State Route 37 Flood Reduction Project

MARIN COUNTY, CALIFORNIA
DISTRICT 4 – MRN – 37 (PM R11.2 to 13.8)
04-4Q320/0419000376

Final Environmental Impact Report/ Environmental Assessment with Finding of No Significant Impact

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 May 27, 2022, and executed by FHWA and Caltrans.

January 2024

Caltrans

General Information About this Document

The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact (Final EIR/EA/FONSI), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in Marin County, California. Caltrans is the lead agency under the National Environmental Policy Act (NEPA). Caltrans is the lead agency under the California Environmental Quality Act (CEQA). The document explains why the project is being proposed; what alternatives Caltrans considered for the Project; potential effects to the environment resulting from the Project; potential impacts of each of the alternatives; and proposed avoidance, minimization, and/or mitigation measures.

The Draft EIR/EA was circulated to the public for 45 days between August 25, 2023, and October 9, 2023; display boards and meeting recording are available at the following website: https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/d4-37-corridor-projects. Comments received during this period are included in Appendix K. Throughout this document, a vertical line in the margin indicates a change made since the draft document circulation. An electronic copy of this document is available for review at the following website: https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs.

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 Skylar Nguyen at (510) 496-9551 or write to Caltrans, Attn: Skylar Nguyen, P.O. Box 23660, MS 8B, Oakland, CA 94623-0660, email (SR37FloodProject@dot.ca.gov); or at (510) 715-8770 (Voice), or use the 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. An Americans with Disabilities Act-compliant electronic copy of this document is also available to download at the following: https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs.

SCH# 2021110045
04-MRN-37-PM R11.2/13.8
EA No. 04-4Q320
Project No. 0419000376

Build resiliency to the effects of 2130 sea level rise and stormwater overtopping onto SR 37 from Post Mile R11.2 to 13.8.

Final Environmental Impact Report/ Environmental Assessment with Finding of No Significant Impact

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

THE STATE OF CALIFORNIA
Department of Transportation

List any other cooperating/responsible agencies here.

Cooperating Agencies:
U.S. Fish and Wildlife Services
National Marine Fisheries Service
U.S. Army Corps of Engineers
U.S. Coast Guard

Responsible Agencies:
California Transportation Commission
California Air Resources Board
California Highway Patrol
California Department of Fish and Wildlife
Native American Heritage Commission
Office of Historic Preservation
San Francisco Regional Water Quality Control Board
San Francisco Bay Conservation and Development Commission
California State Lands Commission
California State Water Resources Control Board

01/30/2024
Date

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District Director
District 4 – Bay Area
CEQA and NEPA Lead Agency

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California Department of Transportation
Finding of No Significant Impact (FONSI)
for
State Route 37 Flood Reduction Project

Caltrans has determined that the Build Alternative will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) that has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed Project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

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 United States Code 327 and the Memorandum of Understanding dated May 27, 2022, and executed by FHWA and Caltrans.

David Ambuehl

Caltrans District Director

01/30/2024

Date

Summary

NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the Department entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with FHWA. The NEPA Assignment MOU became effective October 1, 2012, and was renewed on May 27, 2022, for a term of ten years. In summary, the Department 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 the Department 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 the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

Introduction

The California Department of Transportation (Caltrans) is the lead agency for the State Route (SR) 37 Flood Reduction Project (Project) under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The purpose of the Project is to build resiliency to the effects of projected 2130 sea level rise (SLR) and stormwater overtopping onto SR 37 from Post Mile (PM) PM R11.2 to PM 13.8 in Marin County. Within the Project limits, SR 37 is a four-lane highway with metal beam guardrails and includes a bridge over Novato Creek and the Simonds Slough Bridge beneath the highway. There are no dedicated bicycle or pedestrian facilities along SR 37 within the Project limits. The shoulders of SR 37 within the Project limits range from 2 to 10 feet wide and are used by bicyclists.

The Project proposes a causeway that would be 35 feet in elevation (North American Vertical Datum of 1988 [NAVD 88]) and consist of four 12-foot-wide lanes, a 22-foot-wide median with a 2-foot-wide median barrier, two 10-foot-wide inside shoulders, two 12-foot-wide outside shoulders, two 2-foot-wide outside barriers, and a barrier-separated 14-foot-wide bicycle or pedestrian path with a 2-foot-wide barrier, for a total roadway width of 114 feet. There would be no change to the long-term vehicular

capacity on SR 37. To maintain regional connectivity, the Project would be phased with the most flood-prone component, the Novato Creek Bridge and connecting structures, being built in Phase 1. Phase 2 would raise the rest of SR 37 within the Project area to reduce flooding and improve resiliency.

The Draft Environmental Impact Report (EIR)/Environmental Assessment (EA) for the Project evaluates the Build Alternative and the No-Build Alternative. The Build Alternative proposes to reduce flooding from stormwater overtopping and adapt to 2130 sea level rise (SLR) by constructing a causeway at an elevation of 35 feet (NAVD 88) and replacing the Novato Creek Bridge. The causeway would extend from United States Highway 101 (U.S. 101) to Atherton Avenue on SR 37. The No-Build Alternative would result in no project.

Purpose and Need

Purpose

The purpose of the Project is to build resiliency to the effects of projected 2130 SLR and stormwater overtopping onto SR 37 from PM R11.2 to PM 13.8.

Need

The SR 37 corridor occurs along the northern shore of the San Pablo Bay. Highway flooding from stormwater overtopping occurs during winter rain and high tide events causing delays and highway closures. The roadway within the Project limits is relatively low-lying, except in the immediate vicinity of U.S. 101 and Atherton Avenue Undercrossing (near the Project begin and endpoints), where the roadway climbs to higher elevations. The low-lying roadway relies on levees and berms which were not originally designed to protect the road, but to reclaim the area for agricultural use.

In January and February 2017 both eastbound and westbound directions of the roadway were closed for 27 days due to flooding at the Novato Creek Bridge. Flooding closed the highway again in February 2019 (Photos 1 and 2) when a levee was breached in two places resulting in roadway closures for 8 days (Caltrans 2021e). In January 2023, Novato Creek overtopped a levee and flooded SR 37, causing the highway between U.S. 101 and Atherton Avenue to be closed for 4 days.

Photo 1. 2019 Flooding. Looking west on SR 37 at Novato Creek (left).
Photo 2. Looking east to the Petaluma River (right) (Caltrans 2022c).

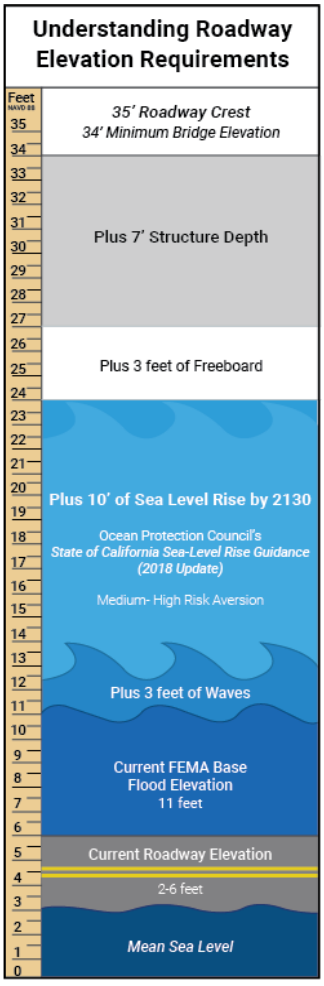
Caltrans conducted field surveys that identified several low spots in the existing levee system. These low points make portions of the roadway more vulnerable to immediate short-term flooding from stormwater overtopping and future SLR. The Novato Creek Bridge deck is at approximately 9 feet (NAVD 88), and the portion of SR 37 between the Novato Creek Bridge and west of Atherton Avenue ranges from 4 to 6 feet (NAVD 88) (AECOM 2021).

According to the projections in the *SR 37 Transportation and Sea Level Rise Corridor Improvement Plan*, the Project area is the most vulnerable to SLR primarily due to its low elevation and reliance on levees and berms to provide flood protection for the highway (Kimley-Horn and AECOM 2018). Projections from the *SR 37 Segment A PIR Sea Level Rise and Flooding Risk Assessment and Shoreline Evaluation* (AECOM 2021) show that the levee segments in the vicinity of Novato Creek are within an area containing low mudflats and emergent marsh that would be submerged during a storm surge event, potentially exposing the levees to open water and waves from the Bay (AECOM 2021). In addition, the Novato Creek Bridge is exposed to both riverine and coastal flood hazards under current and future conditions with SLR (AECOM 2021). Many of the levees are privately owned and were not constructed to protect SR 37 from flooding. Instead, protection of SR 37 is an indirect benefit of the levees. Caltrans does not have a role in managing or maintaining the levees responsible for protecting SR 37. The Project area will flood during a 10-year storm surge event and may be permanently inundated around the year 2050 with projected roadway flooding depths ranging up to 5 feet (Caltrans 2021e).

Project Alternative

The Build Alternative proposes to elevate 2.5 miles of SR 37 on a causeway. The Build Alternative would raise the existing pavement elevation, which ranges between 3 feet and 9 feet (NAVD 88), to 35 feet (NAVD 88), and the elevated SR 37 would be constructed along the existing alignment. Determining the elevation of the Build Alternative involved consideration of the structure depth of the causeway, freeboard, 2130 projected SLR, and current Federal Emergency Management Agency (FEMA) Base Flood Elevation. Figure S-1 depicts how the roadway elevation requirement was determined.

The completed causeway would consist of four 12-foot-wide lanes, a 2-foot-wide median barrier, two 10-foot-wide inside shoulders, two 12 foot-wide outside shoulders, two 2-foot-wide outside barriers, and a barrier-separated 14-foot-wide bicycle or pedestrian path with a 2-foot-wide barrier, and a total roadway width of 114 feet (Figure S-2).



The Build Alternative would be constructed in two phases as discussed in the following subsections. The first phase would replace the Novato Creek Bridge and construct two temporary transition bridge structures to tie it in to existing grades on either end. The second phase would replace the temporary transition bridges with a permanent causeway and widen the bridge by an additional 18 feet to match the causeway width.

Phase 1 focuses on the most flood-prone component, the Novato Creek Bridge, and would consist of replacing the existing Novato Creek Bridge (Bridge No. 27-0011 L&R) with a new single 1,000-foot-long, 96-foot-wide structure. Two temporary transition bridges on either end of the Novato Creek Bridge would connect the new Novato Creek Bridge via embankments.

Figure S-1. Understanding Roadway Elevation Requirements

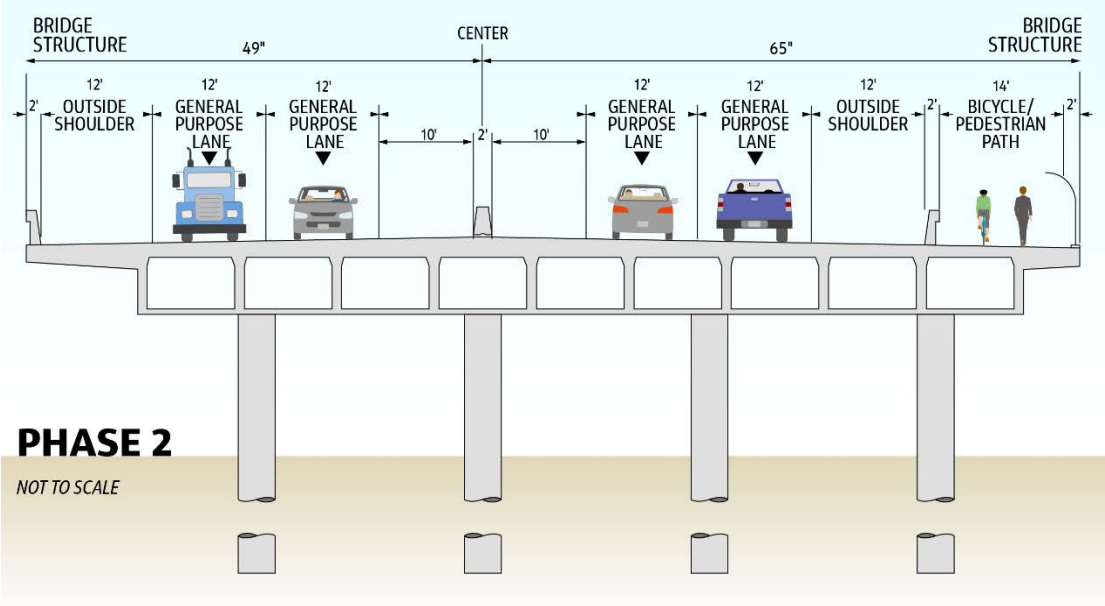


Figure S-2. Conceptual Causeway Profile

The embankments on both sides would conform to the at-grade roadway. Additionally, under Phase 1, the Build Alternative proposes improvements to two existing unnamed local access roads, the replacement of 17 culverts and extension of one culvert, and regrading of an existing drainage channel that parallels SR 37, east of Novato Creek.

Replacement of the Novato Creek Bridge is anticipated to begin in May 2027 and end in June 2029 for a maximum duration of 26 months. Replacement of the Novato Creek Bridge would occur during the dry season between June 1 and October 31.

Under Phase 2, the Build Alternative would remove the temporary transitional bridges installed in Phase 1 and replace them with a causeway from U.S. 101 to the new Novato Creek Bridge and from the eastern end of the new Novato Creek Bridge to the Atherton Avenue Undercrossing. The Novato Creek Bridge built in Phase 1 would also be widened at this phase to match with the final Phase 2 width of 114 feet.

The new causeway segment west of the Novato Creek Bridge would be approximately 2,677 feet (0.51 mile) long and the eastern segment would be 8,956 feet (1.70 miles) long and built to an elevation of 35 feet (NAVD 88). Additionally, under Phase 2, the Build Alternative would remove the existing Simonds Slough Bridge, reconstruct the on- and off-ramps at Hanna Ranch Road, Marsh Drive, and Atherton Avenue, install Type 85 barriers, and replace two culverts. Construction of Phase 2 would last 56 months and would be completed by 2050.

Joint NEPA/CEQA Document

The proposed Project is a joint project by Caltrans and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under NEPA. Caltrans is also the lead agency under CEQA. In addition, 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 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated May 27, 2022, and executed by FHWA and Caltrans.

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

After circulation of the Draft EIR/EA, Caltrans revised the Build Alternative's estimated construction duration for Phase 2 from 48 months to 56 months. The analysis in this Final EIR/EA/FONSI was updated, where needed, to reflect the revised construction duration for Phase 2. Specifically, the following sections were updated Section 2.2.6, Air Quality and Section 2.2.8, Energy.

After receiving comments from the public and reviewing agencies, a Final EIR/EA/FONSI has been prepared. This Final EIR/EA/FONSI includes responses to comments received on the Draft EIR/EA and identifies the preferred alternative. If the decision is made to approve the Project, a Notice of Determination will be published for compliance with CEQA. Caltrans has decided to issue a Finding of No Significant Impact (FONSI) for compliance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

Areas of Known Controversy

In compliance with the CEQA, a Notice of Preparation for an EIR was filed with the State Clearinghouse on November 3, 2021 (State Clearinghouse Number 2021110045). The filing of the Notice of Preparation began a 30-day public scoping period from November 3, 2021 through December 2, 2021. In response to public input, Caltrans extended the 30-day public review period through December 17,

2021, for a 45-day public scoping period. The Notice of Preparation is included in Appendix F.

The Project that was originally proposed during the first public scoping meeting in November 2021 extended on SR 37 from U.S. 101 in Marin County to SR 121 in Sonoma County and included raising SR 37 on an embankment; replacing the Novato Creek Bridge; and modifying Simonds Slough, Atherton Avenue, and the Petaluma River Bridge. Based on public input following the first public scoping process and subsequent feedback received on the SR 37 Planning and Environmental Linkages (PEL) Study, Caltrans revised the proposed Project to raise SR 37 on a causeway. Refer to Section 1.1.2, Relationship to the SR 37 PEL Study, for a more in-depth discussion about the relationship of this Project and the SR 37 PEL Study (Section 1.1.1, Background and Relationship to Other SR 37 Projects).

Due to the changes to the proposed Project presented in November 2021, Caltrans held a second virtual public scoping meeting on December 14, 2022. Refer to Chapter 4 for a summary of the public scoping process. Caltrans engaged with the community in compliance with Title VI of the Civil Rights Act of 1964 (Appendix B).

The following areas of known controversy and issues to be resolved were identified through the public outreach process.

- The purpose and need should align with the PEL Study, and the need should include sea level rise adaptation.
- Potential impacts from a raised embankment and its impacts on natural stream flow, sediment transport, and wildlife connectivity. Several comments were received in support of a causeway.
- Support for a new Build Alternative that proposed an elevated roadway structure, such as a causeway, to improve wildlife connectivity.
- Potential for an increase in indirect flooding from the Project on the Sonoma-Marin Area Rail Transit rail tracks, and potential impacts on the existing levee system.
- Potential for cumulative impacts.
- Potential disruption to access and signed detours along the Project corridor during construction, and impacts on the movement of heavy trucks during peak hours during construction.

- Potential impacts on biological resources such as the Novato Creek, Simonds Slough, and wetlands.

- Initiation of coordination with public agency.

Project Impacts

Table S-1 summarizes the impacts of the Build Alternative and No-Build Alternative. The proposed avoidance, minimization, and/or mitigation measures to reduce the effects of the Build Alternatives are also presented. Additionally, Chapter 2 details the potential of adverse effects, including temporary impacts and Appendix D and Appendix E list Project features and recommended measures to reduce those effects.

The Build Alternative would result in a less than significant impact with mitigation incorporated on biological resources and transportation. The Build Alternative would result in a significant impact on aesthetics. Refer to Chapters 2 and 3 for the impact analysis. The mitigation measures proposed to minimize impacts on biological resources and transportation are summarized in the following.

MM-BIO-1: Compensatory Mitigation for Wetlands and Other Waters. Caltrans will compensate for the unavoidable and permanent loss and degradation of wetlands and other waters within the Project area at a restoration/enhancement to impact ratio. This ratio will be determined during the permitting process with the regulatory agencies. Every effort will be made to contribute to onsite habitat enhancements and restoration as part of the Project's design. Caltrans will offset temporary impacts to wetlands and other waters by restoring disturbed areas to pre-Project conditions, estimated to be at a 1.1:1 ratio.

Compensatory mitigation for unavoidable impacts will be obtained through a Project-specific plan that will include purchase of credits at an agency-approved wetland mitigation bank (if any such banks are available, with a service area that includes the Project area, at the time) and/or providing in-lieu funding to a nearby restoration program or restoration project that will enhance, create, or restore wetlands or other waters adversely impacted by the Project. Appropriate compensation will be determined in coordination with state and federal environmental regulatory agencies with jurisdiction.

MM-BIO-2: California Red-legged Frog Compensatory Mitigation. Caltrans will compensate for the permanent loss of California red-legged frog habitat through the purchase of credits from an approved conservation bank in the Project's service area. At least one such bank currently has available credits for the California red-

legged frog, with a service area that includes the Project site. Credits will be purchased according to ratios determined through consultation with USFWS.

Caltrans will offset temporary impacts during construction to California red-legged frog habitat by restoring disturbed areas to pre-Project conditions at a 1.1:1 ratio.

MM-TRANS-1: Prepare Traffic Analysis. During the Phase 2 design phase, Caltrans will prepare a traffic analysis to evaluate the impacts of Phase 2 detours on traffic during construction. This analysis will evaluate access for local residents, oversized vehicles, and businesses from SR 37, Atherton Avenue, Hanna Ranch Road, and Marsh Road. Caltrans will develop a plan to maintain access for local residents and businesses along existing routes or identify alternate detour routes during Phase 2. The detour traffic analysis will include the estimated detour travel time with the anticipated traffic delays during Phase 2 construction and will identify measures to minimize traffic delays. The traffic analysis results will inform the Transportation Management Plan for Phase 2 construction.

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

Resource Area	Environmental Topic	Build Alternative	No-Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Air Quality	Result in an increase in vehicle emissions on sensitive receptors or result in a cumulatively net increase in any criteria pollutant	There would be a temporary increase in emissions during construction. There are no sensitive receptors near the Project area. There would be no impact during operation.	No impacts.	None
Biological Resources	Result in effects to habitat or sensitive natural communities	The proposed Project would not permanently or substantially adversely affect essential fish habitat for Chinook and coho salmon, groundfish, or coastal pelagic species during Phase 1 and Phase 2. Phase 1 and Phase 2 would have no permanent impacts to trees. During Phase 1 construction, the noise and activity of construction personnel and equipment would reduce wildlife movement across SR 37 within the Project area, but not during operation. Once construction is completed, no direct impacts on vegetation or natural communities would result from operation of the Build Alternative.	No impacts.	None
Biological Resources	Result in effects to wetlands and other waters	Direct impacts: Phase 1 construction activities would result in permanent impacts to 0.24 acre of freshwater marsh, 0.46 acre of tidal salt marsh, and 0.03 acre of open water. Phase 1 construction would result in temporary impacts to 5.64 acres of wetlands and other waters of the U.S. and waters of the state, and in the form of diked brackish marsh, freshwater marsh, tidal salt marsh, and open water habitats. Phase 2 construction activities would permanently impact 0.08 acre of tidal salt marsh and open water, based on current conditions. Phase 2 construction would result in temporary impacts to 5.78 acres of wetlands and other waters of the U.S. and waters of the state, in the form of diked brackish marsh, freshwater marsh, tidal salt marsh, and open water habitats. Indirect impacts: Increased erosion and sedimentation.	No impacts.	MM-BIO-1: Compensatory Mitigation for Wetlands and Other Waters
Biological Resources	Result in effects to plants or conflict with local policies or ordinances for trees	Phase 1 of the Project would not have any direct or indirect effects on special-status plant species. Phase 2 could have potential direct and indirect effects on special-status plant species. Phase 1 would have no permanent impacts on trees. During construction, up to 55 trees would be pruned or trimmed.	No impacts.	None

Resource Area	Environmental Topic	Build Alternative	No-Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Biological Resources	Result in effects to animals (sensitive or special-status species) and wildlife connectivity	The Project would result in temporary displacement of bats and temporary loss of bat roosting habitat due to construction. Project vegetation removal and disturbance would result in the loss of nesting, foraging, and roosting habitat for a variety of birds, including special-status species such as the northern harrier, white-tailed kite, San Francisco common yellowthroat, San Pablo song sparrow, and Bryant's savannah sparrow, and numerous species of non-special-status birds. The Project would result in potential impacts on the Sacramento splittail from bridge removal and replacement, cofferdams, and vibratory and impact pile driving. Temporary construction impacts to vegetation could affect nectaring monarch butterflies. No milkweed host plants were detected within the BSA reconnaissance field surveys, but the species could breed within the BSA if milkweed is present as the species breeds throughout California. These areas may support other nectaring plants for the monarch butterfly. There would be temporary impacts from construction activities on wildlife connectivity. At Project completion, the causeway would facilitate wildlife movement.	No impacts.	Bats: AMM-BIO-1: Maternity-season Survey for Roosting Bats AMM-BIO-2: Replacement of Lost Bat Roost Habitat AMM-BIO-3: Pre-activity Survey for Roosting Bats AMM-BIO-4: Bat Exclusion Fish: AMM-BIO-5: Fish Removal and Relocation Plan AMM-BIO-6: Cofferdam Installation Salt Marsh Harvest Mouse: AMM-BIO-7: Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring AMM-BIO-8: Salt Marsh Harvest Mouse Exclusion Fencing Birds: AMM-BIO-9: California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers AMM-BIO-10: Swainson's Hawk Pre-construction Surveys and Avoidance
Biological Resources	Result in effects to threatened and endangered species	The Build Alternative could result in impacts to salt marsh harvest mouse and its habitat. Phase 1 and Phase 2 construction could result in disturbance of California Ridgway's rails, California black rails, tricolored blackbirds, and Swainson's hawks and their habitats. Phase 1 and Phase 2 construction could result in the direct loss and indirect disturbance of California red-legged frogs and Northwestern pond turtle and their habitats. Phase 1 and Phase 2 construction could result in potential effects on North American green sturgeon, Central California Coast steelhead, and longfin smelt.	No impacts.	Salt marsh harvest mouse: AMM-BIO-7: Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring AMM-BIO-8: Salt Marsh Harvest Mouse Exclusion Fencing Birds: AMM-BIO-9: California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers AMM-BIO-10: Swainson's Hawk Pre-construction Surveys and Avoidance California red-legged frog and Northwestern pond turtle: AMM-BIO-11: California Red-legged Frog Work Window AMM-BIO-12: California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys AMM-BIO-13: California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols MM-BIO-2: California Red-legged Frog Compensatory Mitigation
Biological Resources	Result in effects to invasive species	Phase 1 and Phase 2 Exposed soil areas from excavation may be vulnerable to invasive species establishment and spread.	The spread of invasive species would continue to occur under the No-Build Alternative.	None
Community Character and Cohesion	Disrupt community character and cohesion	The Build Alternative would result in temporary delays for residents traveling on SR 37 to reach the urban center of the city of Novato during construction.	More frequent disruption to park and recreational facility accessibility from recurring flooding and projected effects of SLR.	MM-TRANS-1: Prepare Traffic Analysis

