE: 0415000040

DESIGNED BY Eduardo Gomez	DATE X
DRAWN BY Andrew Onodera	DATE X
CHECKED BY X	DATE X
APPROVED X	DATE X

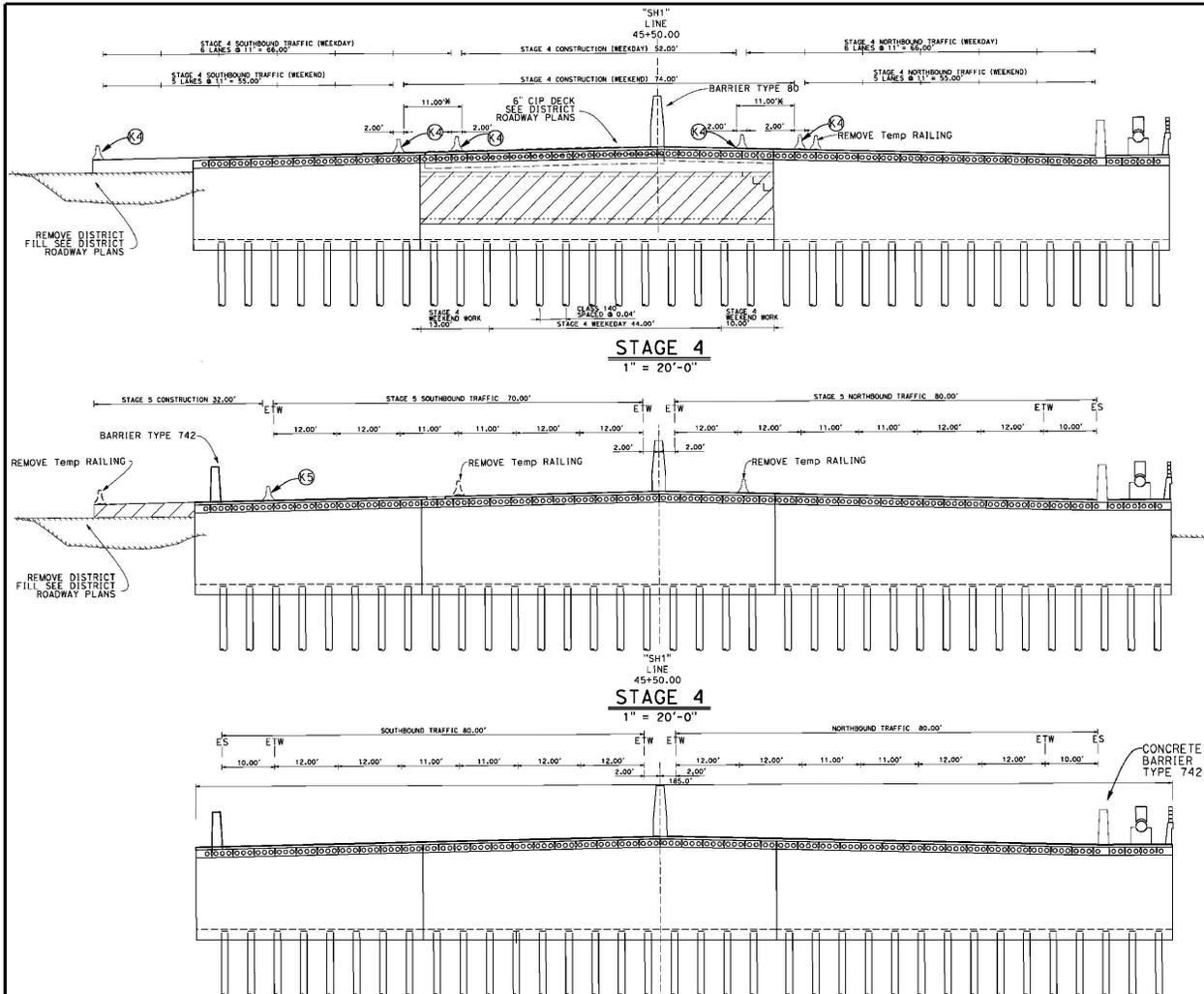
STRUCTURE DESIGN
DESIGN BRANCH
4

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET
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Source: State of CA, DOT, 2020

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DIVISION OF ENGINEERING SERVICES

Dist	COUNTY	ROUTE	POST MILE
X	X	X	X



- LEGEND:
- Indicates existing structure
 - ▨ Indicates bridge removal
 - * = Construction access during weekend
 - ⊗ Indicates Railing was moved for weekend construction work
 - ⊗(K) Indicates temporary Railing (type K)
 - ⊗ Indicates stage

FINAL CONFIGURATION
1" = 20'-0"

DESIGNED BY Eduardo Gomez	DATE X
DRAWN BY Andrew Onodera	DATE X
CHECKED BY X	DATE X
APPROVED X	DATE X