Resource Area	Environmental Topic	Build Alternative	No-Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Cultural Resources	Cause a substantial adverse change to an archaeological resource or substantial adverse change in the significance of a historical resource	There would be a potential effect during construction. There would be no impact to historical resources.	No impacts.	AMM-CULT-1: Cultural Sensitivity Training
Energy	Result in wasteful or unnecessary consumption of energy resources	Construction activities would be short-term.	No impacts.	None
Farmlands	Convert farmland or conflict with a Williamson Act contract	No impacts.	No impacts.	None
Geology/Soils/Seismic/ Topography	Result in likelihood of seismic-related issues, including ground shaking and liquefaction	No impacts. A new causeway would be built to current seismic standards.	No impacts.	None
Geology/Soils/Seismic/ Topography	Expose people or structures to potential adverse effects	No impacts. A new causeway would be built to current seismic standards.	No impacts.	None
Geology/Soils/Seismic/ Topography	Result in effects from settlement	No impacts. A new causeway would be built to current seismic standards.	No impacts.	None
Greenhouse Gas Emissions	Generate GHG that would impact environment	Construction-generated GHG emissions would be temporary. There would be no increase in travel lanes. There would be no increase in operational GHG emissions.	No impacts.	None
Hazardous Waste/Materials	Result in potential risk of hazardous material release during construction activities	Effects from exposure during construction demolition activities may result in contaminant exposure to people and the environment. The existence of hazards in bridge structures to be demolished would be determined with sampling.	No Impacts.	AMM-HAZ-1: Dewatering Treatment and Disposal
Hazardous Waste/Materials	Disturb contaminants in Novato Creek and Simonds Slough sediment	Construction could result in disturbance of contaminants above levels of concern in the creek sediments.	No impacts.	AMM-HAZ-1: Dewatering Treatment and Disposal
Hydrology and Floodplain	Affect hydrology	There would be temporary impacts to natural and beneficial floodplain values during construction. The Project would build resiliency against projected SLR and recurring impacts from flooding.	People and structures would be exposed to a significant risk of loss from recurring flooding and projected effects of SLR on SR 37.	None
Land Use	Physically divide an established community or conflict with land use plan policy	Local roads would remain open for traffic during construction.	No impacts.	None
Noise	Result in an increase in noise on sensitive receptors	There would be a temporary increase in noise from pile driving on adjacent properties during construction. There would be a minimal increase in operational traffic at Project completion.	No impacts.	AMM-NOI-1: Pile Driving
Parks and Recreational Facilities	Direct and Indirect Impacts to parks and recreational facilities	Temporary delays to access parks and recreational facilities in the area due to construction activity. No permanent impacts.	More frequent disruption to park and recreational facility accessibility from recurring flooding and projected effects of SLR.	MM-TRANS-1: Prepare Traffic Analysis AMM-NOI-1: Pile Driving

Resource Area	Environmental Topic	Build Alternative	No-Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Recreation	Increase the demand of recreational facilities	No impacts.	No impacts.	None
Traffic and Transportation/ Pedestrian and Bicycle Facilities	Increase vehicle miles traveled	At Project completion, there would not be an increase in vehicular capacity on SR 37. There would be a temporary increase in vehicle miles traveled during closure of SR 37, as well as a temporary increase in detours.	Potential adverse impacts to transportation would occur as a result of projected effects of SLR and increased flooding.	None
Traffic and Transportation/Pedestrian and Bicycle Facilities	Conflict with program, policy, or ordinance addressing circulation system	No impact.	No impact.	None
Traffic and Transportation/Pedestrian and Bicycle Facilities	Affect transportation/pedestrian and bicycle facilities	There would be a beneficial impact over current conditions. Reliability, accessibility, and mobility would be improved across SR 37. There would be a temporary delay due to lane closures (Phase 1) and detours (Phase 2) during construction. Phase 2 construction activities would increase travel time with potential to have an adverse effect on traffic in the Project area. A traffic analysis would be required to determine travel delays based on construction strategies, detour routes, and future traffic volumes. MM-TRANS-1, Prepare Traffic Analysis, will be implemented closer to Phase 2 construction. There would be temporary disruptions for pedestrian and bicycle use of the Project area. At Project completion, there would be a designated barrier-separated pedestrian and bicycle facility.	No pedestrian or bicycle facilities would be built under this alternative.	MM-TRANS-1: Prepare Traffic Analysis
Tribal Cultural Resources	Affect resources of cultural significance to the Tribe.	There would be the potential to encounter Tribal Cultural Resources during construction.	No impacts.	AMM-CULT-1: Cultural Sensitivity Training AMM-TCR-1: Tribal Monitoring Area
Utilities/Emergency Services	Affect utilities	There would be a temporary disruption to existing utilities during construction.	No impacts.	None
Utilities/Emergency Services	Affect emergency services	There would be temporary delays for emergency response vehicles or emergency evacuation during construction. Reliance and accessibility across SR 37 would be improved at Project completion.	Potential adverse impacts to emergency services would occur as a result of projected effects of SLR and increased flooding of SR 37 under this alternative.	AMM-UTIL-1: Coordinate with Local Emergency Services MM-TRANS-1: Prepare Traffic Analysis
Visual/Aesthetics	Result in adverse effect on a scenic vista	There are no designated scenic vistas in the Project area; however, scenic vistas of the rural setting and surrounding hillsides are available from certain key views The Project would detract from the scenic vistas of the surrounding environment. The impact of the Build Alternative would be potentially significant impact.	No impacts.	None

Resource Area	Environmental Topic	Build Alternative	No-Build Alternative	Avoidance, Minimization, and/or Mitigation Measures
Visual/Aesthetics	Degrade existing visual character or quality	There would be temporary visual impacts during construction. Post-construction: Views from Montego Park in Bel Marin Keys, to the south of SR 37, would be adversely affected. This would be a significant and unavoidable visual impact.	No impacts.	AMM-AES-1: Restore Disturbed Areas AMM-AES-2: Design Contours to Mimic Natural Terrain AMM-AES-3: Lighting AMM-AES-4: Screen Construction Area AMM-AES-5: Bridge Design Enhancement
Visual/Aesthetics	Create a new source of light or glare	Permanent lighting would be similar to existing conditions. Temporary effects would result from construction lighting.	No impacts.	AMM-AES-3: Lighting
Water Quality and Stormwater Runoff	Substantially degrade water quality	There would be temporary impacts to water quality during the construction period and potential long-term impacts from an increase in net impervious surface that would increase stormwater runoff at Project completion.	No impacts.	AMM-WQ-1: Low-impact Development Controls
Wildfire	Substantially impair an adopted emergency response or evacuation plan	There would be no effect during operations. There would be a temporary delay due to lane closures (Phase 1) and detours (Phase 2) during construction. Phase 2 construction activities would increase travel time with potential to have an adverse effect on traffic in the Project area. A traffic analysis would be required to determine travel delays based on construction strategies, detour routes, and future traffic volumes. MM-TRANS-1, Prepare Traffic Analysis, will be implemented closer to Phase 2 construction.	No impacts.	MM-TRANS-1: Prepare Traffic Analysis
Wildfire	Expose people to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire	There would be no effect during operations. There would be a potential impact from construction vehicles and preparing the site for construction activities.	No impacts.	AMM-WF-1: Implement Fire Prevention Practices during Construction
Wildfire	Require 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	There would be no effect during operations. There would be a potential impact from construction vehicles and preparing the site for construction activities.	No impacts.	AMM-WF-1: Implement Fire Prevention Practices during Construction
Wildfire	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	Improved stability of slopes and drainage features during operations would reduce fire risk.	No impacts.	AMM-WF-1: Implement Fire Prevention Practices during Construction

Notes:
AMM = avoidance, minimization, and/or mitigation measure
Caltrans = California Department of Transportation
GHG = greenhouse gas
MM = mitigation measure
SLR = sea level rise
U.S. = United States

Permits and Approvals Needed

Table S-2 lists the permits and approvals required for Project construction.

Table S-2. Permit or Approval Document and Approving Agency

Approving Agency	Permit or Approval Document
California Department of Fish and Wildlife (CDFW)	1602 Lake and Streambed Alteration Agreement; California Endangered Species Act Incidental Take Permit
National Marine Fisheries Service (NMFS)	Biological Opinion
Regional Water Quality Control Board – Region 2, San Francisco	Clean Water Act Section 401 Water Quality Certification; Discharges of Dredged or Fill Materials to Waters of the State
San Francisco Bay Conservation and Development Commission (BCDC)	Consistency with Bay Plan (Refer to Appendix G)
United States Fish and Wildlife Service (USFWS)	Biological Opinion
United States Army Corps of Engineers (USACE)	Clean Water Act Section 404
California State Lands Commission (SLC)	Temporary Easement

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List of Abbreviated Terms

Abbreviation	Definition
°C	degree(s) Celsius
°F	degree(s) Fahrenheit
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
AMM	avoidance and minimization measure
APE	Area of Potential Effects
AQCTF	Bay Area Air Quality Conformity Task Force
BAAQMD	Bay Area Air Quality Management District
Basin Plan	Water Quality Control Plan
BCDC	San Francisco Bay Conservation and Development Commission
BMP	best management practice
BSA	biological study area
Btu	British thermal unit(s)
CAA	federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFÉ	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAPTI	*The California Action Plan for Transportation Infrastructure*
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations

Abbreviation	Definition
CH_4	methane
CHP	California Highway Patrol
CIA	community impact assessment
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DPS	Distinct Population Segment
EA	Environmental Assessment
EFH	essential fish habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
ESA	environmentally sensitive area
ESU	Evolutionarily Significant Unit
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIGR	Federated Indians of Graton Rancheria
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FTIP	Federal Transportation Improvement Programs
GHG	greenhouse gas
GWP	global warming potential

Abbreviation	Definition
I-80	Interstate 80
in/sec	inches per second
KV	key view
L_{eq}	equivalent continuous sound level
$L_{eq[h]}$	hourly equivalent sound level
L_{max}	maximum sound level
MM	mitigation measure
MMBtu	million British thermal units
MTC	Metropolitan Transportation Commission
MTZ Plan	Mt. Tamalpais Threat Zone Plan
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAVD 88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NO_x	nitrous oxide
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
PA	First Amended Section 106 Programmatic Agreement
PEL	Planning and Environmental Linkages
PF	Project Feature
PG&E	Pacific Gas and Electric Company
PM	Post Mile
$PM_{2.5}$	particles of 2.5 micrometers or smaller
PM_{10}	particles of 10 micrometers or smaller
Porter-Cologne Act	Porter Cologne Water Quality Control Act

Abbreviation	Definition
ppm	parts per million
ppt	parts per thousand
PPV	peak particle velocity
PRC	California Public Resources Code
Project	State Route 37 Flood Reduction Project
Protocol	Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects
RCEM	Roadway Construction Emissions Model
ROG	reactive organic gas
ROW	right of way
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
Sea Level Rise Guidance	*State of California Sea-Level Rise Guidance 2018 Update*
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SHPO	California State Historic Preservation Officer
SIP	State Implementation Plan
SLR	sea level rise
SMART	Sonoma-Marin Area Rail Transit
SO_2	sulfur dioxide
SR	State Route
SWMP	Statewide Storm Water Management Plan
SWPPP	stormwater pollution prevention plan
SWRCB	California State Water Resources Control Board
TCE	temporary construction easement
TMDL	total maximum daily load
TMP	Transportation Management Plan
TNM	Traffic Noise Model

Abbreviation	Definition
U.S.	United States
U.S. 101	United States Highway 101
U.S. DOT	United States Department of Transportation
USACE	United States Army Corps of Engineers
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	volatile organic compound
WDR	Waste Discharge Requirement
WEF	wildlife exclusion fencing
WSE	water surface elevation

Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) is the lead agency for the State Route (SR) 37 Flood Reduction Project (Project) under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). The purpose of the Project is to build resiliency to the effects of projected 2130 sea level rise (SLR) and stormwater overtopping onto SR 37 from Post Mile (PM) PM R11.2 to PM 13.8 in Marin County.

Within the Project limits, SR 37 is a four-lane highway with metal beam guardrails and includes a bridge over Novato Creek and the Simonds Slough Bridge beneath the highway. There are no dedicated bicycle or pedestrian facilities along SR 37 within the Project limits. The shoulders of SR 37 within the Project limits range from 2 to 10 feet wide and are used by bicyclists.

The Project proposes a causeway that would be 35 feet in elevation (North American Vertical Datum [NAVD 88]) and consist of four 12-foot-wide lanes, a 22-foot-wide median with a 2-foot-wide median barrier, two 10-foot-wide inside shoulders, two 12-foot-wide outside shoulders, two 2-foot-wide outside barriers, and a 14-foot-wide bicycle or pedestrian path with a 2-foot-wide barrier, for a total roadway width of 114 feet. There would be no change to the long-term vehicular capacity on SR 37.

To maintain regional connectivity, the Project would be phased with the most flood-prone component, the Novato Creek Bridge and connecting structures, being built in Phase 1. Phase 2 would raise the rest of SR 37 within the Project area to reduce flooding and improve resiliency.

The Project area (which for the purposes of this Final Environmental Impact Report [EIR]/Environmental Assessment [EA] refers to the entire footprint of proposed Project construction activities, including staging and access areas) is mostly surrounded by open space and agricultural lands; a park & ride facility on the eastern end; a residential area and commercial uses near the Atherton Avenue Undercrossing, and the Sonoma-Marin Area Rail Transit tracks on the eastbound side of SR 37 (Figure 1-1). There are seven on- and off-ramps, one local access road crossing, and connection to two at-grade local access roads that serve County properties within the Project area. The Project area is at the western terminus of the SR 37 corridor, a 21-mile-long highway that follows the northern shore of San Pablo Bay, from United States Highway 101 (U.S. 101) in Novato, Marin County, to Interstate 80 (I-80) in Vallejo, Solano County (Figure 1-1). This corridor links job

markets and housing within Marin, Sonoma, Napa, and Solano Counties. It also provides access to popular destinations such as the Golden Gate National Recreation Area in Marin County, Sonoma Raceway, the Napa and Sonoma wine regions, and the North Coast. Its commuting, freight movement, and recreational functions require efficient traffic management on both weekdays and weekends.

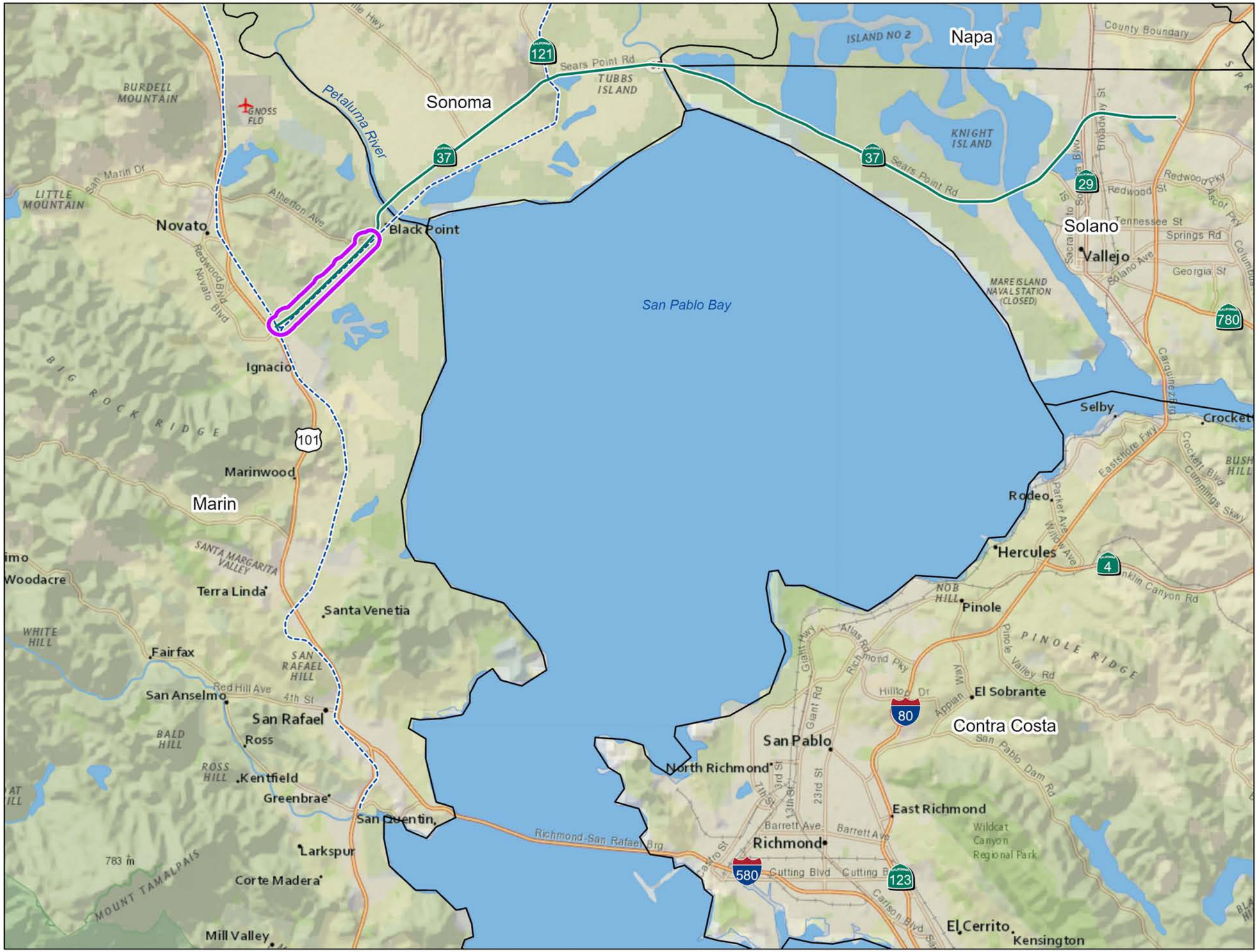
Plan Bay Area 2050's (Association of Bay Area Governments and Metropolitan Transportation Commission 2021) Regional Transportation Plan includes an Adapt to Sea Level Rise strategy (RTP ID 21-T01-006) for SR 37. The scope of this strategy includes funding to implement adaptation infrastructure along the SR 37 corridor, including elevation of critical infrastructure (ABAG and MTC 2021).

Additionally, the Project is funded by the State Highway Operation and Protection Program and by the Metropolitan Transportation Commission (MTC) Transportation Improvement Program under TIP ID VAR170005 (MTC 2022). Phase 1 construction cost is estimated to be $130 million of which $20 million is for the barrier-separated bicycle and pedestrian path. Phase 2 construction cost is estimated to be $1.475 billion.

1.1.1 Background and Relationship to Other SR 37 Projects

The SR 37 corridor has been the subject of several long-term studies related to SLR and traffic congestion. These include the *Highway 37 Stewardship Study* (Caltrans 2013b); the *State Route 37 Transportation Concept Report* (Caltrans 2015); the *State Route 37 Integrated Traffic, Infrastructure, and Sea Level Rise Analysis* (UC Davis 2016); the *State Route 37 Corridor Planning and Environmental Linkages [PEL] Study* (Caltrans 2022c); the *SR 37 Corridor Adaptation Study* (CivicKnit 2020); and the *State Route 37 Comprehensive Multimodal Corridor Plan* (Caltrans 2021d). The *Highway 37 Stewardship Study* was a test-case for model evaluation tools developed by the Transportation Research Board to address ecological factors in transportation corridor planning (Caltrans 2013b).

The purpose of the *State Route 37 Transportation Concept Report* was to evaluate current and projected conditions along SR 37 from U.S. 101 to I-80 and communicate the vision for the development during a 25-year planning horizon (Caltrans 2015).



Legend

- Project Location
- County Boundary
- SMART Rail
- State Route 37 Corridor

Data Source:
Caltrans April 2023

0 1 2
Miles

Figure 1-1
Project Location and Regional Vicinity
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

The *State Route 37 Integrated Traffic, Infrastructure, and Sea Level Rise Analysis* conducted by the UC Davis Road Ecology Center investigated the best approach for conducting an integrated evaluation of impacts of SLR on transportation and adaptive responses, while protecting ecosystem features and processes (UC Davis 2016).

The *SR 37 Corridor Adaptation Study* (CivicKnit 2020) follows 8 years of ongoing state and regional efforts focused on the entire corridor between U.S. 101 and I-80. Segment A-1 is a portion of SR 37 between U.S. 101 and the Petaluma River Bridge, which is vulnerable to closure due to flooding from stormwater overtopping and encompasses the Project limits analyzed in this Project. The primary public interest expressed is for a near-term solution to SR 37 Segment A-1 flooding. The public is unwilling to accept a 15- to 20-year delay in solving the problem, as Novato has experienced major floods at a rate of one per decade. The *SR 37 Corridor Adaptation Study* summarizes each of the preceding studies developed, identifies the next steps needed for finding long-term solutions for Segment A-1, and compares four vision alternatives to address the challenges facing SR 37.

The *State Route 37 Corridor Planning and Environmental Linkages Study* gathered preliminary data and considered conceptual level of design, traffic analyses, and evaluation of environmental impacts (Caltrans 2022c). The purpose of the SR 37 PEL Study is:

- Preserving a critical regional transportation corridor that is resilient to extreme events, while integrating ecological resiliency, which facilitates adaptation to SLR.
- Providing reliable travel time and promoting increases in average vehicle occupancy.
- Providing safe mobility for bicyclists and pedestrians.
- Maintaining and enhancing public access, including to recreational areas.
- Providing equitable multimodal transportation solutions that improve access for, and providing meaningful benefits to, all users of SR 37, with special consideration of underserved communities.

Many groups were involved in the SR 37 PEL Study, such as transportation agencies, municipalities, resource agencies, Tribes, non-governmental organizations and interest groups, elected officials, and the public. The SR 37 PEL Study examined ten alternatives for the entire SR 37 corridor, established a long-term transportation vision for the corridor, and set the stage for focused, future projects

that would be resilient under the projected 2130 SLR. In addition to evaluating the ten alternatives for the corridor, the SR 37 PEL Study also considered design options such as a causeway, embankment, and a new bridge (Caltrans 2022c).

During a SR 37 PEL Study public meeting held on September 14, 2022, Caltrans identified a causeway along the existing corridor (referred to as Alternative 5 in the SR 37 PEL Study) as a long-term solution to flooding from storm surges and adaptation to SLR. The SR 37 PEL Study Team identified the existing SR 37 corridor and a causeway as the preferred corridor alternative because it would have the least impact on transportation and land use, facilitate adaptation to SLR and would not interrupt terrestrial or aquatic wildlife migration.

While the SR 37 PEL Study focused on the full length of the corridor, from U.S. 101 on the west to the I-80 on the east, the PEL Study Team identified four approaches to complying with NEPA and CEQA environmental review. One of the approaches is to deliver the identified alternative as a collection of small individual but related projects, each with logical termini and independent utility (Caltrans 2022c). In alignment with this approach in the SR 37 PEL Study, this Final EIR/EA is for the westernmost limits of the SR 37 corridor. For a discussion of this Project's independent utility and logical termini, refer to Section 1.2.3.

A summary of transportation studies or projects planned along SR 37 is presented in Table 1-1. These projects address various needs, such as safety improvements, roadway or bridge repair and maintenance, SLR, and traffic operations and congestion, based on needs within different time horizons. Caltrans and MTC have been working with local agencies such as the City of Novato through the SR 37 Policy Committee, a multicounty committee with policymakers participating from Marin, Napa, Sonoma, and Solano Counties. The SR 37 Policy Committee was originally formed in 2015 as part of a Memorandum of Understanding to discuss joint county efforts in improving the SR 37 corridor, addressing issues such as SLR, traffic congestion, transit operations, and recreational activities. For further information related to the corridor, please refer to the SR 37 Corridor Projects website (https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/d4-37-corridor-projects).

Table 1-1. Other Studies or Proposed Projects within the SR 37 Corridor

Project Name/Description	Expenditure Authorization Number	County	Post Miles	Sponsor	Status
SR 37 Pavement Rehabilitation – Capital Preventive Maintenance	2K740	Marin	R11.2/14.6	Caltrans	Construction 2025
SR 37 Ultimate SLR Resilience Design Alternatives Assessment (U.S. 101 to SR 121)	Not Identified	Marin, Sonoma	R11.2/14.6; 0.0/3.9	MTC	Feasibility Study
SR 37 Petaluma River Bridge Project	2Q500	Marin	14.5	Caltrans	Construction 2025
SR 37/SR 121 Intersection Improvements Project	1Q480/2Q200/ 2Q20U	Sonoma	3.8/4.00; 3.9/4.1; 3.78/4.3	Caltrans	Construction 2026
SR 37 SLR Resilience Project (SR 121 to Mare Island)	1Q762	Sonoma, Solano	3.9/6.2; 0.0/R7.4	MTC/SCTA	Feasibility Study
SR 37 Sears Point to Mare Island Improvement Project	1Q761	Sonoma, Solano	2.99.9/6.2 (SON); 0.0/R7.4 (SOL); 0.0/0.2 (SON 121)	MTC/SCTA	Construction 2025
SMART Project Study Report – Novato to Suisun City	Not Identified	Marin, Solano	TR101, TR110	SMART/ Caltrans	Feasibility Study
SR 37 Alternatives Assessment for the Ultimate Project (SR 121 to Mare Island Interchange) (completed)	Not Identified	Sonoma, Solano	3.5/6.2; 0.0/R7.4	MTC	Feasibility Study
SR 37 Pedestrian Enhancements at Wilson Avenue and Fairgrounds Drive (Environmental Assessment)	0P760	Solano	Various	Caltrans	Construction 2024
Fairgrounds Drive Interchange Improvements	4A441	Solano	10.6/11.2	STA	Construction 2022
SR 37 Corridor SLR and Complete Streets (U.S. 101 to SR 29)	4Q960	Marin, Sonoma, Napa, Solano	R11.2/14.6; 0.0/6.2; 0.0/R9.6	Caltrans	Feasibility Study

Project Name/Description	Expenditure Authorization Number	County	Post Miles	Sponsor	Status
SR 37 Corridor Planning and Environmental Linkages Study (U.S. 101 to I-80)	Not Identified	Marin, Sonoma, Napa, Solano	R11.2/14.6; 0.0/6.2; 0.0/R11.4	Caltrans	Feasibility Study
SR 37 Transportation Concept Report	Not Identified	Marin, Sonoma, Napa, Solano	R11.2/14.6; 0.0/6.2; 0.0/R11.4	Caltrans	Feasibility Study
Variable Message Sign Project	1Y600	Solano	7.07 to 7.91	Caltrans	Construction 2026

Notes:
SCTA = Sonoma County Transportation Authority; STA = Solano Transportation Authority

1.1.2 Relationship to the SR 37 PEL Study

Following the Notice of Preparation (State Clearinghouse Number 2021110045) published on November 3, 2021, Caltrans held a scoping period for this Project. At the time, the Project proposed to elevate SR 37 between U.S. 101 and SR 121 on an embankment up to 12 feet above the current elevation (NAVD 88) to accommodate SLR to 2050 and reduce flooding from stormwater overtopping. Comments received during the November 2021 public comment period encouraged Caltrans to explore other alternatives such as a causeway and to build the Project to accommodate the long-term solution that was anticipated from the SR 37 PEL Study. In response to these comments, between January and September 2022, Caltrans explored the following additional build alternatives, which have since been eliminated from further discussion as described in Section 1.4:

- Novato Creek Bridge Replacement and Passive Flood Barriers (Section 1.4.2)
- Novato Creek Bridge Replacement with Combination of Causeway and Embankment (Section 1.4.3)
- Interim Causeway (Section 1.4.4)
- Strengthen Levees (Section 1.4.5)

While Caltrans evaluated these alternatives during the summer and fall of 2022, the SR 37 PEL Study ultimately identified a causeway as the design for SR 37 to reduce flooding from stormwater overtopping and adapt to projected 2130 SLR in the fall of 2022. In consideration of the scoping comment period comments received and the outcome of the SR 37 PEL Study, Caltrans updated the Project's buildout SLR projection threshold from 2050 to 2130 and proposed a build alternative to align with the results of the SR 37 PEL Study. This new approach minimizes the overall capital cost to adapt the western terminus of SR 37 to SLR and reduce flooding from stormwater overtopping.

The SR 37 PEL Study serves to streamline the environmental review process by screening potential corridor alternatives and not as a CEQA or NEPA document. While the SR 37 PEL Study and the Project cover the same corridor, this Final EIR/EA does not tier from the SR 37 PEL Study. For more information you can review the SR 37 PEL Study at https://dot.ca.gov/-/media/dot-media/district-4/documents/37-corridor-projects/pel-study/sr37-pel-study-dec2022-ada-a11y.pdf.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the Project is to build resiliency to the effects of projected 2130 SLR and stormwater overtopping onto SR 37 from PM R11.2 to PM 13.8.

1.2.2 Need

The SR 37 corridor occurs along the northern shore of the San Pablo Bay. Highway flooding from stormwater overtopping occurs during winter rain and high tide events causing delays and highway closures. The roadway within the Project limits is relatively low-lying, except in the immediate vicinity of U.S. 101 and Atherton Avenue Undercrossing (near the Project begin and endpoints), where the roadway climbs to higher elevations. The low-lying roadway relies on levees and berms which were not originally designed to protect the road, but to reclaim the area for agricultural use.

In January and February 2017 both eastbound and westbound directions of the roadway were closed for 28 days due to flooding at the Novato Creek Bridge. Flooding closed the highway again in February 2019 (Photos 1 and 2) when a levee was breached in two places resulting in roadway closures for 8 days (Caltrans 2021e). In January 2023, Novato Creek overtopped a levee and flooded SR 37, causing the highway between U.S. 101 and Atherton Avenue to be closed for 3 days.

Photo 1. 2019 Flooding. Looking west on SR 37 at Novato Creek (left).
Photo 2. Looking east to the Petaluma River (right) (Caltrans 2022c).

Caltrans conducted field surveys that identified several low spots in the existing levee system. These low points make portions of the roadway more vulnerable to immediate short-term flooding from stormwater overtopping and future SLR. The Novato Creek Bridge deck is at approximately 9 feet (NAVD 88), and the portion of

SR 37 between the Novato Creek Bridge and west of Atherton Avenue ranges from 4 to 6 feet (NAVD 88) (AECOM 2021) (Figure 1-2).

According to the projections in the *SR 37 Transportation and Sea Level Rise Corridor Improvement Plan*, the Project area is the most vulnerable to SLR primarily due to its low elevation and reliance on levees and berms to provide flood protection for the highway. Projections from the *SR 37 Segment A PIR Sea Level Rise and Flooding Risk Assessment and Shoreline Evaluation* (AECOM 2021) show that the levee segments in the vicinity of Novato Creek are within an area containing low mudflats and emergent marsh that would be submerged during a storm surge event, potentially exposing the levees to open water and waves from the Bay (AECOM 2021). In addition, the Novato Creek Bridge is exposed to both riverine and coastal flood hazards under current and future conditions with SLR (AECOM 2021). Many of the levees are privately owned and were not constructed to protect SR 37 from flooding. Instead, protection of SR 37 is an indirect benefit of the levees. Caltrans does not have a role in managing or maintaining the levees in the surrounding area. The Project area will flood during a 10-year storm surge event and may be permanently inundated around the year 2050 with projected roadway flooding depths ranging up to 5 feet (Caltrans 2021e).

1.2.3 Independent Utility and Logical Termini

Federal Highway Administration regulations (23 Code of Federal Regulations 771.111 [f]) require that the action evaluated do the following:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope.

2. Have independent utility or independent significance (be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made).

3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Figure 1-2. Existing SR 37 and Levee Elevation
Source: Kimley-Horn and AECOM 2018

The SR 37 Flood Reduction Project includes logical starting and ending points, or termini, that are centered around the most vulnerable section of SR 37 to flooding from stormwater overtopping and SLR. The Project would have independent utility, which means that the proposed improvements can be implemented within the Project limits and not dependent on the completion of other projects to gain the benefits of the proposed improvements.

The Project would not preclude consideration of alternatives for other reasonable, foreseeable transportation improvements in the area, such as those listed in Table 1-1 as it is a separate proposal that differs in implementation compared to other projects. The Project is proposed to reduce flooding from stormwater overtopping and adapt to projected SLR up to year 2130 within the Project limits regardless of whether other transportation improvement projects in the area are implemented. In addition, the Project limits are sufficient to address the need and purpose of the Project and the potential environmental effects. Therefore, the Project is deemed to have independent utility and logical termini.

1.3 Project Description

Caltrans proposes to reduce flooding from stormwater overtopping and adapt to 2130 SLR on SR 37 from (PM R11.2 to PM 13.8) by constructing a causeway at an elevation of 35 feet (NAVD 88) and replacing the Novato Creek Bridge. The causeway would extend from U.S. 101 to Atherton Avenue.

1.3.1 Project Alternatives

This section describes the proposed Project alternatives to meet the purpose and need: the Build Alternative and the No-Build Alternative. These alternatives consist of the following:

- Build Alternative – Build the causeway along SR 37 within the Project limits, constructed in two phases:
    - Phase 1 – Replace the Novato Creek Bridge
    - Phase 2 – Build remaining portions of the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue
- No-Build Alternative – No action is proposed, the current conditions would remain.

The Build Alternative and the No-Build Alternative are further described in the sections that follow.

1.3.2 Build Alternative

The Build Alternative proposes to elevate 2.5 miles of SR 37 on a causeway. The Build Alternative would raise the existing pavement elevation, which ranges between 3 feet and 9 feet (NAVD 88), to 35 feet (NAVD 88), and the elevated SR 37 would be constructed along the existing alignment.

The completed causeway would consist of four 12-foot-wide lanes, a 2-foot-wide median barrier, two 10-foot-wide inside shoulders, two 12-foot-wide outside shoulders, two 2-foot-wide outside barriers, and a 14-foot-wide bicycle or pedestrian path with a 2-foot-wide barrier, and a total roadway width of 114 feet (Figure 1-3). Wayfinding signage and pavement markings to the bicycle and pedestrian path would be installed within the Project area at Project completion.

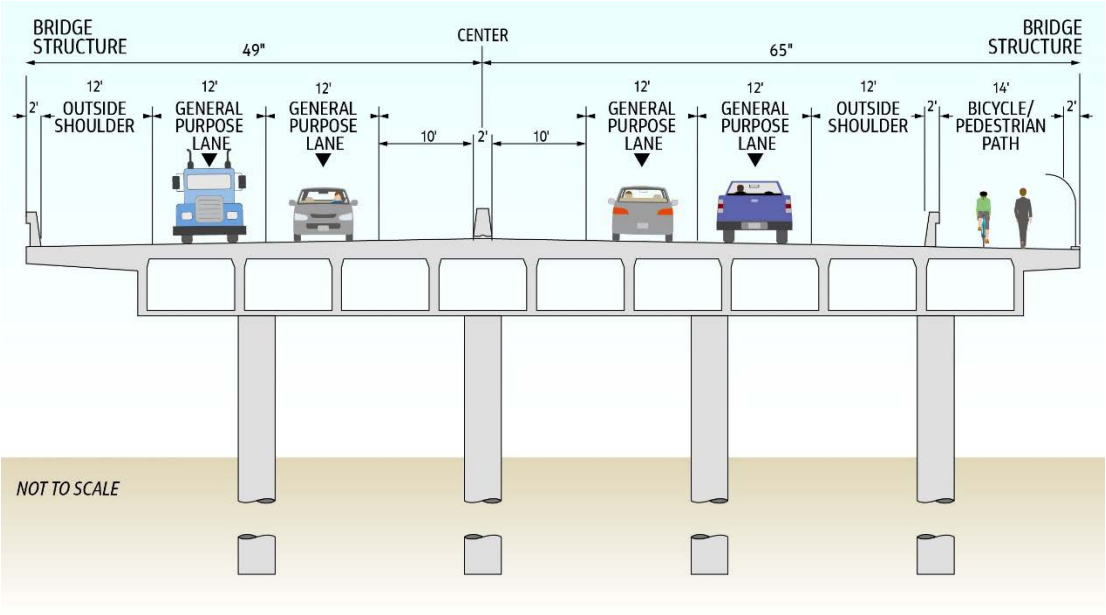


Figure 1-3. Conceptual Causeway Profile

The Build Alternative would be constructed in two phases as discussed in the following subsections. The first phase would replace the Novato Creek Bridge and construct two temporary transition bridge structures to tie it in to existing grades on either end. The second phase would replace the temporary transition bridges with a permanent causeway and widen the bridge by an additional 18 feet to match the causeway width.

1.3.2.1 PHASE 1: REPLACE NOVATO CREEK BRIDGE

Phase 1 would replace the existing Novato Creek Bridge with a new, longer bridge that would free-span Novato Creek. The existing Novato Creek Bridge (Bridge No. 27-0011 L&R) consists of two separate bridge structures (eastbound and westbound) spanning 720 feet in length and 34 feet in width, with a 40-foot space between the two bridges. The existing bridge has 224, 16-inch-diameter piles. The new bridge would be a single 1,000-foot-long, 96-foot-wide structure. Two temporary transition bridges on either end of the Novato Creek Bridge would connect the new Novato Creek Bridge to the embankments that would bring SR 37 back to an at-grade elevation (Figure 1-4).

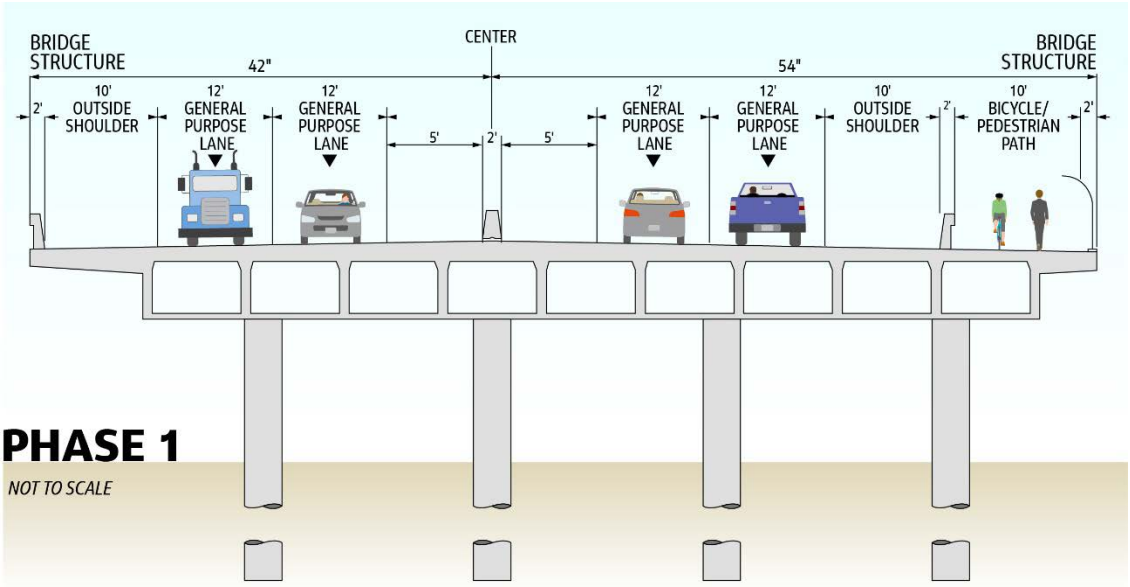


Figure 1-4. Conceptual Cross Section of the Proposed Novato Creek Bridge

Phase 1 extends from approximately PM R11.5 to PM 12.6. Starting on the western end, at PM R11.5, the embankment would start at an elevation of 9.7 feet (NAVD 88) and extend east until it connects with the western transition bridge structure at an elevation of 11 feet (NAVD 88). The western transition bridge would be 1,153 feet long with a 4% grade and range in elevation from 11 feet to 35 feet (NAVD 88) where it would connect with the Novato Creek Bridge (Figure 1-5). A 10-foot-wide designated bicycle and pedestrian path would start on the western transition and extend across the Novato Creek Bridge to the embankment east of the Novato Creek Bridge (Figure 1-6).

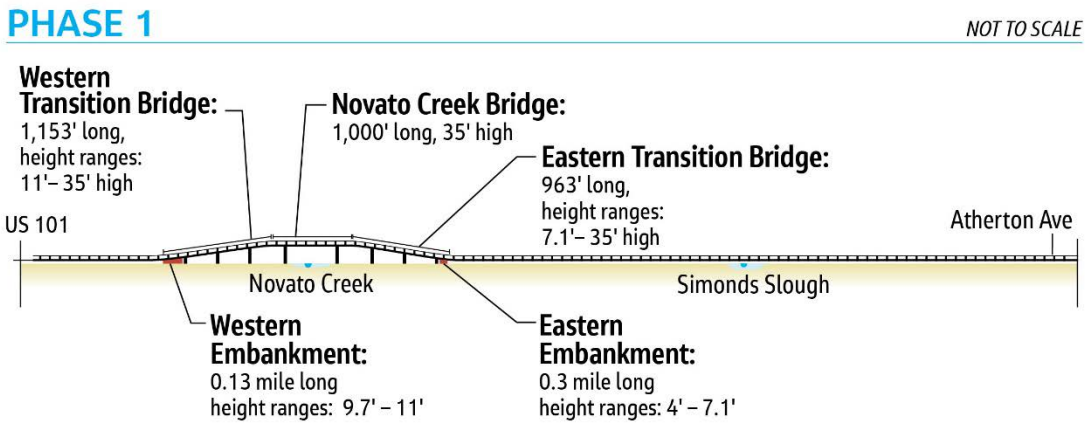


Figure 1-5. Conceptual Profile of Phase 1

The Novato Creek Bridge would span the Novato Creek channel at an elevation of 35 feet (NAVD 88). The bridge would be 1,000 feet long. The bridge would have four 12-foot-wide lanes, 10-foot-wide outside shoulders, a 12-foot-wide median that includes 5-foot-wide inside shoulders and a 2-foot-wide median barrier, the barrier-separated 10-foot-wide bicycle and pedestrian path in the eastbound direction, and two 2-foot-wide barriers for a total roadway width of 96 feet (Figure 1-4). The new bridge would have Type 85 barriers (Photo 3).

The Novato Creek Bridge would connect to the eastern transition bridge structure east of Novato Creek. This eastern transition bridge structure would be at a 5% grade for 963 feet with an elevation range of 35 feet to 7.1 feet (NAVD 88). At an elevation of 7.1 feet (NAVD 88), the transition bridge structure would connect with an embankment that would extend from approximately PM 12.3 to PM 12.6. (Figure 1-5).

Photo 3. Example of Type 85 barriers. (Caltrans 2023f)

The outside shoulders along the embankment, western and eastern transition bridge structures, and Novato Creek Bridge would be 10 feet wide. At the eastern end of the Phase 1 limits, the outside shoulders would connect with the existing 10-foot-wide shoulders.

Local Access Roads

Two existing unnamed local access roads north of SR 37 are owned by Marin County and would be extended east and west, respectively, to provide access to the properties adjacent to the Caltrans right of way (ROW) from new access points (Figure 1-6). The local access road on the western bank of Novato Creek would extend 1,901 feet west towards the new access point on the Hanna Ranch Road off-ramp. The new local access road would be built to an elevation of 8.5 feet (NAVD 88) to meet the existing elevation at Hanna Ranch Road. The local access road east of the Novato Creek would extend east north of SR 37 for 2,530 feet at an elevation of 5 feet (NAVD 88) until it connects with an existing local access road. Because of the surrounding land use patterns and environmental constraints, the relocated local access roads would continue to be within the Caltrans ROW. After completion of Phase 2, there would be no direct access to the final SR 37 causeway from these local access points. Each relocated local access road would have a total width of 16 feet with no barriers and 2:1 side slopes.

Culverts

Under Phase 1, 17 culverts would be replaced, and one culvert would be extended. Additional details about each of the culverts are provided in Table 1-2 (Figure 1-6).

Drainage Channel

The existing drainage channel that parallels SR 37, east of Novato Creek, would be regraded in its existing location. The regraded drainage channel would be a trapezoidal drainage channel with a 4-foot-wide bottom that would extend for 1,565 linear feet. The ditch would have a 4:1 slope on the north side of the ditch and a 2:1 slope on the south side until it meets the access road (Figure 1-6).

Table 1-2. Culvert Improvements Details

Phase	Culvert Number	Existing Culvert Diameter (inches)	Existing Culvert Length (feet)	Proposed Culvert Diameter (inches)	Proposed Culvert Length (feet)
Phase 1	1	12	84	18	84
Phase 1	2	12	29	12	29
Phase 1	3	36	Extend Existing Culvert by 14	Extend Existing Culvert by 1	Extend Existing Culvert by 14
Phase 1	4	24	40	24	52
Phase 1	5	18	35	18	74
Phase 1	6	18	85	18	90
Phase 1	7	30	41	30	53
Phase 1	8	48	168	48	168
Phase 1	9	18	83	18	83
Phase 1	10	18	84	18	84
Phase 1	11	36	52	36	52
Phase 1	12	18	84	18	84
Phase 1	13	18	84	18	84
Phase 1	14	18	88	18	88
Phase 1	15	18	121	18	121
Phase 1	16	12	12	12	12
Phase 1	17	12	28	12	28
Phase 1	18	12	40	12	40
Phase 2	1	12	29	12	36

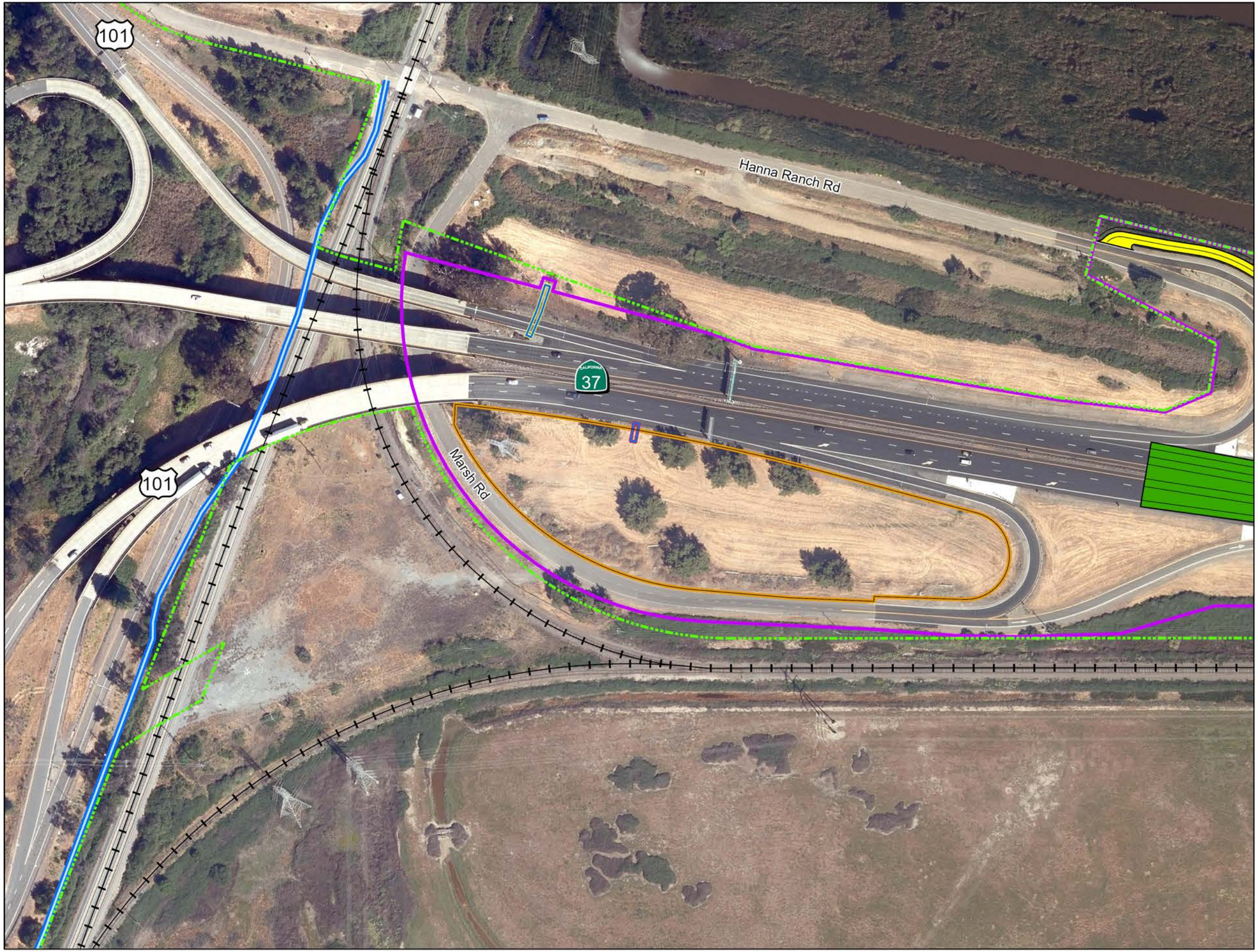
Phase	Culvert Number	Existing Culvert Diameter (inches)	Existing Culvert Length (feet)	Proposed Culvert Diameter (inches)	Proposed Culvert Length (feet)
Phase 2	2	18	104	18	93

1.3.2.2 PHASE 2: BUILD CAUSEWAY FROM U.S. 101 TO NOVATO CREEK BRIDGE AND FROM NOVATO CREEK BRIDGE TO ATHERTON AVENUE

Under Phase 2, planned to be constructed by the year 2050, the Build Alternative would remove the temporary transitional bridges installed in Phase 1 and replace them with a causeway from U.S. 101 to the new Novato Creek Bridge and from the eastern end of the new Novato Creek Bridge to the Atherton Avenue Undercrossing. The Novato Creek bridge would be widened at this phase to match with the final 114-foot Phase 2 width. The following subsections describe the activities under Phase 2.