STRUCTURE DESIGN
DESIGN BRANCH
4

ALTERNATIVE 2	
PLANNING STUDY (3 of 3)	
CORDILLERAS CREEK BRIDGE	
UNIT: 3579	BRIDGE No.: 35-0019
PROJECT EA: 2J730K	PROJECT No. & PHASE: 0415000040

STRUCTURES DESIGN ADVANCE PLANNING STUDY SHEET
(ENGLISH) (REVISION 17/11/2019)

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Source: State of CA, DOT, 2020

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Appendix E. List of Acronyms

ABAG	Association of Bay Area Governments
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ADA	Americans with Disabilities
AADT	Annual Average Daily Traffic
APE	Area of Potential Effects
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
BSA	Biological Study Area
Caltrans	California Department of Transportation
Cal/OSHA	California Division of Occupational Safety and Health
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CFGF	California Fish and Game Code
CHP	California Highway Patrol
CIDH	cast-in-drilled-hole
CNDDDB	California Natural Diversity Data Base
CO	carbon monoxide
CRHR	California Register of Historical Resources
CTP	California Transportation Plan
CWA	Clean Water Act
dBA	decibel(s) A-Weighted
DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
EIR	Environmental Impact Report

EO	Executive Order
ESA	environmentally sensitive area
FCAA	Federal Clean Air Act
FT	Feet
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas
IS	Initial Study
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MND	Mitigated Negative Declaration
MLD	Most Likely Descendant
MLP	US 101 Managed Lanes Project
MOU	Memorandum of Understanding
MS4	municipal separate storm sewer systems
MSAT	Mobile source air toxics
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NRHP	National Register of Historic Places
NHTSA	National Highway Traffic Safety Administration
NO2	nitrogen dioxide
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Service
NPDES	National Pollutant Discharge Elimination System
O3	ozone
OCRS	Office of Cultural Resource Studies (Caltrans)

OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Act
PA	Programmatic Agreement (Section 106)
PA&ED	Project Approval and Environmental Document
PCBs	Polychlorinated biphenyls
PDA	priority development areas
PDT	Project Development Team
PG&E	Pacific Gas and Electric Company
PM	Post Mile
PM10	particulate matter 10 micrometers or smaller
PM2.5	particulate matter 2.5 micrometers or smaller
PRC	Public Resources Code
PS&E	Plans, Specifications, and Estimates
RC	Reinforced Concrete
RCRA	Resource Conservation and Recovery Act
ROW	right-of-way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SEW	saline emergent wetlands
SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Officer
SLR	sea-level rise
SFPUC	San Francisco Public Utilities Commission
SIP	State Implementation Plan
SR	State Route
STGA	Significant Trash Generation Area
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCEs	Temporary Construction Easements
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Load

TMP	Transportation Management Plan
TSM	Traffic Systems Management
US 101	United States Highway 101
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
VIA	Visual Impact Assessment
VMT	vehicle mile(s) traveled

Appendix F. List of Technical Studies

The following technical studies were prepared for this project (EA 04-2J730/EFIS 0415000004):

Additional technical input not listed here was provided by the Caltrans District 4 offices of Hazardous Waste, Air and Noise, and Water Quality.

Office of Cultural Resource Studies (OCRS) Section 106 Memo for the Cordilleras Creek Bridge Replacement Project at Postmile 7.13 on U.S. 101 in San Mateo County, April 20, 2020.

Structures Final Hydraulic Report, Cordilleras Creek Bridge (Replacement), Located on Route 101 over Cordilleras Creek in the County of San Mateo, March 10, 2020.

Natural Environment Study, San Mateo 101 Cordilleras Creek Bridge Replacement Project, May 2020.

Construction-Related Vibration Assessment Memorandum, December 12, 2019.

Scenic Resource Evaluation and Visual Impact Assessment Memorandum, February 19, 2020.

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Appendix G. Section 4(f)

Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination(s)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 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 section 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.

Section 4(f) Properties

Section 4(f) properties within a 0.25-mile radius from the project area include: Bair Island Ecological Reserve, Don Edwards San Francisco Bay National Wildlife Refuge, and the San Francisco Bay Trail.

The project would not require the permanent use of any Section 4(f) properties, as the project would not acquire any property outside of the state ROW. Following project construction, the project would be visually consistent with the existing freeway infrastructure and would not affect reserve, refuge or trail use. Construction activities would not require TCEs from, or closure, alteration, or other use of, the facilities listed above. No construction staging or other construction impacts would affect the use or enjoyment of these facilities. Users of San Francisco Bay Trail may momentarily see construction equipment as they pass by the project area to the west. However, visual effects would be temporary and short-term during construction. The requirements of Section 4(f) do not apply.

These properties are Section 4(f) properties, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

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