Causeway

Phase 2 would construct approximately 2.2 miles of the causeway (Figure 1-7). The Novato Creek Bridge constructed under Phase 1 would remain at elevation 35 feet (NAVD 88). The Phase 1 transition bridge structures and embankments on either end of the new Novato Creek Bridge would be replaced with segments of the causeway. The new causeway segment west of the Novato Creek Bridge would be around 2,677 feet (0.51 mile) long and the eastern segment would be 8,906 feet (1.70 miles) long and built to an elevation of 35 feet (NAVD 88) (Figure 1-8). The new causeway would consist of four 12-foot-wide lanes, a 2-foot-wide median barrier, two 10-foot-wide inside shoulders, two 12-foot-wide outside shoulders, two 2-foot-wide outside barriers, and a 14-foot-wide bicycle and pedestrian path with a 2-foot-wide barrier, for a total roadway width of 114 feet (Figure 1-3).



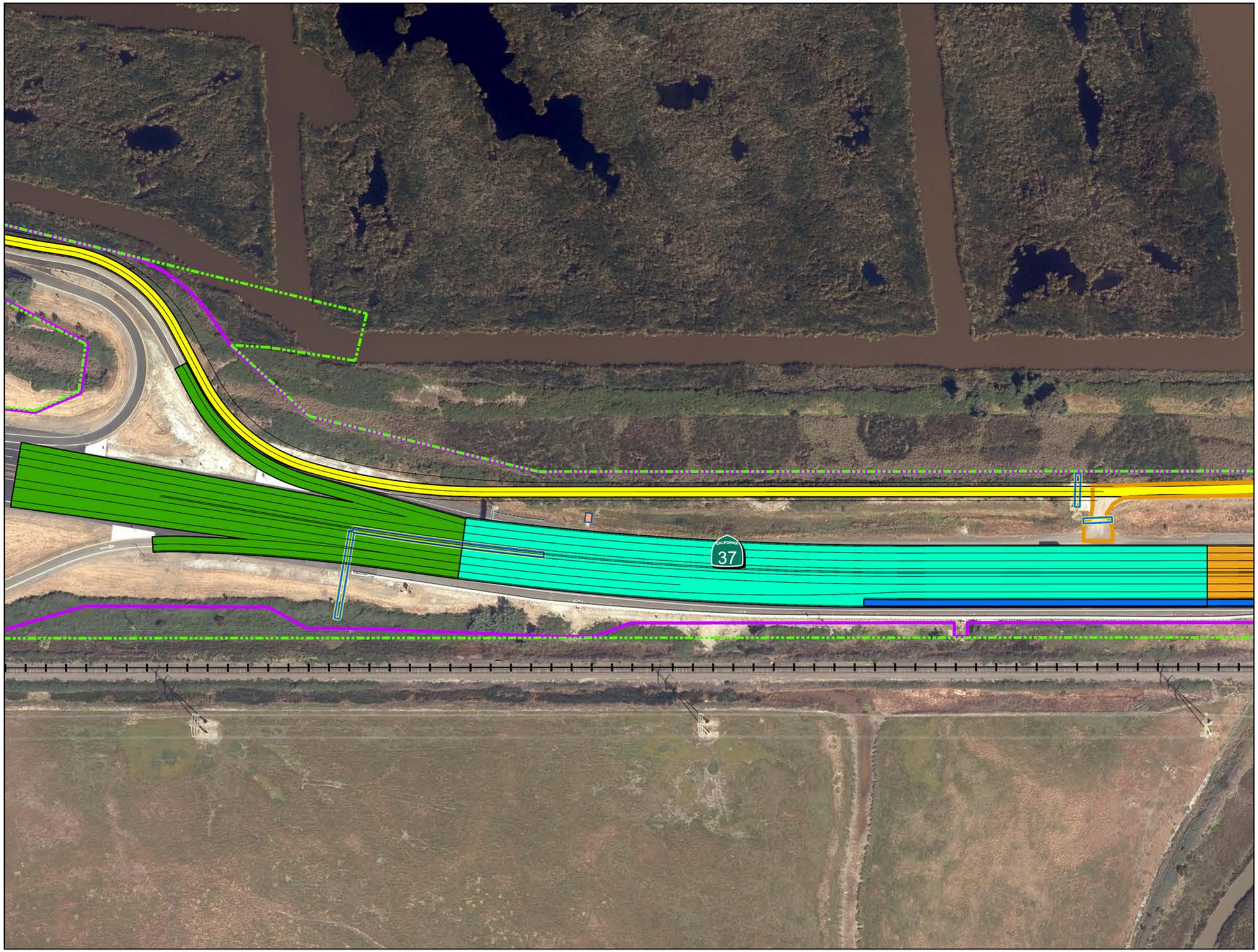
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Local Access Road
- Staging Area
- Embankment
- Culvert Removal
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 1 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



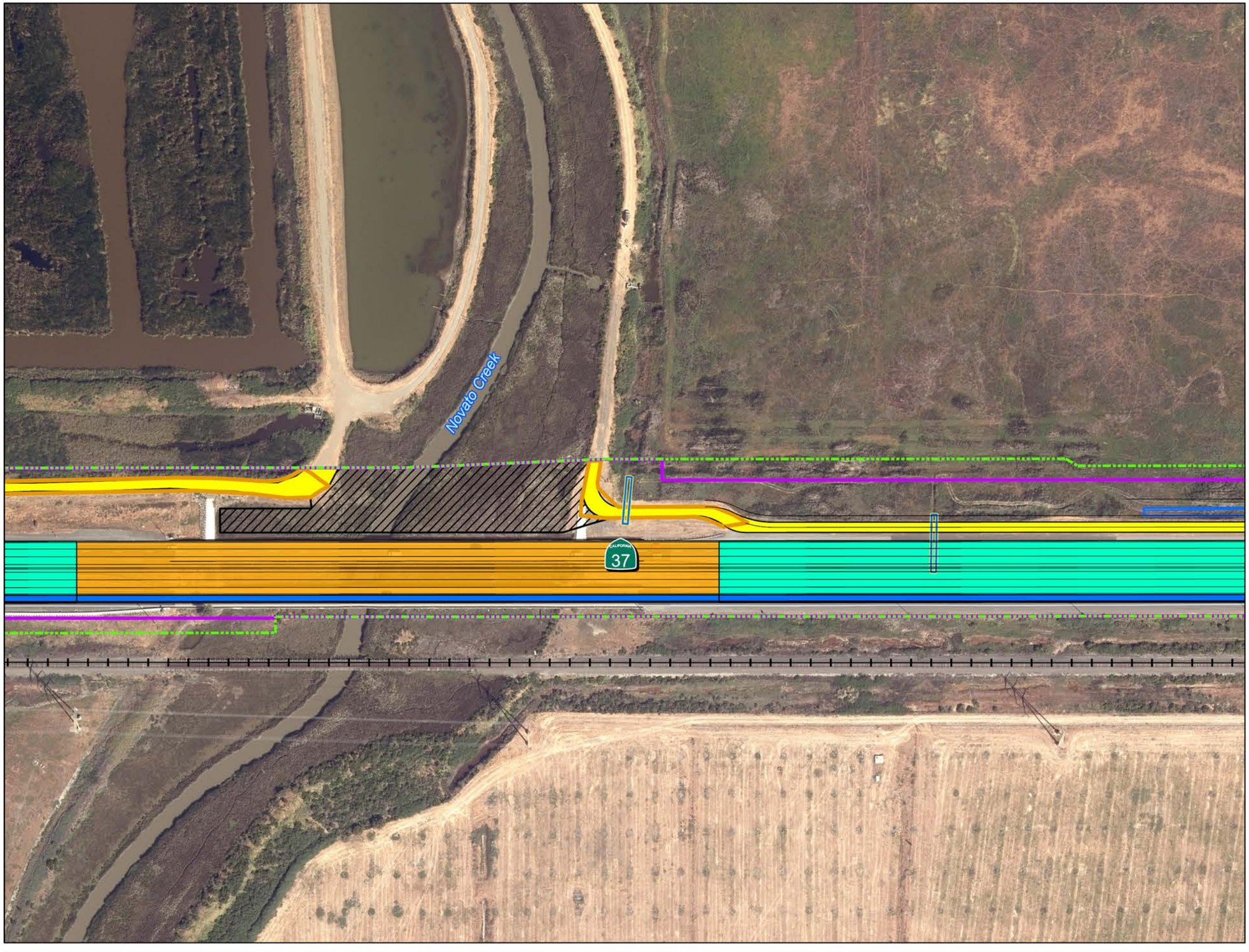
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- New Novato Creek Bridge
- Local Access Road
- Staging Area
- Embankment
- Transition Bridge
- Culvert Extension
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 2 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



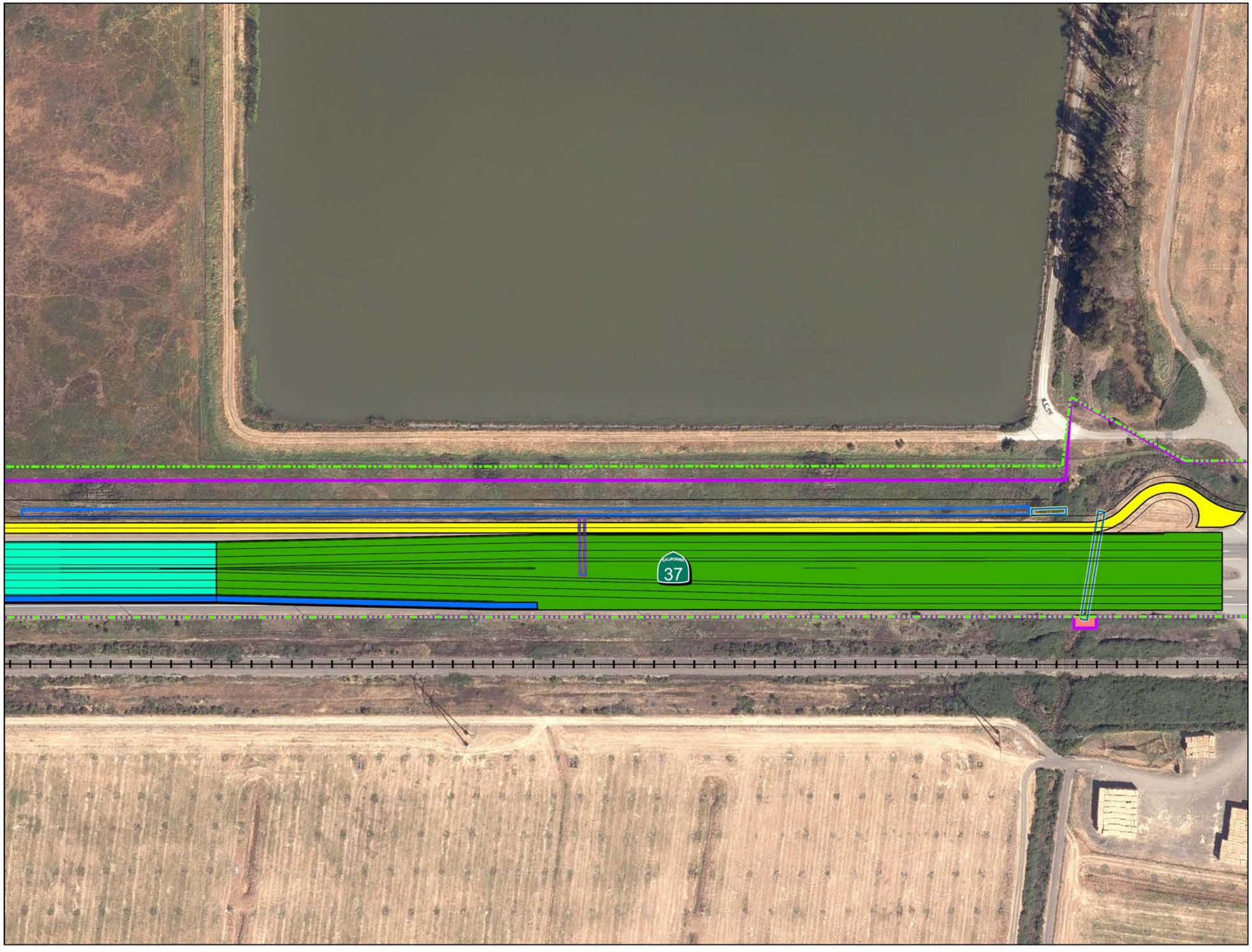
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- Bridge Access Area
- New Novato Creek Bridge
- Local Access Road
- Staging Area
- Transition Bridge
- Culvert Replacement
- Drainage Channel

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 3 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



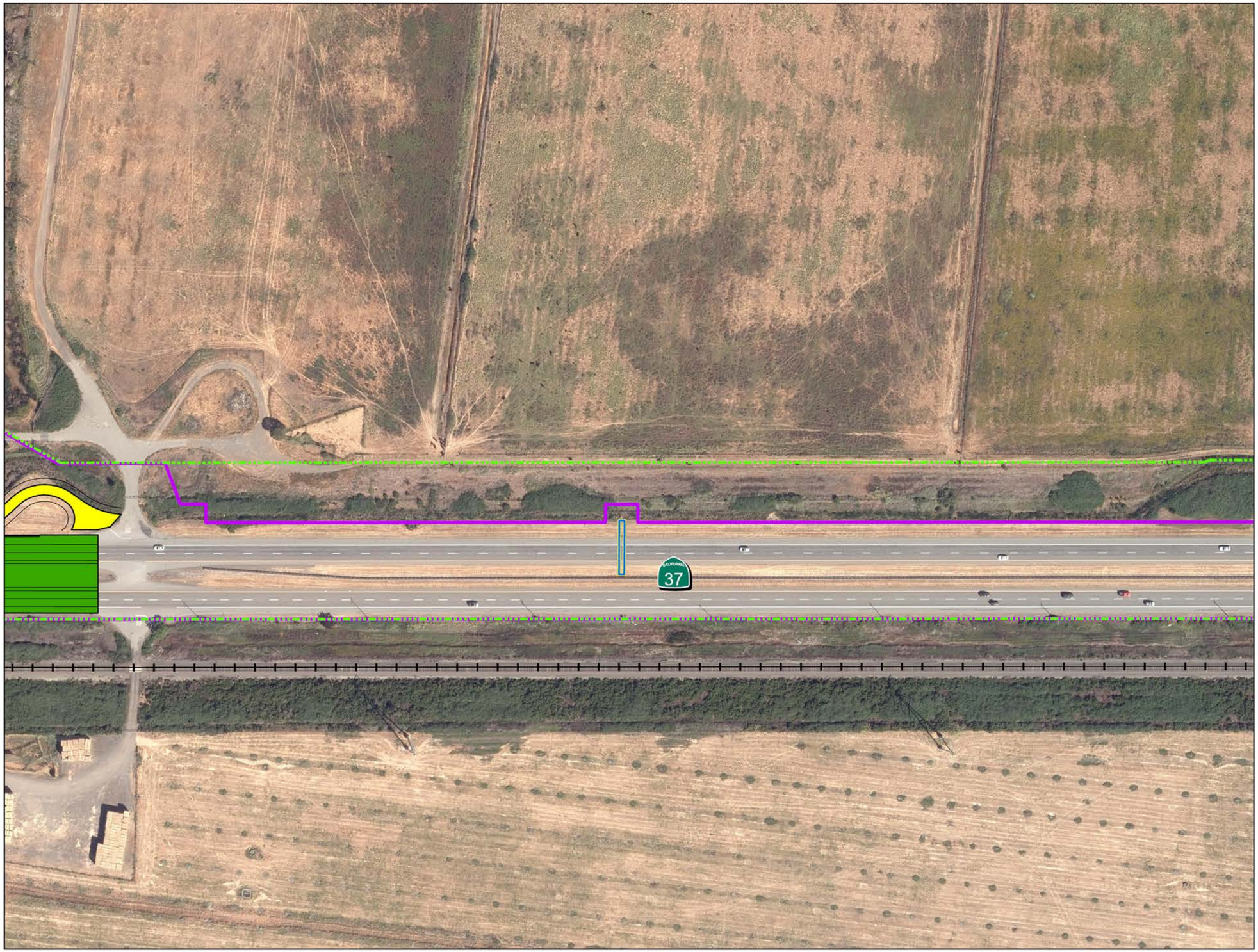
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Temporary Construction Easement
- Bicycle and Pedestrian Path
- Local Access Road
- Embankment
- Transition Bridge
- Culvert Removal
- Culvert Replacement
- Drainage Channel

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 4 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



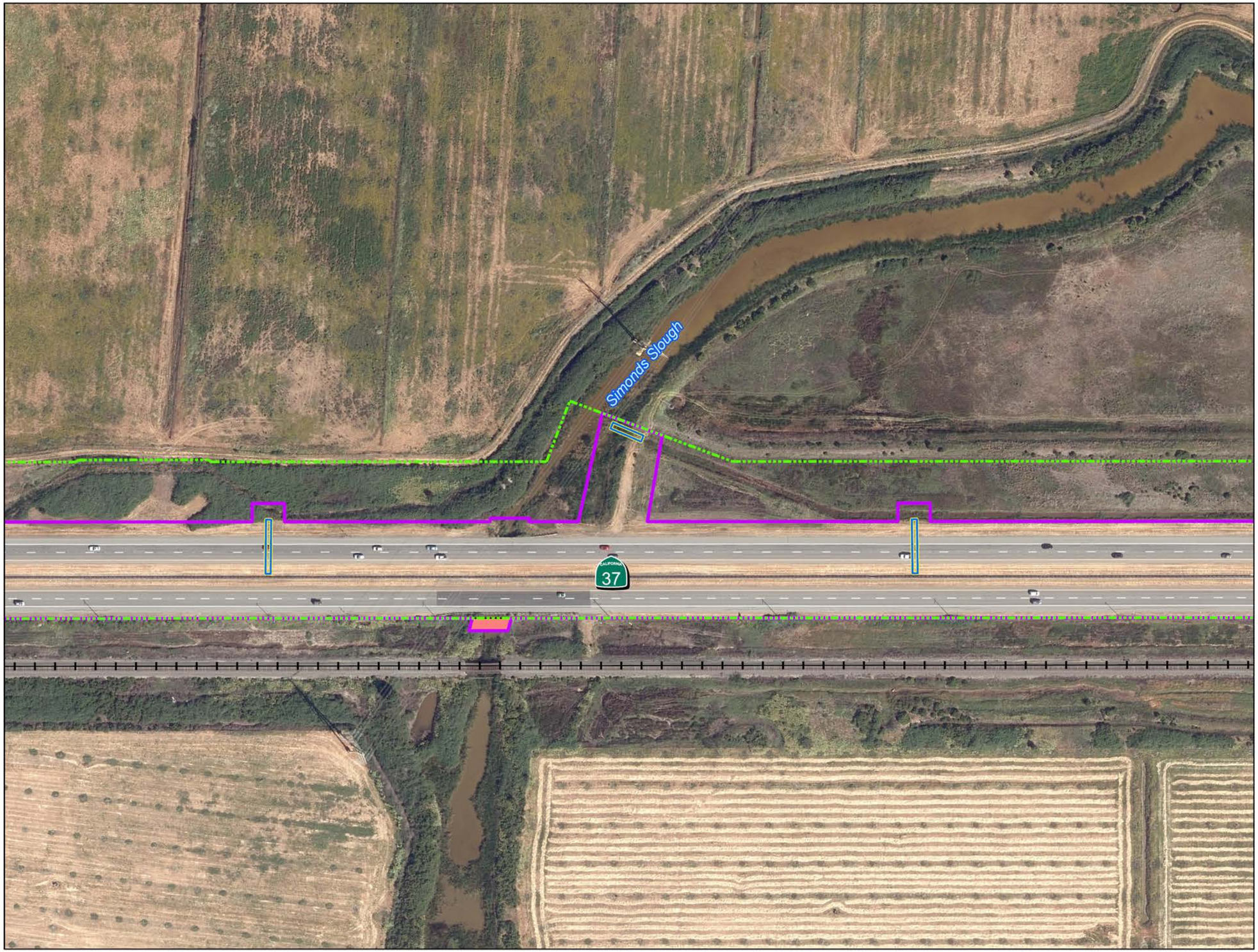
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Local Access Road
- Embankment
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 5 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



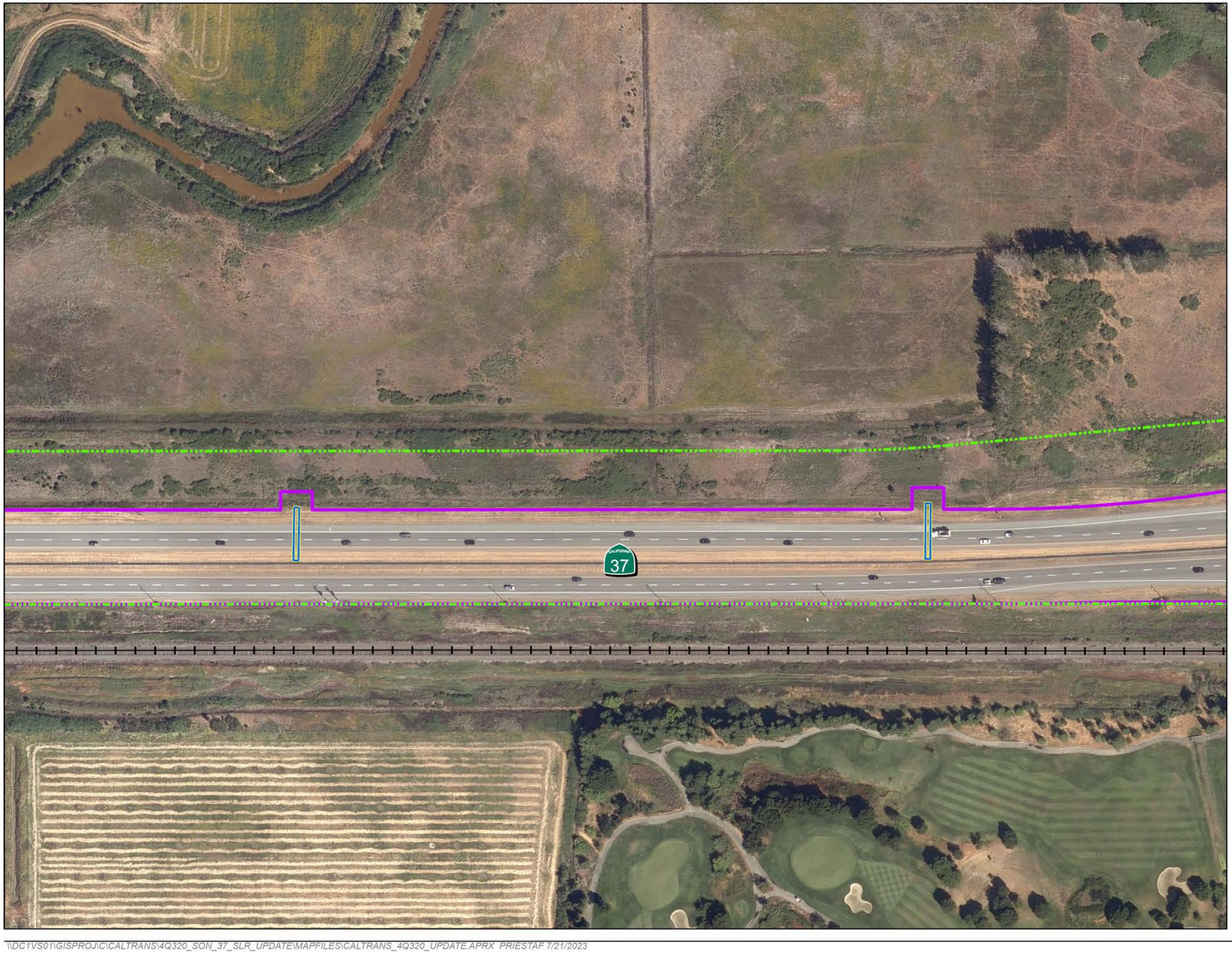
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Temporary Construction Easement (Phase 2)
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 6 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



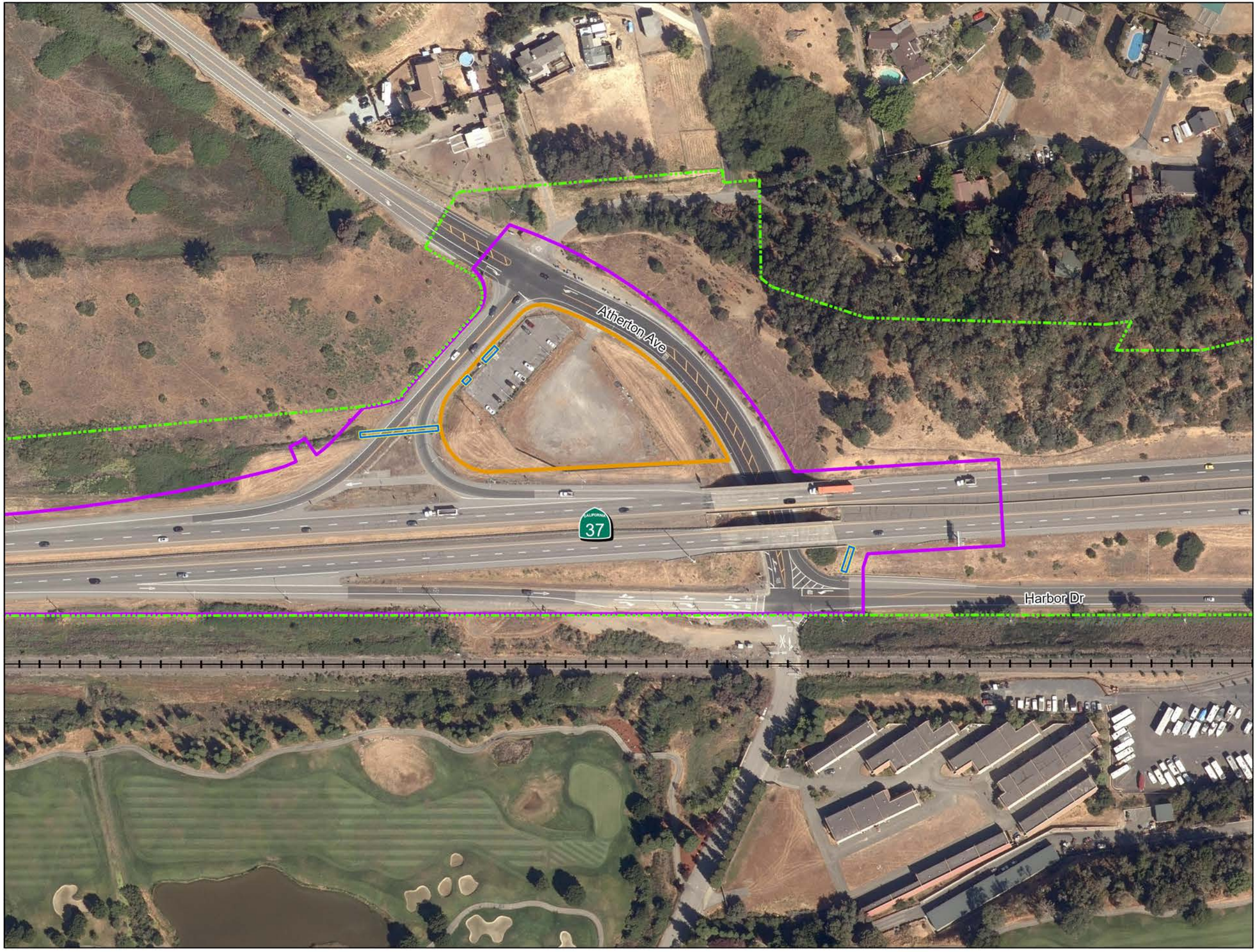
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 7 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



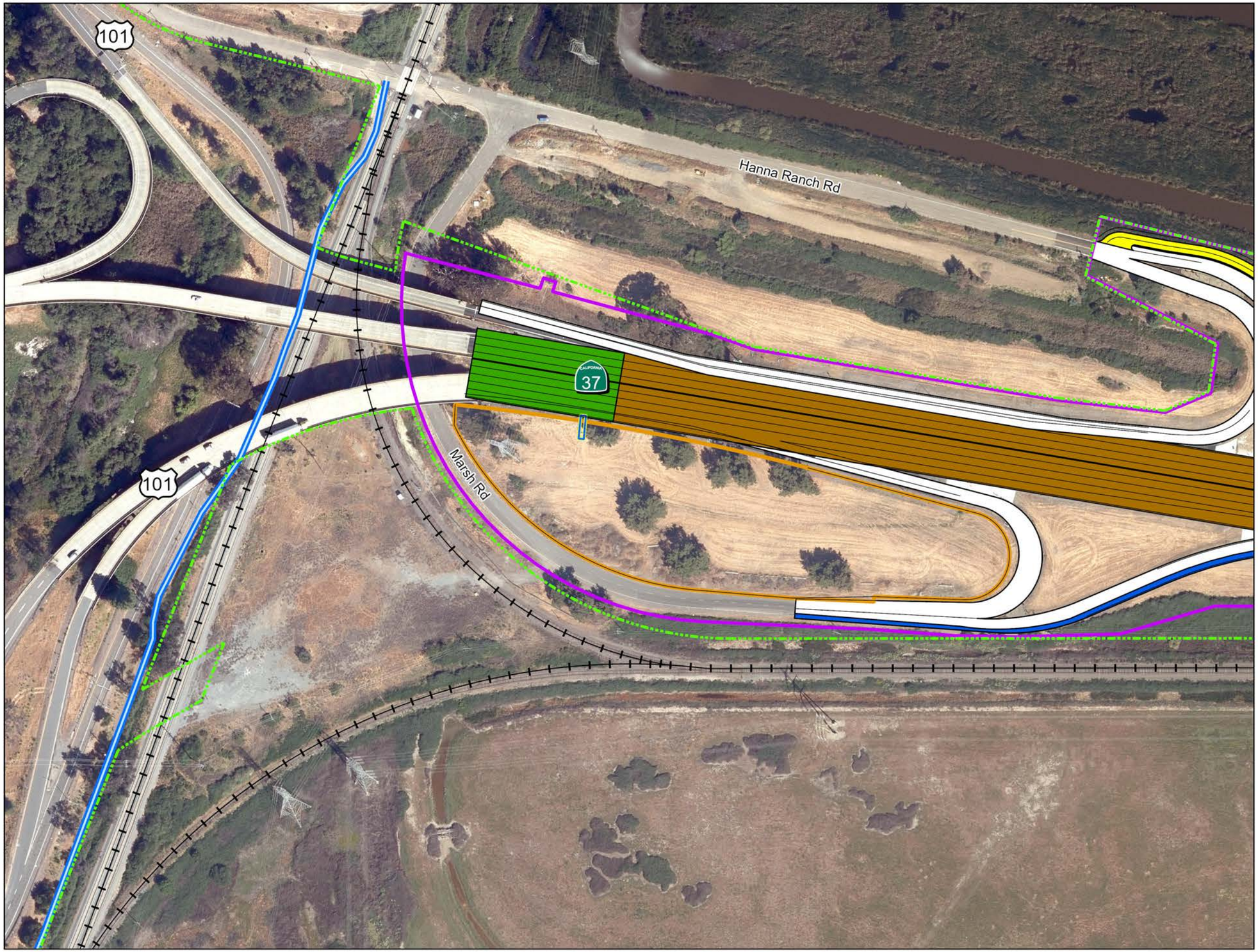
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Staging Area
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-6
Build Alternative - Phase 1
Novato Creek Bridge
Map 8 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



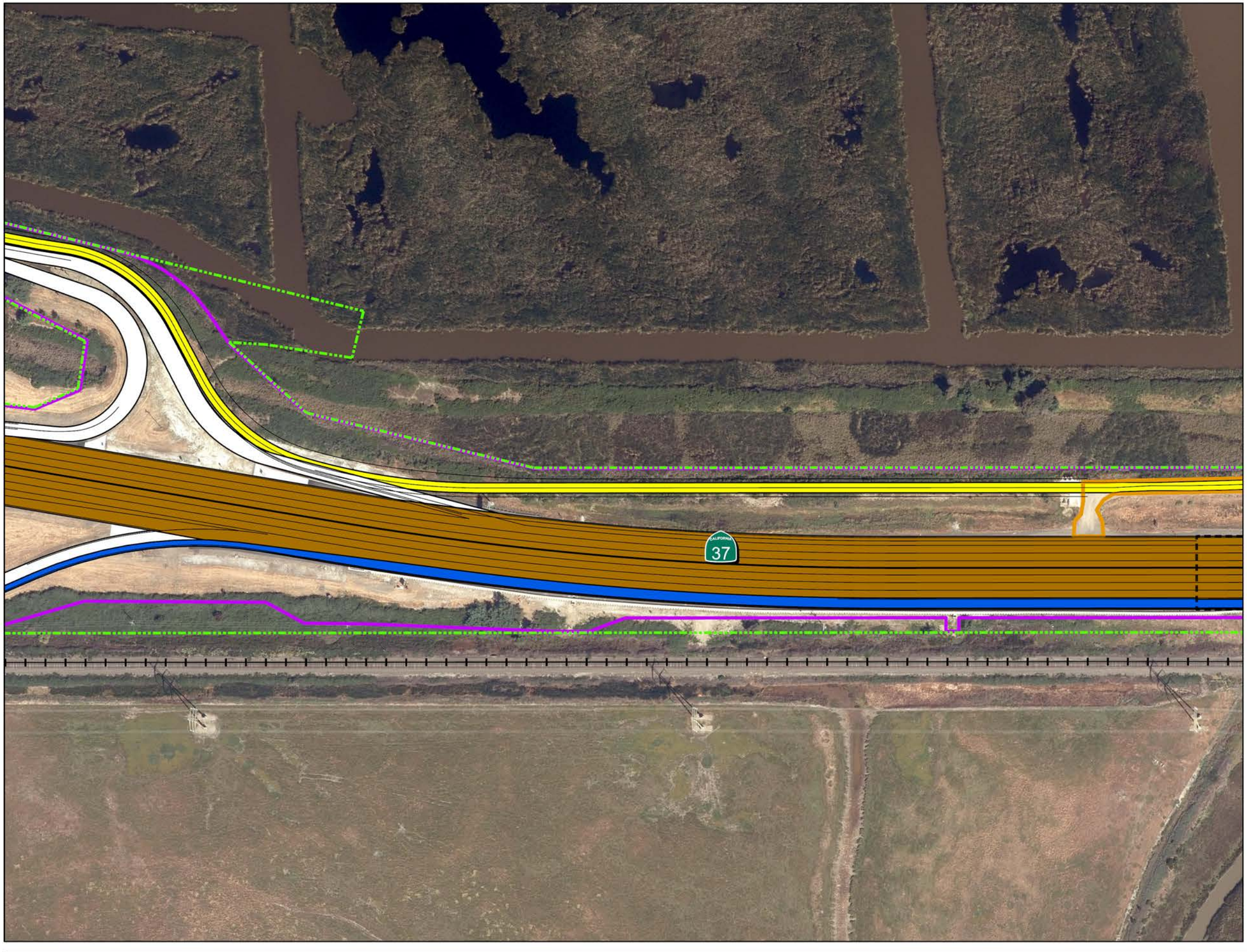
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Bicycle and Pedestrian Path
- Local Access Road
- Staging Area
- Embankment
- Causeway
- Ramp
- Culvert Replacement

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 1 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



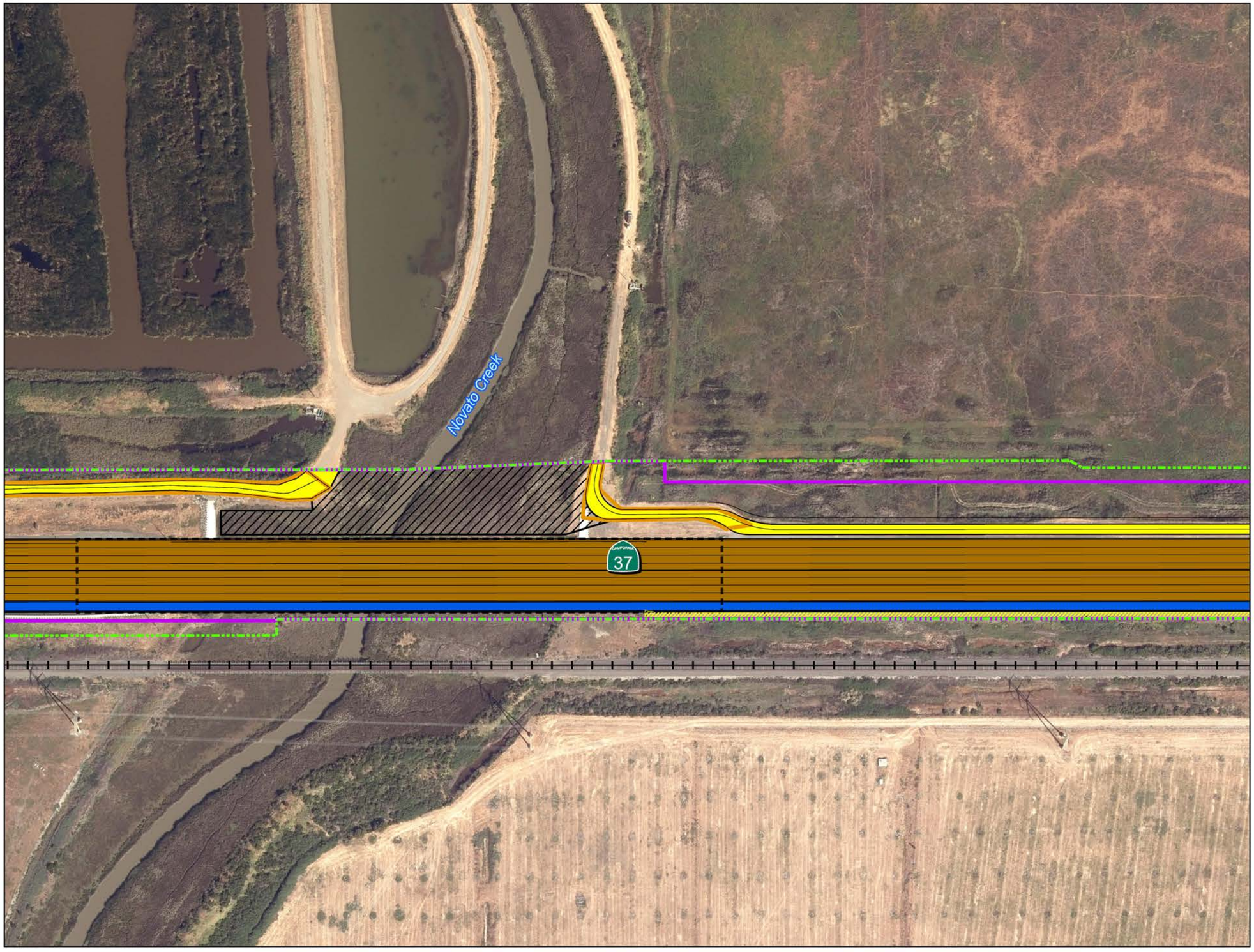
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- Novato Creek Bridge (Phase 1)
- Local Access Road
- Staging Area
- Causeway
- Ramp

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 2 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



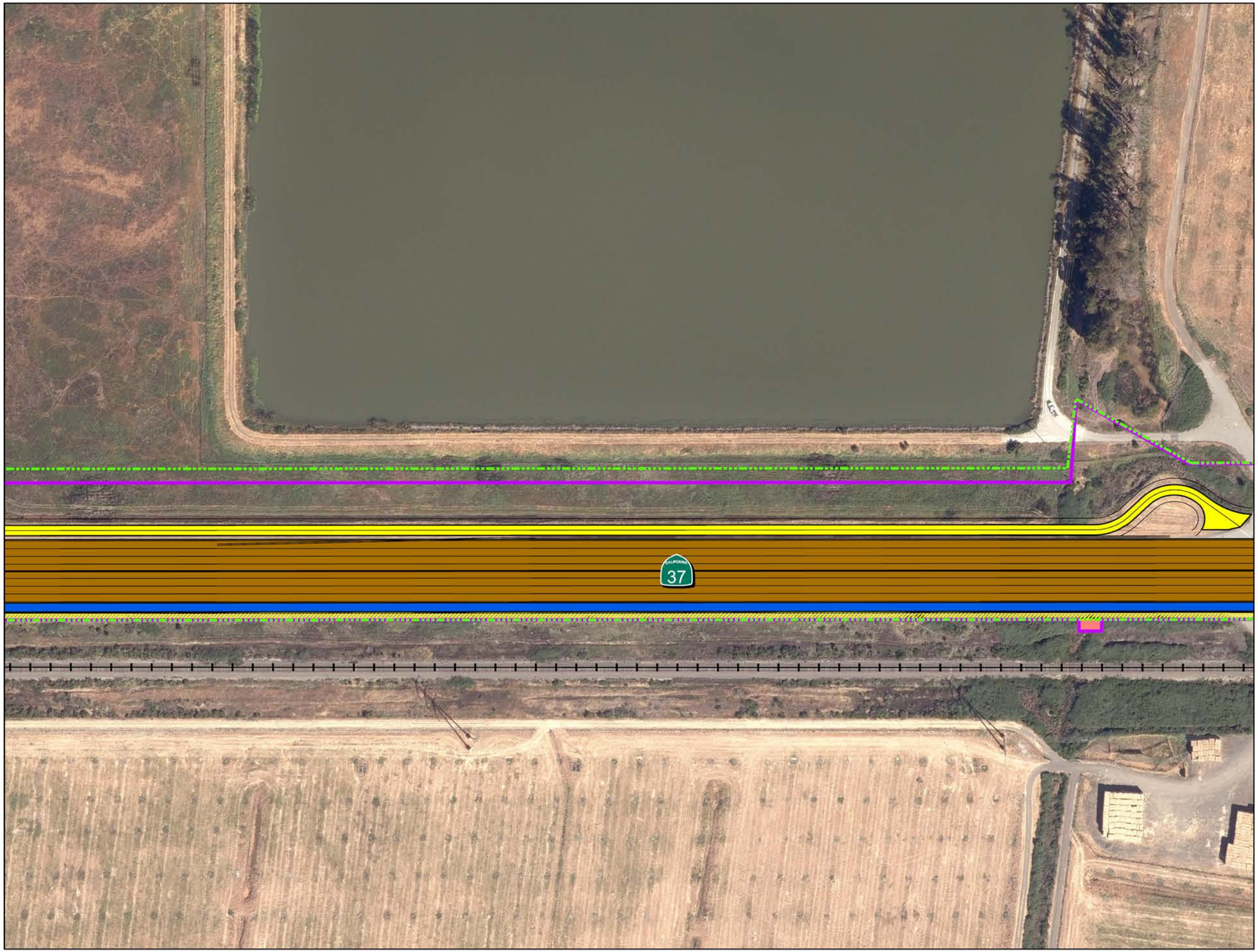
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- Temporary Widening
- Bridge Access Area
- Novato Creek Bridge (Phase 1)
- Local Access Road
- Staging Area
- Causeway

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 3 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



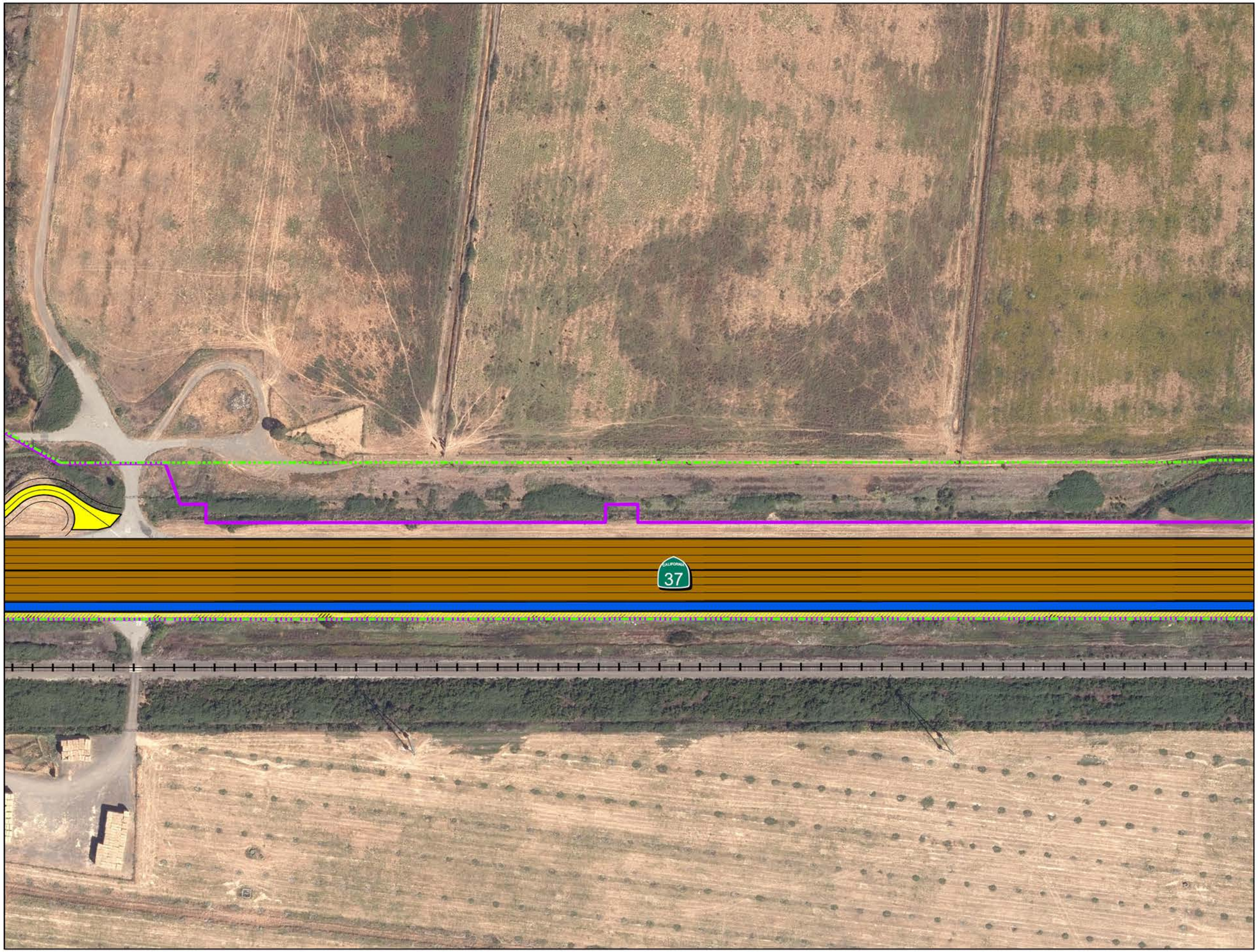
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Temporary Construction Easement
- Bicycle and Pedestrian Path
- Temporary Widening
- Local Access Road
- Causeway

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 4 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



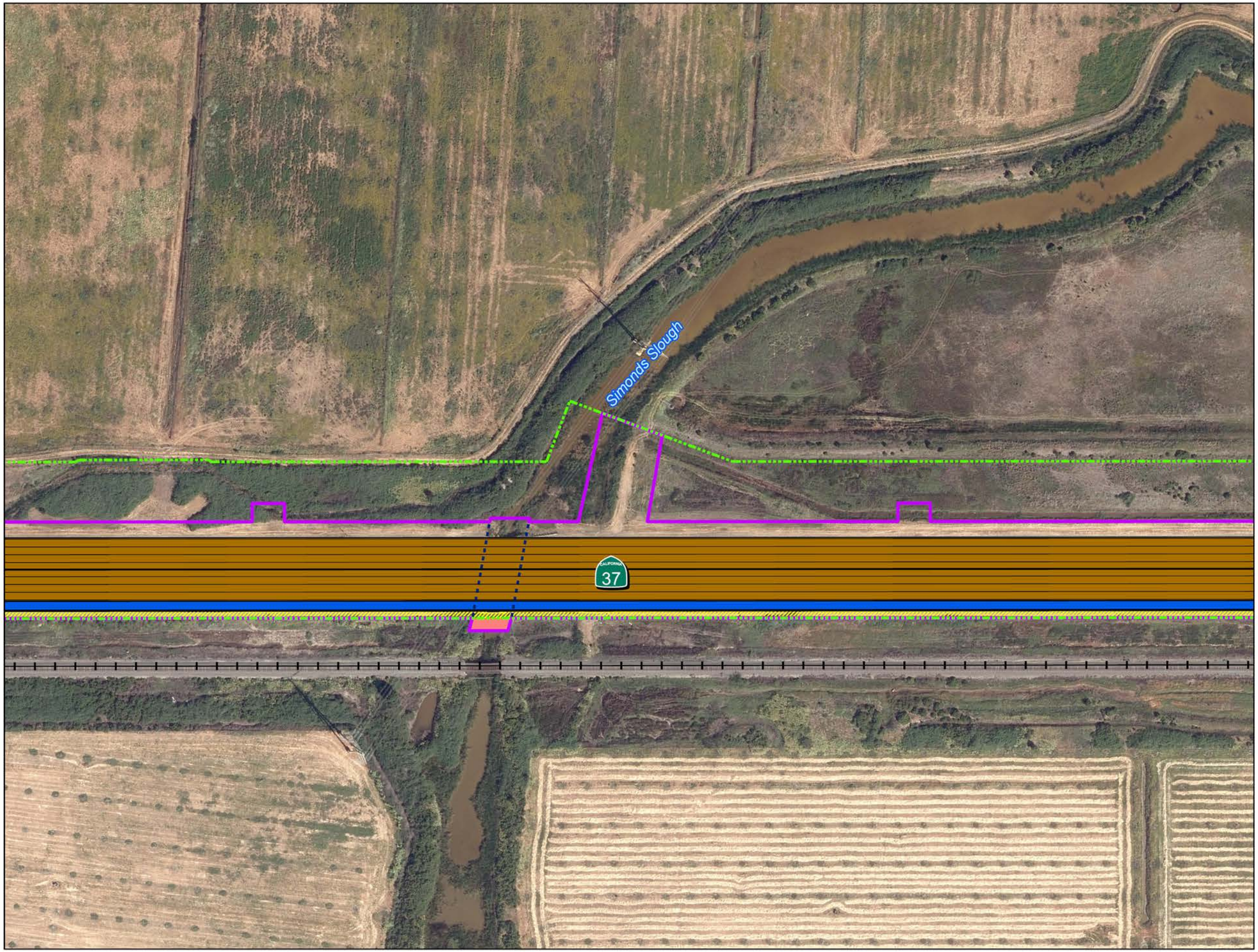
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- Temporary Widening
- Local Access Road
- Causeway

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 5 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



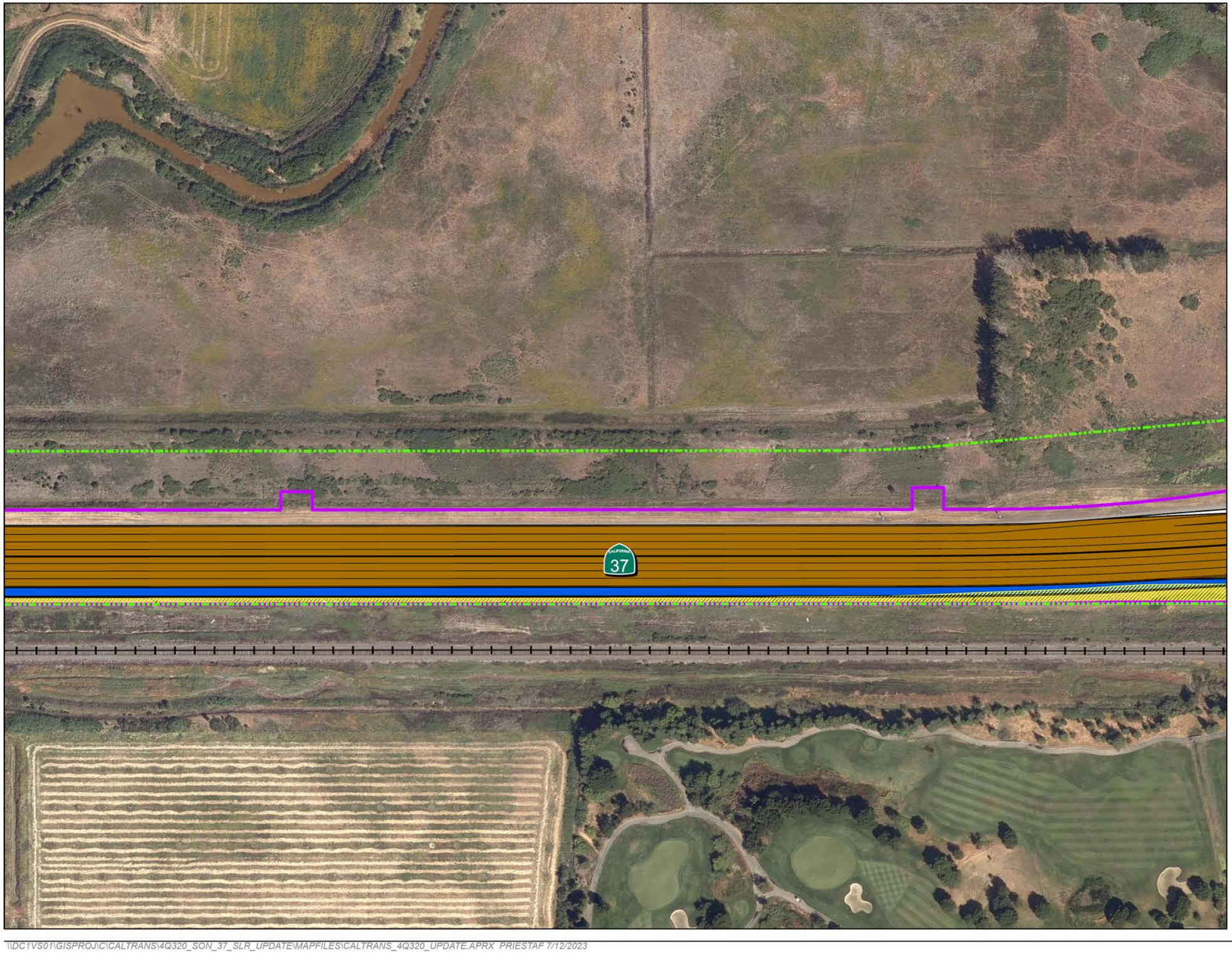
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Temporary Construction Easement
- Bicycle and Pedestrian Path
- Temporary Widening
- Causeway
- Simonds Slough Bridge Removal

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 6 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



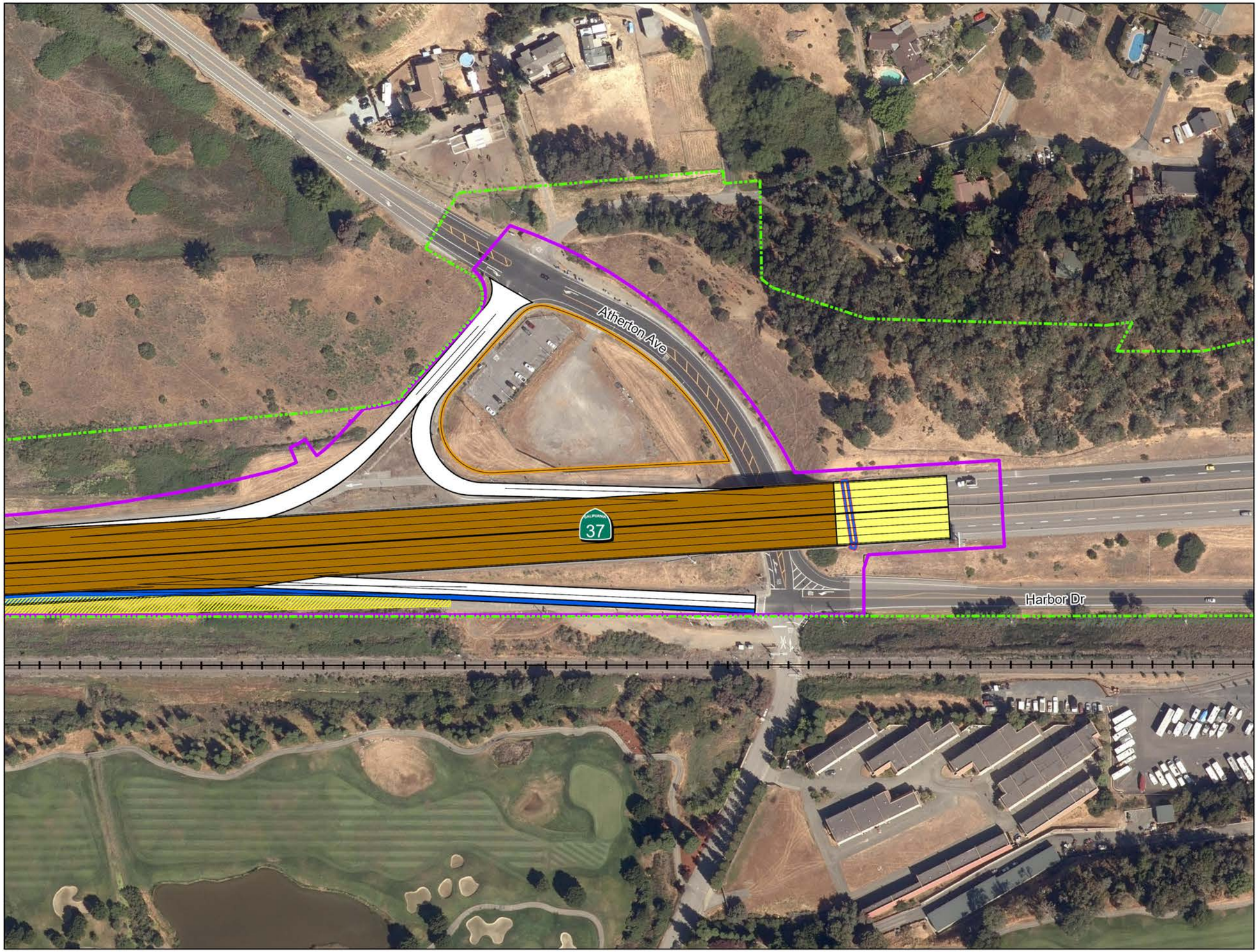
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- Temporary Widening
- Causeway
- Ramp

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 7 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bicycle and Pedestrian Path
- Temporary Widening
- Staging Area
- Resurfaced Highway
- Causeway
- Ramp
- Culvert Removal

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 1-7
Build Alternative - Phase 2
Causeway
Map 8 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

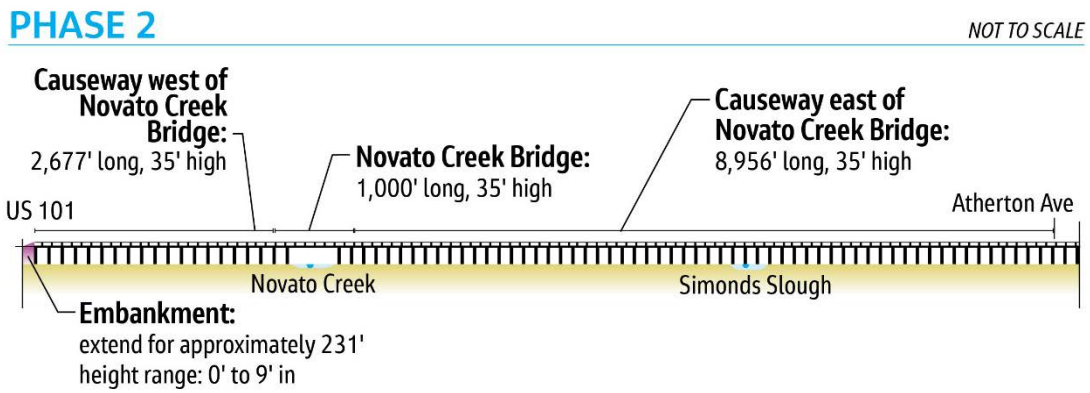


Figure 1-8. Conceptual Profile of Phase 2

SR 37 would be elevated on an embankment at the U.S. 101 connector until transitioning to the causeway. The embankment would extend for approximately 231 feet and range from 0 to 9 feet in height. The embankment would connect the existing U.S. 101/SR 37 connector, elevation 36.5 feet (NAVD 88), to the proposed causeway. The existing elevation of the embankment and causeway connection point is approximately 26 feet, and thus the embankment would increase it by 9 feet to meet the causeway.

On the eastern end of the Project limits, the Build Alternative would replace the existing Atherton Avenue Undercrossing with the causeway. The causeway would end immediately east of the existing Atherton Avenue Undercrossing where it would connect to the existing SR 37 roadway at an elevation of 35.6 feet (NAVD 88). The Project would resurface the highway between the eastern limits of the causeway and Project limits (Figure 1-7).

Simonds Slough

The Build Alternative would replace the existing Simonds Slough Bridge with the new causeway resulting in an open channel. The existing Simonds Slough Bridge (Bridge No. 27-0012) consists of a double 10-foot by 6-foot reinforced-concrete box culvert. Removal of the existing Simonds Slough Bridge would require a temporary construction easement on the south side.

Ramps

The Hanna Ranch Road, Marsh Drive, and Atherton Avenue on- and off-ramps would be reconstructed on elevated structures on the same alignment conforming to the causeway (Figure 1-6). Non-standard guardrails would be upgraded to current Type 85 barriers.

Culverts

As shown in Table 1-2, two culverts would be replaced during Phase 2. One of the culverts would be replaced with a longer culvert of similar diameter. The second culvert would be replaced with a shorter culvert of similar diameter.

1.3.2.3 CONSTRUCTION METHODOLOGY

Phase 1

Local Access Roads

Prior to replacing the Novato Creek Bridge, the local access roads would be relocated and extended. Extending the roads would maintain access to the County property post-construction and would allow construction equipment to move along the construction area with minimal disruptions to traffic. The relocated local access roads would be 16 feet wide with 2:1 side slopes. The western local access road would be built to an elevation of 8.5 feet (NAVD 88) while the eastern local access road would be built to an elevation of 5 feet (NAVD 88). Regionally imported soil would be used to extend and elevate the roadways.

Novato Creek Bridge and Transition Structures

The new Novato Creek Bridge would free-span the Novato Creek channel, avoiding the installation of permanent fill in the channel. The new bridge would be 1,000 feet in length and have a total of 7 spans and 8 bents. The superstructure includes the roadway and a total of 10 girders with a structure depth of 7 feet. Six 54-inch piles would be installed per bent for a total of 48 piles.

The West Transition structure would consist of 22 spans and 23 bents with an abutment at the beginning of the structure. The East Transition structure would consist of 19 spans and 18 bents with an abutment at the end of the structure. Girders would be supported on 30-inch-diameter columns and 30- and 36-inch-diameter piles. There would be seven columns at each bent for a total of 273 columns. There would be 273 such piles installed at the bents and a total of 42 piles would be installed at each transition bridge structure abutment.

Four lanes of traffic would be maintained throughout most of construction by building the new Novato Creek Bridge structure in stages. First, a 36-foot-wide and 1,000-foot-long median would be constructed between the existing westbound and eastbound structures along with 36-foot-wide transition structures on either ends of the bridge. Westbound traffic would then be placed on the new median and the westbound bridge would be removed. The new median and transition structures would then be widened to the north by 30 feet and 6 inches. Both eastbound and westbound traffic lanes would then be placed on the newly widened structure and the existing eastbound structure would be demolished. The new structure would then be

widened to the south by 29 feet 6 inches. The total width of the new Novato Creek Bridge and transition structures would be 96 feet.

The new bridge piles would be vibrated in as deep as possible before using an impact pile hammer. The new bridge piles would be installed to a maximum depth of 150 feet below the ground. An abutment would be constructed at either end of the bridge structure. The maximum depth of excavation for construction of the abutments is 10 feet below the ground.

A temporary construction trestle measuring approximately 720 feet long and 20 feet wide would be built to construct the Novato Creek Bridge. Construction equipment, potentially including a 150-ton crane, would use the temporary construction trestle to avoid entering the sensitive marshland. Up to 50 piles would be installed up to a maximum depth of 100 feet deep. The piles for the temporary construction trestle would be fully removed after construction of the Novato Creek Bridge is complete.

Demolition

Demolition of the existing westbound and eastbound bridges would occur over Novato Creek. A protective cover would be attached to the existing bridge structure to minimize debris entering the waterway. The solid barrier would include a 2-foot-wide walkway and add 4 feet to the width of the bridge during demolition. Removal of the existing piles would involve sawcutting to remove the piles in chunks.

Portions of the existing SR 37 roadway that would be under the new Novato Creek Bridge would be removed to the practicable extent possible for restoration. However, other areas of the existing SR 37 roadway under the new Novato Creek Bridge would need to remain for maintenance of Phase 1 and for construction of Phase 2.

For in-water bridge removal, cofferdams or isolation casings would be installed in the streambed to demolish the existing bridge piles. The bridge piles would be cut 3 feet below the surface. The cofferdams or isolation casings would be removed after the former bridge piles are removed above the mudline.

Embankment

The embankment would consist of a series of compacted layers or lifts of suitable material placed on top of each other until the level of the subgrade surface is reached. The embankment would serve as the surface to place the pavement materials starting first with the load-bearing layer for the roadway. Suitable materials would be obtained from a locally approved source that meets the construction requirements. The embankment would be built in compliance with Caltrans Construction Manual and Caltrans Standard Specifications.

Phase 2

Phase 2 would start with the removal of the 36-foot-wide transition structures from the median area and widening of the new Novato Creek Bridge by 7 feet on the north side and by 11 feet on south side, for a total bridge width of 114 feet. Widening of the Novato Creek Bridge would occur from the roadway, avoiding entry into Novato Creek. The widening of the bridge would require the installation of new bridge support structures in the marsh area of Novato Creek. The 36-foot-wide median of the proposed causeway structure would then be constructed at 35 feet of elevation (NAVD 88) between the U.S. 101 interchange (PM R11.4) and the western end of the Novato Creek Bridge and between the eastern end of the Novato Creek Bridge and PM 13.8, just east of the Atherton Avenue Undercrossing. All eastbound traffic would then be shifted to the new causeway structure. The new causeway structure would then be widened by 40.5 feet to the south throughout its length, over the existing eastbound lanes. The eastbound off-ramp exit for Atherton Avenue would be closed during this stage. Traffic detour is discussed in Section 1.3.2.5.

Both eastbound and westbound traffic would be shifted to the new causeway structure. The causeway would be widened by 37.5 feet to the north, throughout its length, over the existing westbound lanes. Both ramps for westbound traffic at Atherton Avenue would be closed during this widening. After widening is completed, traffic lanes would then be moved to the final configuration, which would include a bike and pedestrian path.

The western causeway structure connecting Novato Creek Bridge to U.S. 101 would be 2,677 feet long, including 21 spans, 20 bents, and an abutment near the U.S. 101 connector. A Minimum of 12 girders would be placed in each span which would be supported on 54-inch-diameter columns and 54-inch-diameter piles. There would be six columns minimum at each bent for a total of 132 columns, and 132 such piles would be installed at the bents. A total of 56 piles would be installed at the abutment.

The eastern causeway structure connecting Novato Creek Bridge to just east of Atherton Avenue Undercrossing would be 8,906 feet long, including 63 spans, 62 bents, and an abutment just east of the Atherton Avenue Undercrossing. A minimum of 12 girders would be placed in each span which would be supported on 54-inch-diameter columns and 54-inch-diameter piles. There would be six columns minimum at each bent for a total of 376 columns, and 376 such piles would be installed at the bents. A total of 42 piles would be installed at the abutment.

The Simonds Slough Bridge would be replaced with a bridge structure. The slough would be temporarily diverted to demolish the existing double box culvert. After the

double box culvert is demolished and removed, the channel would be restored back to the slough's original path.

1.3.2.4 UTILITIES

Utilities within the Project area include gas, electric, telephone, and fiber optic cables. PG&E electric overhead lines and poles are within the Caltrans ROW and would be relocated within the Caltrans ROW before construction. Caltrans would coordinate with PG&E prior to construction.

1.3.2.5 TRAFFIC MANAGEMENT

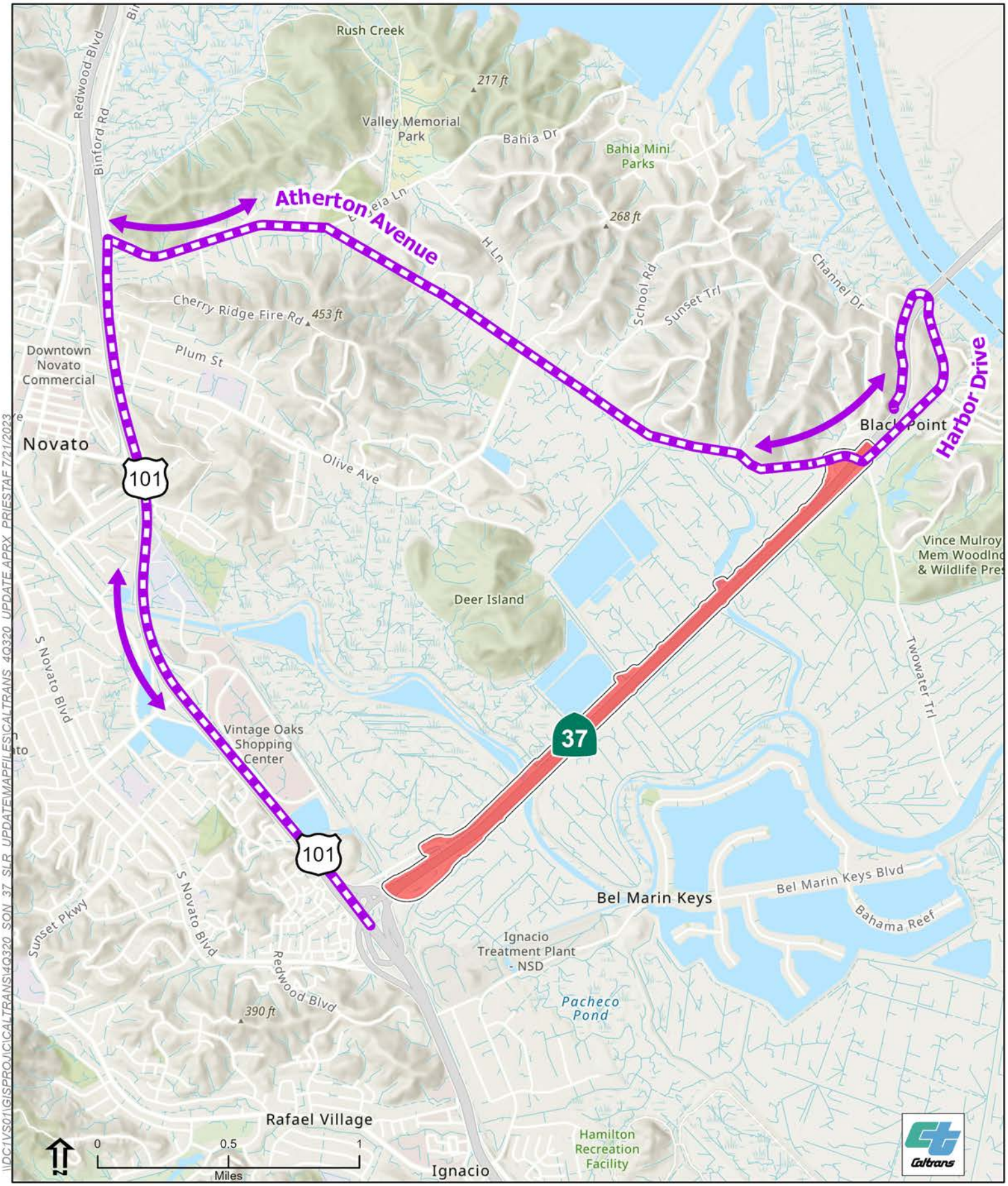
Phase 1

Phase 1 would maintain traffic on SR 37 throughout most of the construction period. Construction of Phase 1 would cause traffic delays of up to 15 minutes with current traffic volumes. Periodic disruption to traffic would occur when lane closures are necessary.

Two weekend closures would be required for constructing the median on the new bridge due to the time needed to cure the concrete deck pours. These closures would require temporary traffic detours that would be developed during the design phase as part of the Transportation Management Plan (TMP). The TMP would describe a Regional Detour Plan and a Local Detour Plan. The Regional Detour Plan would be wide reaching and include the Golden Gate Bridge, the Richmond-San Rafael Bridge, the SF-Oakland Bay Bridge, the Carquinez Bridge, and the Benicia-Martinez Bridge. The Local Detour Plan would include U.S. 101, Harbor Drive and Atherton Avenue. During closure of the Novato Creek Bridge, the U.S. 101 traffic wanting to travel eastbound on SR 37 would be diverted to northbound U.S. 101 and then to the Atherton Avenue exit. At the highway exit, traffic would be directed south to access Atherton Avenue (Figure 1–9). This detour is 6.1 miles and would take about 8 minutes.

Vehicles heading westbound on SR 37 from Sonoma County would be diverted to Harbor Drive and then north on Atherton Avenue to access U.S. 101 (Figure 1-9). This detour is 6.5 miles and would take about 9 minutes.

Nighttime construction work would also be required. Construction lighting would be required during nighttime work. All construction lighting would be directed downwards, away from traffic to minimize glare.



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Legend

- Detour Route
- Project Location

Figure 1-9
Detour Route
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

The TMP would be prepared by Caltrans during the design phase of the Project. The TMP would be incorporated as part of standardized Project measures to minimize traffic delays for the traveling public and emergency responders. The TMP would include procedures to notify local agencies, community members, and businesses of traffic delays and disruptions and to coordinate closely emergency responders to allow for continued access.

Phase 2

Temporary widening would be required in the eastbound direction between the eastern edge of the existing Novato Creek Bridge and the Atherton Avenue off-ramp to accommodate the first stage of median construction. This temporary widening would be necessary to maintain two lanes of traffic in each direction during the first stage of median construction.

Traffic detours would be necessary during the Atherton Avenue on- and off-ramp closures. Oversized vehicles would continue to use SR 37 during construction. Nighttime and weekend construction work would be required; however, any weekend work would occur in the evening or outside of the high peak traffic times. Similar to Phase 1, construction lighting would be required during nighttime work. All construction lighting would be directed downwards, away from traffic to minimize glare.

Construction of Phase 2 would cause traffic delays of up to 15 minutes under current traffic volumes on SR 37, not counting the additional travel time necessitated by the detour routes during the ramp closures. Temporary lane closures and rerouting of traffic lanes within the Project area would be necessary to accommodate construction activities.

As discussed in Section 1.3.2.8 Schedule, construction of Phase 2 would last 56 months and would be completed by 2050. As such, using projected traffic volumes and patterns for the construction period of Phase 2 to estimate traffic delays during construction would be speculative, as construction is anticipated to occur in 2 decades from publication of this Final EIR/EA. Therefore, Caltrans would develop a TMP during the Phase 2 design. Caltrans would work closely with local agencies and emergency responders prior to finalizing the TMP for Phase 2.

1.3.2.6 Construction Staging Areas and Temporary Bridge Access Area

Four staging areas within Caltrans' ROW would be used during construction (Figure 1-6).

The western most staging area is located between Marsh Road and the eastbound SR 37 off-ramp to Marsh Road. This staging area would be used during construction of Phase 1 and 2.

There would be two staging areas north of SR 37 on either side of Novato Creek. These staging areas would be used for construction of the new Novato Creek Bridge under Phase 1 and to widen the bridge during Phase 2.

The easternmost staging area is located along westbound SR 37 in the area between the westbound off-ramp to Atherton Avenue. The easternmost staging area serves as the Black Point Park & Ride and a maintenance yard. The staging areas would be used for equipment storage and stockpiling of construction materials during Phase 1 and Phase 2.

During construction of Phase 1, a temporary bridge access area would be required within the Novato Creek floodplain. The temporary construction trestle would provide an area of 14,400 square feet for construction above the marsh area. The temporary construction trestle would consist of up to 50 piles that would be installed to a maximum depth of 100 feet. The piles would be installed using a combination of vibratory and impact pile hammer. This temporary bridge access area would be 0.32 acres.

1.3.2.7 PROJECT FEATURES

This Project contains a number of standard Project features (such as best management practices) 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 Project features are evaluated within the scope of the entire Project in the Environmental Consequences subsections in Chapter 2, and are listed in Appendix D.

1.3.2.8 SCHEDULE

Replacement of the Novato Creek Bridge is anticipated to begin in May 2027 and end in June 2029 for a maximum duration of 26 months. Replacement of the Novato Creek Bridge would occur during the dry season between June 1 and October 31. The temporary construction trestle would be removed from Novato Creek before the end of the dry season. Construction of Phase 2 would last 56 months and would be completed by 2050.

1.3.3 No-Build Alternative

Under the No-Build Alternative, there would be no improvements to SR 37 to prevent flooding from stormwater overtopping and the projected 2130 SLR. With the No-Build Alternative, the Project area would flood during 10-year storm surge events and

current models show the area to be permanently inundated around the year 2050 with roadway flooding depths ranging up to 5 feet. SLR increases the annual probability that the highway or levee would experience inundation over time. Under the medium-high risk aversion SLR scenario presented in the *SR 37 Segment A PIR Sea Level Rise and Flooding Risk Assessment and Shoreline Evaluation*, a levee or highway elevation of 9 feet (NAVD 88) is projected to have a 22% chance of flooding due to inundation by 2030, a 38% chance by 2035, a 64% chance by 2040, and a 100% chance by 2045. For reference, the Novato Creek Bridge is at approximately 9 feet NAVD 88, and the remainder of the Project area, excluding the begin and end points, is at an elevation between 4 to 6 feet (NAVD 88) (AECOM 2021). As shown in Photos 1 and 2, the Project area experiences flooding and is projected to continue to experience a higher frequency of flooding as the year 2050 approaches.

Under the No-Build Alternative, SR 37 would be unable to continue linking job markets and housing within Marin, Sonoma, Napa, and Solano Counties. It would also cease to provide access to destinations such as the Golden Gate National Recreation Area in Marin County, the Sonoma Raceway, the cities of Sonoma and Napa, and their wine producing regions. The Napa Valley wine industry provides an annual economic impact of more than $9.4 billion locally, nearly $34 billion in the United States, and creates 44,000 jobs in Napa County and nearly 190,000 jobs nationwide (Napa Valley Vintners 2021). The one local access road crossing, two at-grade local access roads that serve Marin County properties, the Black Point Park & Ride, and the Stone Tree Gold Club that connect to SR 37 within the Project limits would no longer be accessible under the No-Build Alternative. Additionally, it would no longer serve freight movement or recreational functions.

The No-Build Alternative would allow for reoccurring floods to disrupt accessibility and mobility between Marin and Sonoma Counties. Under the No-Build Alternative, the purpose and need of the Project would not be met because it would not prevent recurring flooding and accommodate projected 2130 SLR on SR 37. The severity of highway flooding would increase during winter rain and high tide events, continuing to disrupt connectivity and accessibility with highway closures.

1.4 Identification of a Preferred Alternative

Caltrans proposes the Project to address recurring stormwater overtopping on the highway, which causes highway closures, disruption to local and regional travel patterns, and economic activity in the region. The Build Alternative would meet the purpose and need by building resiliency against flooding and projected 2130 projected SLR, and would elevate the existing highway onto a causeway to an elevation of 35 feet (NAVD 88). In addition, the Build Alternative would not increase vehicular capacity and, therefore, would not increase vehicle miles traveled in the

region. The Build Alternative would continue to provide accessibility and mobility across the region. The Caltrans Project Development Team selected the Build Alternative as the Preferred Alternative on November 7, 2023, after careful consideration of the public comments.

During the public review period, Caltrans received 38 comment letters with a total of 220 delineated comments. The comment themes included tolling, integration of SMART into the Project, flooding, restoration, and noise. All of these topics are addressed in Appendix K, Responses to Comments. The Build Alternative would not exacerbate flooding in the Project area, including the SMART tracks; would improve wildlife connectivity and hydrologic connectivity; and would not increase ambient noise levels.

The No-Build Alternative would not improve the resiliency of SR 37 toward the projected effects of 2130 SLR and would not reduce stormwater overtopping the highway and, therefore, would not meet the Project purpose and need. In addition, the highway would continue to serve as a barrier for wildlife connectivity and would fail to address the reoccurring flooding of SR 37, preventing access and mobility across the region. Furthermore, it is anticipated that there would be an increase in vehicle miles traveled from vehicles needing to use detour routes because of roadway closure from flooding.

For the reasons presented herein, Caltrans selected the Build Alternative as the Preferred Alternative.

1.5 Alternatives Considered but Eliminated from Further Discussion Prior to Draft EIR/EA

This section describes the build alternatives that were considered but eliminated from further discussion during the Project development process.

1.5.1 Raise Embankment

This alternative proposed to construct a raised roadway, primarily in the embankment to accommodate projected 2050 SLR elevation. This alternative proposed approximately 5 miles of raised roadway on about a 12-foot-high (NAVD 88) embankment for sheltered highway or levee segments and a 14-foot-high (NAVD 88) embankment for highway or levee segments subject to wave overtopping. The Project limits included U.S. 101 (SR 37 PM R11.2 in Marin County) to Atherton Avenue Undercrossing (SR 37 PM 13.8 in Marin County) and Petaluma River Bridge (SR 37 PM 0.3 in Sonoma County) to 1 mile west of SR 121 (SR 37 PM 2.8 in Sonoma County). This alternative proposed to modify the Novato Creek Bridge, Simonds Slough Bridge, Atherton Avenue Undercrossing, and the Petaluma

River Bridge. During the scoping period in November 2021, Caltrans received many comments in opposition to this alternative. This alternative was eliminated from further consideration due to anticipated environmental impacts, and public opposition.

According to the *SR 37 Segment A – Sea Level Rise Corridor Improvement Study* (TAM 2018), the roadway elevation for projected 2100 SLR must be at least 21.7 feet (NAVD 88). Under this Alternative, the roadway would be elevated to 12 feet (NAVD 88), which is below the 2100 SLR projections. The Alternative was eliminated from further consideration because it would not build resiliency to the effects of projected 2130 SLR. Therefore, this alternative no longer meets the Project purpose and need.

1.5.2 Novato Creek Bridge Replacement and Passive Flood Barriers

This alternative proposed to replace the Novato Creek Bridge with an elevated structure above the projected 2050 SLR, install passive flood barriers for 2 miles outside the eastbound and westbound shoulders of SR 37 from U.S. 101 to west of the Novato Creek Bridge (PM R11.5 to PM 12), and east of the Novato Creek Bridge to Atherton Avenue Undercrossing (PM 12.1 to PM 13.8), and upgrade the Atherton Avenue Undercrossing (Bridge No. 27-0079 L&R) railing to current standards.

Caltrans eliminated this alternative from further discussion due to constructability constraints, and operation and maintenance concerns. Construction of the passive barriers would have required the installation of wide foundations, requiring more space than is available within the Caltrans ROW. Along SR 37 there are several local access roads to which access would have been blocked during the operation of the passive flood barriers. During a storm event, the passive flood barriers would automatically rise to block stormwater from entering the highway and block access to the local access roads along the highway. In addition, during operation the passive flood barriers, once erected, would create a pond by acting as a dam, requiring design features outside the Caltrans ROW and triggering compliance with the Department of Water Resources dam requirements. Lastly, the operation of the passive flood barriers would have failed to efficiently protect SR 37 from stormwater because the wall heights would not be sufficient for projected 2130 SLR. Due to these technical deficiencies, this alternative would not meet the purpose and need. Therefore, Caltrans eliminated this alternative from further consideration.

1.5.3 Novato Creek Bridge Replacement with Combination of Causeway and Embankments

This alternative proposed to protect 2.5 miles of SR 37 from flooding and projected 2050 SLR by constructing 20.5-foot-high (NAVD 88) causeways and 12-foot-high

embankments from U.S. 101 to Atherton Avenue. The causeways would replace the Novato Creek and Simonds Slough Bridges. The Atherton Avenue Undercrossing bridge rails would be upgraded to Type 85 see-through barriers. The Atherton Avenue westbound on- and off-ramps and eastbound off-ramp would be reconstructed to conform to the raised roadway.

This alternative proposed two causeways within the Project footprint. From west to east, one 2,350-foot-long causeway would extend from U.S. 101 and SR 37 to east of Novato Creek (PM R11.5 to PM 12.4), and would replace the existing Novato Creek Bridge. The second causeway would extend from PM 12.8 to PM 13.3, measure 2,975 feet long, and replace the existing Simonds Slough Bridge.

The proposed elevation under this alternative would not meet the projected 2130 SLR. This alternative was eliminated from further consideration because it would not meet purpose and need.

1.5.4 Interim Causeway

This alternative proposed to construct a 2.5-mile interim causeway from U.S. 101 to Atherton Avenue Undercrossing (PM R11.4 to PM 13.8). The interim causeway would be 12 feet high (NAVD 88) to be above the projected 2050 SLR elevation. The causeway would support a roadway consisting of four 12-foot-wide lanes, a 12-foot-wide median with a 2-foot-wide median barrier, 5-foot-wide inside shoulders, and 10-foot-wide outside shoulders with a 2-foot-wide outside barrier, resulting in a total roadway width of 84 feet. The causeway would replace the Novato Creek Bridge and the Simonds Slough Bridge. The elevation proposed under this alternative would not accommodate projected 2130 SLR. This alternative was eliminated from further consideration because it does not meet the purpose of the Project.

1.5.5 Strengthen Levees

This alternative proposed strengthening the privately and publicly owned levees in the surrounding area to reduce flooding and projected SLR on SR 37. The Project area is surrounded by levees that were constructed for agricultural purposes. This alternative was eliminated from further consideration because the levees are outside of the Caltrans ROW and outside of Caltrans jurisdiction.

1.5.6 State Route 37 Viaduct Causeway

This alternative is similar to the Project. Under this alternative, a 2.5-mile viaduct would be constructed on SR 37 from U.S. 101 to Atherton Avenue Undercrossing (PM R11.2 to PM 13.8). The viaduct would be 35 feet high to be above the projected 2130 SLR. This viaduct would have the same roadway dimensions and capacity as the Project, including a designated 14-foot-wide bicycle and pedestrian path. Unlike the Project, construction of this alternative would occur in one phase, lasting more

than 5 consecutive years and resulting in more severe disruptions and delays to traffic in the region. This alternative would meet the purpose and need of the Project; however, this alternative was eliminated from further consideration because funding is not available for the full construction of the viaduct.

1.5.7 Transportation System Management/Transportation Demand Management Alternative

This alternative proposes the implementation of Traffic System Management (TSM) and Transportation Demand Management (TDM) strategies to optimize highway operation and maximize traveler choices. Because this alternative would not involve improvements to elevate the highway, the implementation of this alternative would not address the recurring flooding and projected SLR effects on the highway. This alternative was eliminated from further consideration because it would not meet purpose and need.

1.6 Permits and Approvals Needed

The permits, agreements, and certifications that would be required for Project construction are summarized in Table 1-3. All Project permits will be obtained during the design phase and after certification of the Final EIR/EA with Finding of No Significant Impact (FONSI). Section 7 consultation with the United States Fish and Wildlife Service and National Marine Fisheries Service will be completed after certification of the Final EIR/EA/Finding of No Significant Impact.

Table 1-3. Permit or Approval Document and Approving Agency

Approving Agency	Permit or Approval Document
California Department of Fish and Wildlife (CDFW)	1602 Lake and Streambed Alteration Agreement; California Endangered Species Act Incidental Take Permit
National Marine Fisheries Service (NMFS)	Biological Opinion
Regional Water Quality Control Board – Region 2, San Francisco	Clean Water Act Section 401 Water Quality Certification; Discharges of Dredged or Fill Materials to Waters of the State
San Francisco Bay Conservation and Development Commission (BCDC)	Consistency with Bay Plan (Refer to Appendix G)
United States Fish and Wildlife Service (USFWS)	Biological Opinion
United States Army Corps of Engineers (USACE)	Clean Water Act Section 404
California State Lands Commission (SLC)	Temporary Easement

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

This chapter discusses the potential impacts that the State Route 37 Flood Reduction Project (Project) would have on the human and physical environments within the Project area. It describes the affected environment that could be affected by the Project; potential direct and indirect impacts during the construction and operation phases; and proposed avoidance, minimization, and/or mitigation measures. The proposed avoidance and minimization measures (AMMs) and mitigation measures are also summarized in Appendix E. This chapter also addresses issues of concern pursuant to California Environmental Quality Act and National Environmental Policy Act (NEPA). Chapter 3 contains the California Environmental Quality Act (CEQA) evaluation.

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

- **Coastal Zone –** The Project area is not located within the California coastal zone. The Project is located within the City of Novato and unincorporated Marin County; no coastal resources would be affected by construction or operation of the Project. Although a San Francisco Bay Conservation and Development Commission (BCDC) permit is not required, consistency with the *San Francisco Bay Plan* is further discussed in Section 2.1.2 and Appendix G.

- **Wild and Scenic Rivers –** The Project area does not include any waterways designated as a National Wild and Scenic River (NPS 2022). As such, no wild or scenic rivers would be affected by construction or operation of the Project.

- **Growth –** The purpose of the proposed Project is to accommodate projected 2130 sea level rise (SLR) and recurring flooding on State Route (SR) 37 in Marin County, California. The Project would not add capacity in the form of new lanes to SR 37 nor induce changes in regional or local access or connectivity that may be considered growth-inducing in terms of land use, economic vitality, or population density.

Accessibility will not change during the construction phase, and therefore the Project would not affect growth. Use of the detour route(s) during construction would continue to provide accessibility to and from nearby communities, businesses, and recreational and employment opportunities in the area.

No known major housing developments are planned for the Project vicinity. Projects currently underway in the vicinity consist only of moderate expansions to existing residences and commercial buildings (Marin County 2022c, City of Novato n.d.).

- **Timberlands –** The Project site is located within an area classified as both Farmland of Local Importance and Urban and Built-Up Land (CDC 2018a); the Project site contains no qualifying timberland.

- **Relocation and Real Property Acquisition –** Construction activities would require temporary construction easements (TCEs) on two properties, as shown on Figure 2.1.5-1; however, the Project would not require permanent or temporary displacements or relocations.

- **Environmental Justice –** No minority or low-income populations that would be adversely affected by the proposed Project have been identified. Therefore, this Project is not subject to the provisions of Executive Order 12898.

The list of technical studies prepared to complete the analysis in several sections of Chapter 2 are listed in Appendix C.

2.1 Human Environment

2.1.1 Existing and Future Land Use

SR 37 runs 21 miles along the northern shore of San Pablo Bay, from United States Highway 101 (U.S. 101) in Novato through northeastern Marin County, crossing over the Petaluma River and Napa River, continuing through southern Sonoma and Solano Counties, to Interstate 80 (I-80) in Vallejo. The Project on SR 37 is located at the western end of SR 37 in the City of Novato within Marin County from the SR 37/U.S. 101 Interchange to the Atherton Avenue Undercrossing. Within the Project limits, SR 37 is an expressway with two lanes of travel in each direction.

The surrounding Project area land use designations consists of business and professional offices, community facilities, conservation, general commercial, light industrial/offices, very low-density residential, low-density residential, medium density multi-family residential, open space, parkland, rural residential, and undesignated. Open space dominates the surrounding land use type, with the nearest residences at Bel Marin Keys roughly 0.25 mile to the southeast, outside of Novato's city limits. Deer Island Preserve is within view and to the north of SR 37 (Figure 2.1.1-1).

The Project is within the East Area of the Novato General Plan (City of Novato 2020), one of eight distinct neighborhoods. The East Area is bounded by the Petaluma River and the Novato city limits to the north and east, open space and grazing land to the south, and U.S. 101 to the west. The area is largely rural and isolated from the rest of Novato by the hills of the Rush Creek Open Space Preserve and U.S. 101. Major activity centers in the area include Deer Island, Olive Elementary School, Atherton Avenue Fire Station, and the Black Point Boat Launch Park. Neighborhoods include Bahia and residential areas near the Olive Elementary School, Poplar Terrace, Davidson Street, and Atherton Avenue. The unincorporated Black Point community is northeast of the Project area. The new Vintage Oaks regional shopping center is southeast of the U.S. 101/Rowland Boulevard interchange. Some scattered industrial uses are located in the Bay plain, including a sewage treatment plant. Much of the area consists of bay plains, which have been diked and filled for agriculture. Under the City's General Plan policies, agricultural, open space, and conservation lands would be encouraged to remain in these uses. Novato's General Plan policies would require carefully reviewing development in floodplains. Other environmental resources that would be protected under the Novato General Plan policies are Atherton Ridge, Olive Ridge, Reservoir Hill at Hamilton Field, and Deer Island.

Table 2.1.1-1 lists the current and proposed land use developments within 1 mile of the Project. All development is reviewed by the lead agency for consistency with the

General Plan and separately undergoes environmental review in compliance with CEQA.

Table 2.1.1-1. Current and Proposed Land Use Developments within One Mile of the Project Area

Project Name	Project Uses	Jurisdiction	Status
Hamilton Wetland Restoration Project	Wetland habitat restoration of former Hamilton Air Force Base, including 988-acre parcel with former military field, adjacent California State Lands Commission areas, and the 1,612-acre Bel Marin Key Unit V (BMKV) parcel.	USACE and California Coastal Conservancy	Phase 1 completed as of December 2022 (adaptive management phase of wetland restoration); nursery management and wetland restoration to continue in 2023.
Bahia Drive Subdivision	Subdivision of nine residential single-family units on 7-acre lot.	City of Novato	Design review.
Hanna Ranch Mixed Use Development	Mixed Use development: hotel, retail, office space, restaurant and Costco Fuel Center.	City of Novato	Design review.
Vogel Land Division	Subdivision of a residential single-family into two lots.	County of Marin	Draft Initial Study – Mitigated Negative Declaration submitted in December 2016.
Deer Island Basin Tidal Wetlands Restoration Project	Floodplain and tidal connectivity restoration project.	Marin County Department of Public Works	Design alternatives and environmental studies are underway, anticipated to be completed in summer 2023.
Novato Creek Flood Control Dredging Project	Dredging Novato Creek and disposal of dredge material.	Marin County Department of Public Works	Construction occurred in 2020, next dredging planned for 2025.
Novato Creek Bypass Study Project	Additional analysis of Novato Creek for a flood bypass system. No physical construction work is proposed.	Marin County Department of Public Works	The study is anticipated to be completed in 2023, and an update will be presented in February 2024.
SMART Rail Expansion	Passenger rail from Novato to Suisun City.	SMART	Feasibility Study completed in 2019.

Project Name	Project Uses	Jurisdiction	Status
Sonoma Creek Baylands Strategy	Plan for restoration, flood protection, and public access in the Sonoma Creek Baylands.	Sonoma Land Trust and San Francisco Bay Restoration Authority	Strategy Final Report completed May 2020.
Novato Creek Baylands Strategy	Plan to advance climate resilience, restoration, flood protection, and public access in the Novato Creek Baylands.	Marin County Department of Public Works, Marin County Community Development Agency, San Francisco Estuary Institute, San Francisco Estuary Partnership, Marin Audubon Society	In Progress

Sources:

City of Novato – Planning Projects website https://www.novato.org/government/community-development/planning-division/planning-projects (accessed February 3, 2023)

Marin County – Environmental Review website https://publicworks.marincounty.org/projects/ (accessed February 3, 2023)

Transportation Authority of Marin – All Projects and Programs website https://www.tam.ca.gov/all-projects-programs/ (accessed February 7, 2023)

Muller, James. San Francisco Estuary Partnership. 2023. Personal communication (email) with Jasmin Mejia, Jacobs. (Novato Creek Baylands Strategy). August 21.

Notes:

SMART = Sonoma-Marin Area Rail Transit

USACE = United States Army Corps of Engineers

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

Applicable plans, goals, and policies were reviewed for consistency with the Build Alternative (Table 2.1.2-1). Applicable plans include the following:

- ***Caltrans District 4 Bike Plan for the San Francisco Bay Area* (Caltrans 2018a).** The *Caltrans District 4 Bike Plan for the San Francisco Bay Area* builds on the 2017 California State Bicycle and Pedestrian Plan, *Toward an Active California*, which identifies policies, strategies, and actions for Caltrans and its partners to take to improve the safety and comfort of pedestrians and bicyclists throughout the state. This District 4 Bike Plan is primarily an evaluation of bicycle needs and a listing of proposed improvements; it also serves as a resource to inform selection and scoping of district projects from all funding sources.

- ***Plan Bay Area 2050* (ABAG and MTC 2021).** *Plan Bay Area 2050* charts a course for accommodating growth while fostering an innovative, prosperous, and competitive economy; preserving a healthy and safe environment; and allowing all Bay Area residents to share the benefits of vibrant, sustainable communities connected by an efficient and well-maintained transportation network.

- ***San Francisco Bay Plan* (BCDC 2020) and McAteer-Petris Act.** Originally adopted by the California Legislature in 1969, the *San Francisco Bay Plan* and the McAteer-Petris Act contain the policies that BCDC uses to determine whether permit applications can be approved for projects within BCDC's jurisdiction—consisting of the San Francisco Bay, salt ponds, managed wetlands, certain waterways, and land within 100 feet of the Bay. On October 6, 2011, BCDC unanimously approved an amendment to the plan to update the 22-year-old SLR findings and policies, and more broadly address climate change adaptation. The Project is considered to be within BCDC jurisdiction under the McAteer-Petris Act but not under the *San Francisco Bay Plan.*

- ***Marin Countywide Plan* (Marin County 2007).** *The Marin Countywide Plan* is a comprehensive long-range general plan for the unincorporated areas of Marin County. The plan guides the conservation and development of Marin County. California law requires every city and county in the state to prepare and adopt a comprehensive long-range general plan for the physical development of its jurisdiction.

- ***City of Novato General Plan 2035* (City of Novato 2020).** *The City of Novato General Plan 2035* is the principal policy and planning document to guide Novato's future conservation, enhancement, and development. This comprehensive update of the *City of Novato 1996 General Plan* provides goals and policies that reflect present-day community values and priorities, and compliance with current state laws and local ordinances.

2.1.2.1 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Table 2.1.2-1 provides a consistency evaluation of the Build Alternative and applicable state, regional, and local plans and programs. During construction, ground disturbance would occur within the Caltrans right of way (ROW) and the TCE boundaries. The TCEs would not require changes to existing land uses; therefore, no impacts to existing and future land uses would occur. The TCEs (shown on Figure 2.1.5-1 in Section 2.1.5) are outside the Caltrans ROW and inside the SMART railroad ROW. All temporarily impacted areas would be re-vegetated once all construction activities are completed. The temporary impacts would be consistent with existing and future land uses and would be consistent with state, regional, and local plans and policies. Therefore, there would be no adverse effects.

Legend

- Project Area
- Railroad

Novato General Plan - Land Use

- Business and Professional Office
- Community Facilities
- Conservation
- General Commercial
- Light Industrial/Office
- Very Low Density Residential
- Low Density Residential
- Medium Density Multi-Family Residential
- Open Space
- Parkland
- Rural Residential
- Undesignated
- Water

Data Source:
Caltrans April 2023
Marin County GIS

0 500 1000 1500 2000
Feet

Figure 2.1.1-1
Land Use Designations
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Operation

Table 2.1.2-1 provides a consistency evaluation of the Build Alternative and applicable state, regional, and local plans and programs. The Build Alternative would not result in a permanent conversion of existing or future land uses and would be consistent with state, regional, and local plans and policies. Therefore, there would be no adverse effects.

No-Build Alternative

The No-Build Alternative would not adapt SR 37 to the effects of SLR and flooding. As noted in Table 2.1.2-1, the No-Build Alternative would be inconsistent with a majority of the plans with the exception of the *Caltrans District 4 Bike Plan for the San Francisco Bay Area*, the *Marin Countywide Plan*, and the *City of Novato General Plan 2035*. Further information on why the No-Build Alternative is inconsistent is provided in the sections that follow. As noted in Section 2.1.1, under the No-Build Alternative, no existing and future land uses would be altered.

2.1.2.2 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Land use in the Project area would be unaltered by either the Build or No-Build Alternatives. No avoidance, minimization, or mitigation measures would be required to avoid impacts to land use or achieve consistency with state, regional, and local plans and programs.

Table 2.1.2-1. Consistency with State, Regional, and Local Plans and Programs

Plan	Policy	Build Alternative	No-Build Alternative
Caltrans District 4 Bike Plan (Caltrans 2018a)	SR 37 is considered a "Mid Tier Project" regarding the level of priority Caltrans has allocated for bike and pedestrian improvements. "Mid Tier Project" indicates a tier project that had somewhat lower, but still substantial demand and existing challenges (Caltrans 2018a).	**Consistent.** The Build Alternative is proposing bike and pedestrian facilities. Following completion of Phase 1 of the Build Alternative, this segment of SR 37 would include a wider shoulder that would include a dedicated bike and pedestrian path on the Novato Creek Bridge, and would continue on to the shoulder on the transition structure until it connects to the existing shoulder. After completion of Phase 2 of the Build Alternative, there would be a 14-foot-wide bike and pedestrian path installed to accommodate bike and pedestrian users.	**Consistent.** Existing SR 37 has shoulders that range between 2 to 10 feet wide that are used by bicyclists.
San Francisco Bay Plan (BCDC 2020)	***Climate Change Policies*** 5. Wherever feasible and appropriate, effective, innovative sea level rise (SLR) adaptation approaches should be encouraged.	**Consistent.** The Build Alternative would adapt to projected 2130 SLR by elevating the highway to 35 feet.	**Not consistent.** The existing bridges and roadway have experienced levee breaches and flooding in 2006, 2008, 2014, and 2019, leading to roadway closures for up to 7 days. The Project area would continue to experience flooding from future storm events and SLR.
San Francisco Bay Plan (BCDC 2020)	***Climate Change Policies*** 8. To effectively address SLR and flooding, if more than one government agency has authority or jurisdiction over a particular issue or area, project reviews should be coordinated to resolve conflicting guidelines, standards or conditions.	**Consistent.** Caltrans would collaborate with appropriate government agencies to approve permits, agreements, and certifications required for the Project during the design phase and after certification of the Final EIR/EA with Finding of No Significant Impact.	**Not consistent.** The No-Build Alternative would not adapt SR 37 to the effects of SLR and flooding. Therefore, Caltrans would not need to coordinate with other government agencies with authority over the Project area.
Plan Bay Area 2050 (ABAG and MTC 2021)	***Theme: Reduce Risks from Hazards*** **EN1. Adapt to sea level rise.** SR 37 is noted to be a site of Sea Level Rise Resilience Investment, specifically under Elevated Roads/Rail, Ecotone and Traditional Levees, Seawalls and Tidal Gates (pg. 114)	**Consistent.** The Build Alternative would adapt to the projected 2130 SLR on SR 37 by constructing a causeway.	**Not consistent.** The existing bridges and roadway have experienced levee breaches and flooding in 2006, 2008, 2014, and 2019 leading to roadway closures for up to 7 days. Under the No-Build Alternative, there would continue to be flooding from stormwater overtopping and projected SLR.
Plan Bay Area 2050 (ABAG and MTC 2021)	***Theme: Maintain and Optimize the Existing System*** **T1. Restore, operate and maintain the existing system.** Commit to operate and maintain the Bay Area's roads and transit infrastructure while reversing pandemic-related cuts to total transit service hours.	**Consistent.** The Build Alternative would allow for continued operation of the roadway into the foreseeable future by adapting to projected SLR.	**Not consistent.** The No-Build Alternative would not improve the existing system allowing for continued flooding from stormwater overtopping and projected SLR and disrupted use of the roadway.
Marin County-wide Plan (Marin County 2007)	**Transportation (TR)-1.1 Manage Travel Demand.** Improve the operating efficiency of the transportation system by reducing vehicle travel demand and provide opportunities for other modes of travel. Before funding transportation improvements consider alternatives — such as Transportation Demand Management (TDM) — and prioritize projects that will reduce fossil fuel use and reduce single-occupancy vehicle trips.	**Consistent.** The Build Alternative would allow for the continued use of SR 37 despite stormwater overtopping, and adapt to projected 2130 SLR, thereby maintaining travel demand. The Build Alternative would have wide enough shoulders to accommodate multimodal transportation use.	**Not consistent.** Under the No-Build Alternative, the existing bridges and roadway have experienced levee breaches and flooding in 2006, 2008, and 2014, leading to roadway closures for up to 7 days. They will continue to experience stormwater overtopping, disrupting current and future modes of travel along SR 37.
Marin County-wide Plan (Marin County 2007)	**Environmental Hazards (EH)-3.k Anticipate Climate Change Impacts, Including Sea Level Rise.** Recent predictions of SLR for the San Francisco Bay region by BCDC and USGS based on climate models and hydrodynamic modeling of the San Francisco Bay Estuary Institute indicate 16 inches of rise by mid-century and 55 inches by 2100. Cooperate with USGS and BCDC, the California Landscape Cooperative's Climate Commons project and other monitoring agencies to track bay and ocean levels and share baseline topographic and resource data obtained by the County in implementing its own projects to enhance hydrodynamic and ecosystem modeling efforts and assessment of regional climate change impacts. Use official estimates for mean SLR and topographic data for environmental review. Environmental review for development applications and County infrastructure shall incorporate official mid-century SLR estimates, and require adaptive strategies for end-of-century SLR for any such project with expected lifetimes beyond 2050.	**Consistent.** The Build Alternative would reduce flooding from stormwater overtopping, and adapt to projected 2130 SLR by elevating the roadway to an elevation consistent with the BCDC and USGS models.	**Not consistent.** The No-Build Alternative would not elevate the roadway to adapt to projected SLR and prevent flooding from stormwater overtopping.

Plan	Policy	Build Alternative	No-Build Alternative
Marin County-wide Plan (Marin County 2007)	**Public Safety (PS)-1.f Prepare Contingency Plans.** Work with BCDC and the Marin Disaster Council to analyze implications of SLR and increased violent storm events and flooding on neighborhood safety and prepare contingency plans.	**Consistent.** The Build Alternative would allow for the continued use of SR 37 thereby supporting communities' evacuation planning in instances of disaster.	**Consistent.** Emergency response and contingency plans would consider the projected SLR and would include SR 37 in planning for neighborhood safety.
City of Novato General Plan 2035 (City of Novato 2020)	**Goal (Mobility) MO 1**: Provide a safe and efficient circulation system that accommodates all users and maintains acceptable levels of service.	**Consistent.** The Build Alternative would provide wider travel lanes and continuous circulation through Marin County along San Pablo Bay. The Build Alternative would also support multimodal transportation uses, such as shoulder use for bikes and pedestrians.	**Not consistent.** The existing bridges and roadway have experienced levee breaches and flooding in 2006, 2008, 2014, and 2019 leading to roadway closures for up to 7 days. Under the No-Build Alternative, SR 37 would continue to experience flooding from future storm events, disrupting current and future modes of travel along SR 37.
City of Novato General Plan 2035 (City of Novato 2020)	**MO 3:** Highway Improvements. Support Caltrans and regional efforts to improve Highways 101 and 37 to accommodate needed capacity and SLR given the City's reliance on regional transportation links.	**Consistent.** The Build Alternative would reduce flooding from stormwater overtopping and accommodate 2130 projected SLR on the SR 37. Under the Build Alternative, Caltrans would coordinate with the City of Novato.	**Not consistent.** The existing bridges and roadway have experienced levee breaches and flooding in 2006, 2008, 2014, and 2019 leading to roadway closures for up to 7 days. Under the No-Build Alternative, there would be no project and no coordination with the City of Novato.
City of Novato General Plan 2035 (City of Novato 2020)	**MO 4:** Environmental Design of Transportation Improvements. Seek to reduce impacts of new transportation improvements on open space lands, recreational facilities and neighborhood integrity. When transportation improvements are expected to have negative impacts, seek to reduce them through design changes or mitigation. Review proposed transportation improvements to ensure that adequate measures will be implemented to reduce, to the maximum extent feasible, any anticipated air quality, noise, visual, or other impacts.	**Consistent.** The Build Alternative would mostly remain within the Caltrans ROW and would use temporary construction easements along the ROW for staging and construction. The Build Alternative would not impact open space lands, recreational facilities, or neighborhood integrity.	**Consistent.** Under the No-Build Alternative there would be no impacts or improvements on open space lands, recreational facilities, and neighborhood integrity.
City of Novato General Plan 2035 (City of Novato 2020)	**Safety and Hazards (SH) 2e:** Rising Sea Level. 1. Consider the potential for SLR when processing development applications that might be affected by such a rise. Use current Flood Insurance Rate Maps and National Oceanic and Atmospheric Administration (NOAA) recommendations associated with base flood elevation adjustments for SLR in the review of development proposals. Adopt requirements to assess SLR risks on new development and infrastructure. 2. Prepare a guidance document for incorporating SLR into the City's capital planning process. 3. Work with local, County, state and regional agencies with Bay and shoreline oversight and with owners of critical infrastructure and facilities in the preparation of a vulnerability assessment and then a plan for responding to rising sea levels. Make sure all local stakeholders are kept informed of such planning efforts. 4. Consider developing flood control projects and modifying the City's land use regulations for areas subject to increased flooding from SLR. 5. Update GIS (Geographic Information System) maps to include new data as it becomes available; use GIS as a tool for tracking SLR and flooding, and make available to the public.	**Consistent.** The Build Alternative would accommodate projected 2130 SLR. Caltrans would coordinate with City of Novato regarding SR 37 as critical infrastructure.	**Not consistent.** Under the No-Build Alternative, SR 37 would not be resilient to the effects of SLR.
City of Novato General Plan 2035 (City of Novato 2020)	**SH 7a:** Emergency Response and Hazard Mitigation Plans. Periodically update the City's Emergency Operations Plan and Local Hazard Mitigation Plan to coordinate with emergency plans of other governmental agencies and respond to changing conditions. Incorporate the likelihood of SLR and extreme heat and storm events in the Local Hazard Mitigation Plan.	**Consistent.** Caltrans would coordinate with local agencies to ensure consistency with local emergency plans that involve SR 37.	**Consistent.** Caltrans would coordinate with local agencies to ensure consistency with local emergency plans that involve SR 37.

Sources: Caltrans 2018a; BCDC 2020; ABAG and MTC 2021; City of Novato 2020; Marin County 2007

Notes:

USGS = United States Geological Survey

2.1.3 Parks and Recreational Facilities

2.1.3.1 REGULATORY SETTING

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

2.1.3.2 AFFECTED ENVIRONMENT

This section summarizes the *Community Impact Assessment Memorandum (*CIA) prepared for the Project (Jacobs 2023). There are 10 recreational facilities within, the CIA study area, a 1-mile radius of the Project area. The nearest recreational facilities include the Black Point Boat Launch located off Harbor Drive east of the Project, at the Petaluma River and the Stone Tree Golf Club (private membership only), which is adjacent to the Project area. The Deer Island Preserve and adjacent open space is approximately 0.25 mile north of the Project area. The Vince Mulroy County Park is 1.0 mile south of SR 37. The San Francisco Bay Trail, a 0.65-mile Class I bike facility, is located near the western Project terminus adjacent to the SMART rail tracks. Anderson Rowe Open Space and Lynwood Hill Park are on the west side of U.S. 101 over 0.5 mile from the Project limits. Montego Park, Caribe Isle Park, and Cavalia Cay Park are in Bel Marin Keys approximately 0.25 mile to the south of the Project area (Figure 2.1.3-1).

Recreational facilities, outside of the CIA study area, in the vicinity of the Project area, include the Port of Sonoma Marina and the San Pablo Bay National Wildlife Refuge. The Port of Sonoma Marina (which is no longer in operation) is on the Petaluma River at the foot of the SR 37 bridge, opposite the Black Point Boat Launch. The San Pablo Bay National Wildlife Refuge is over 1.0 mile east of the Project.

Additionally, the CIA study area includes Harbor Drive, which provides direct access to a water trail on the Petaluma River from the Black Point Boat Launch. The water trail is used for fishing and other water recreation (e.g., kayaks, canoes, and other watercraft). A portion of the planned San Francisco Bay Trail segment would be within the Project area.

2.1.3.3 ENVIRONMENTAL CONSEQUENCES

The Build Alternative would occur mostly within the Caltrans ROW. The recreational facilities are located outside the Project area. Therefore, there would be no adverse effects on the activities, features, or attributes of any public recreational or open space resources in or near the Project area. The Build Alternative would not affect the existing San Francisco Bay Trail located to the west along the SMART rail tracks.

The Build Alternative would provide a barrier-separated 14-foot-wide bicycle and pedestrian path, which could become the planned San Francisco Bay Trail.

During construction, there would be temporary traffic delays and lane closures on SR 37, which could result in temporary effects on public access to recreational resources near the Project area. These delays would be temporary and would not prevent access to park and recreational facilities. Recreational users (i.e., people using power boats, kayaks, and canoes) at the Black Point Boat Launch and water trail on the Petaluma River would continue to have access during lane closures and detours. The Project would generate temporary elevated noise levels along the SR 37 corridor during construction. As discussed in Section 2.2.7, Noise, adjacent land uses were evaluated for noise impacts, and the Project would not exceed noise thresholds established by Caltrans Noise Specifications.

No-Build Alternative

Under the No-Build Alternative, there would be no improvements to SR 37. Recurring flooding from stormwater overtopping would continue to cause temporary inaccessibility to parks and recreational resources near the Project area. In the long term, SLR would make SR 37 permanently inaccessible, preventing access to parks and recreational facilities located adjacent to the Project footprint. Since parks and recreational facilities are located outside the Project footprint, no direct adverse effects would occur under the No-Build Alternative.

2.1.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Because Project-related temporary impacts may occur on recreational resources in the Project and CIA study area, AMMs are proposed. Caltrans would implement Project Feature (PF)-TRANS-1, Transportation Management Plan, for both phases of construction, and Mitigation Measure (MM)-TRANS-1, Prepare Traffic Analysis, during the Phase 2 design phase to minimize temporary impacts on traffic in the Project area. With the implementation of AMM-NOI-1, Pile Driving, PF-NOI-1, Caltrans Standard Specifications for Noise, and PF-NOI-2, Construction Equipment Operations, the potential noise from pile driving would be constrained to daytime hours and would reduce all construction noise levels to less than 86 A-weighted decibels (dBA).

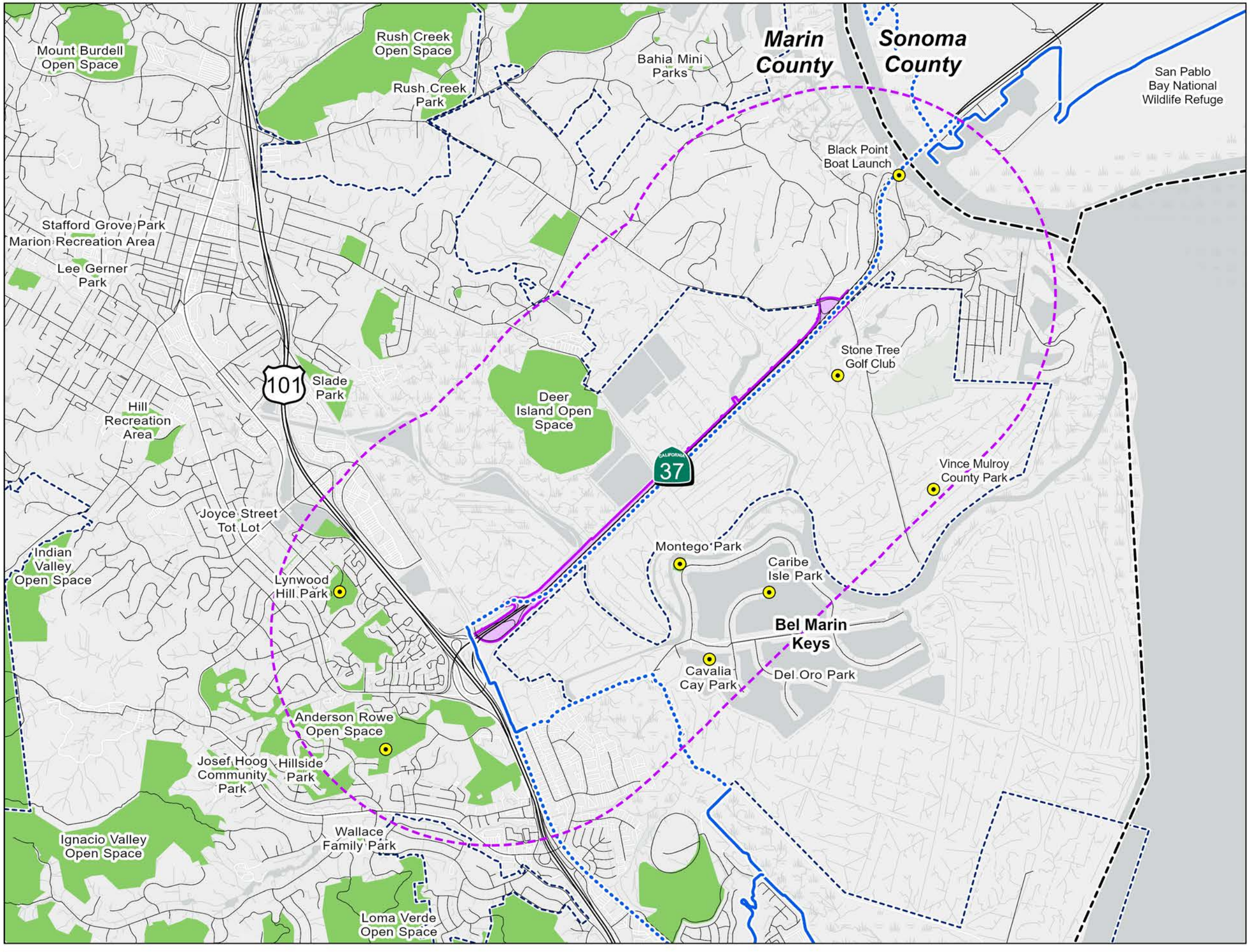


Figure 2.1.3-1
Parks and Recreational Facilities
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37 PM-R11.2 to PM 13.8
Marin County, California

2.1.4 Community Character and Cohesion

2.1.4.1 Regulatory Setting

NEPA established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). 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. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this Project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the Project's effects.

2.1.4.2 Affected Environment

Community Facilities

This summarizes the *Community Impact Assessment Memorandum* prepared for the Project (Jacobs 2023). The CIA study area has no recreation centers, senior centers, museums, or hospitals. The CIA study area does include community public parks where residents can gather for community interaction.

An elementary school, Olive Elementary School, is located on the eastern side of U.S. 101, north of SR 37, at 629 Plum Street. Most of the city's community facilities, including schools, are within the downtown area of Novato, more than 1 mile north of the Project, on the western side of U.S. 101.

The majority of the Project is in the city of Novato, with the far eastern end of the Project within unincorporated Marin County. The Project falls under the jurisdiction of the City of Novato Police Department, located at 909 Machin Avenue in Novato. The Novato Fire Department provides fire protection services in the study area. The closest fire station to the Project is the Novato Fire District Station 62, at 450 Atherton Road in Novato. Emergency services to the study area are provided by the City of Novato Police Department, Novato Fire Department, and local emergency medical technicians or paramedical responders.

Novato Demographics and Employment

Table 2.1.4-1 presents the demographics of the city of Novato, Marin County, and the State of California.

Table 2.1.4-1. Demographics and Unemployment Rates in 2020 and 2022

Area Name	Population	Caucasian Population	Household Income	Unemployment Rate	Poverty Rate
Marin County	262,321	85.3%	$121,671	2.4 %	11.4%
City of Novato	33,200	70.7%	$101,629	2.8%	6.4%
State of California	331,449,281	76.3%	$64,994	4.9%	11.4%

Source for California Demographics: U.S. Census Bureau 2022 (data from April 1, 2020)
Source for Unemployment: CEDD 2022

Community Character

Novato neighborhoods near the Project area are partially located inside the CIA study area. A site survey of the CIA study area and surrounding neighborhoods on both the eastern and western sides of SR 37 was conducted on May 2, 2022. Homes in these neighborhoods were three- to four-bedroom, well-maintained homes on large lots with attractive landscaping. Pedestrians, bicyclists, and dog walkers were observed on trails and walking paths. The nearby Black Point neighborhood, southeast of the Project, consists of single-family homes with private boat ramps situated on the Petaluma River. Based on visual observations, these neighborhoods surrounding the Project area exhibit pride of home ownership and high community cohesion.

Regional Economy

Marin County is one of nine counties of the San Francisco Bay Area and is a significant contributor to the Bay Area economy. Almost one third of Marin County's workforce commutes to jobs in San Francisco County (U.S. Census Bureau 2022). Most of the remaining workforce works within Marin County. The major industries of Marin County are similar to those of the Bay Area as a whole: education and health services; professional and business services; trade, transportation, and utilities; government; and leisure and hospitality. Data specific to the study area are not available. Major employers are all outside of the study area and include higher education (College of Marin and Dominican University), healthcare (Kaiser Permanente, Managed Health Network, Novato Community Hospital, and Sutter Health), and technology and pharmaceutical companies (Autodesk, Inc., Bio Marin Pharmaceutical Inc., and Lucas Licensing) (Caltrans 2019).

2.1.4.1 ENVIRONMENTAL CONSEQUENCES

The Build Alternative would not adversely affect community facilities, emergency services, or employment, either during construction or once the Project is complete. By restoring the structural integrity of SR 37 and improving accessibility and traveler reliability, the Project would benefit these community facilities and services.

The Build Alternative would require detours during both phases of construction. For Phase 1, the detour is expected to be at least 6.5 miles and add 9 minutes of travel time. For eastbound SR 37 traffic from U.S. 101, the connectors would be closed. Traffic would be directed to use the Atherton Avenue interchange to connect to Harbor Drive. The detour is expected to be at least 6.1 miles and add 8 minutes of travel time.

Phase 2 construction would also require a detour. Because construction of Phase 2 would last 56 months and would be completed by 2050, Caltrans will implement MM-TRANS-1, Prepare Traffic Analysis, which would include preparing a traffic analysis; results of the analysis would be used to minimize potential traffic impacts.

For both phases, Caltrans would also implement PF-TRANS-1, Transportation Management Plan, which would include preparing a Transportation Management Plan (TMP) to minimize delays on the traveling public. During construction, traffic delays could result in temporary effects on access to community facilities, local schools, or employment centers. Temporary traffic delays on SR 37 during construction also could result in temporary delays in emergency service response times.

Elements of the TMP would include the following:

- Coordination with local emergency service providers.
- Notifications to businesses and residences in Bel Marin Keys and the city of Novato concerning closure times.
- Portable, changeable message signs to provide advance warning to drivers and minimize delays to the traveling public.

With implementation of the TMP during construction, conflicts with employment access or commutes anticipated in the area would be less than significant. PF-TRANS-1, Transportation Management Plan, would also minimize impacts on emergency service providers using local streets, access ramps, or SR 37 during construction. Caltrans would develop a TMP consistent with its standard procedures.

No-Build Alternative

Under the No-Build Alternative, SR 37 would not change and would continue to be affected by flooding and inundation from projected SLR. Decreased accessibility on SR 37 within the city of Novato would adversely affect community character and cohesion. SR 37 would be unable to continue linking job markets and housing within the four counties and would no longer provide access to recreational areas and the Sonoma and Napa wine regions or commercial freight movement within Marin, Sonoma, Napa, and Solano Counties.

2.1.4.1 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

During construction, the Build Alternative would result in delays for residents traveling on SR 37 to reach the urban center of the city of Novato. Implementation of MM-TRANS-1: Prepare Traffic Analysis would preserve community cohesion during construction. Implementation of this mitigation measure described in Section 2.1.7 would reduce impacts to community character and cohesion to a less than significant level.

2.1.5 Farmlands

2.1.5.1 REGULATORY SETTING

NEPA and the Farmland Protection Policy Act (7 USC 4201 through 4209 and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as FHWA, to coordinate with the Natural Resources Conservation Service if their activities may irreversibly convert farmland (directly or indirectly) to non-agricultural use. For purposes of the Farmland Protection Policy Act, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

CEQA requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

2.1.5.2 AFFECTED ENVIRONMENT

The Project is surrounded by land classified as both Farmland of Local Importance, Grazing Land, Other Land, and Urban and Built-Up Land, as shown further on Figure 2.1.5-1 (CDC 2016; CDC 2018a). Farmland of Local Importance, within the context of Marin County, is defined as “land which is not irrigated, but is cultivated; or has the potential for cultivation” (CDC 2018b). The Project area is not located on an active Williamson Act Contract (Marin County GeoHub Open Data 2020).

2.1.5.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

During construction, ground disturbance would occur within the Caltrans ROW and the TCE boundaries. The TCEs are not located on Prime Farmland or Williamson Act lands; therefore, no impacts to Prime Farmland or Williamson Act Lands would occur. Temporary construction impact areas within the TCEs would be to land that is not actively cultivated for agriculture. The TCEs as shown on Figure 2.1.5-1 are outside the Caltrans ROW and within the SMART railroad ROW. Implementation of PF-BIO-11, Landscaping and Revegetation Plan, would replace all temporarily impacted areas with native and climate-appropriate species. The temporary impacts would not preclude agricultural operations in the land surrounding the Project, and no permanent conversion or acquisition of land under the Williamson Act contract would occur. Therefore, there would be no adverse effects to farmlands.

Operation

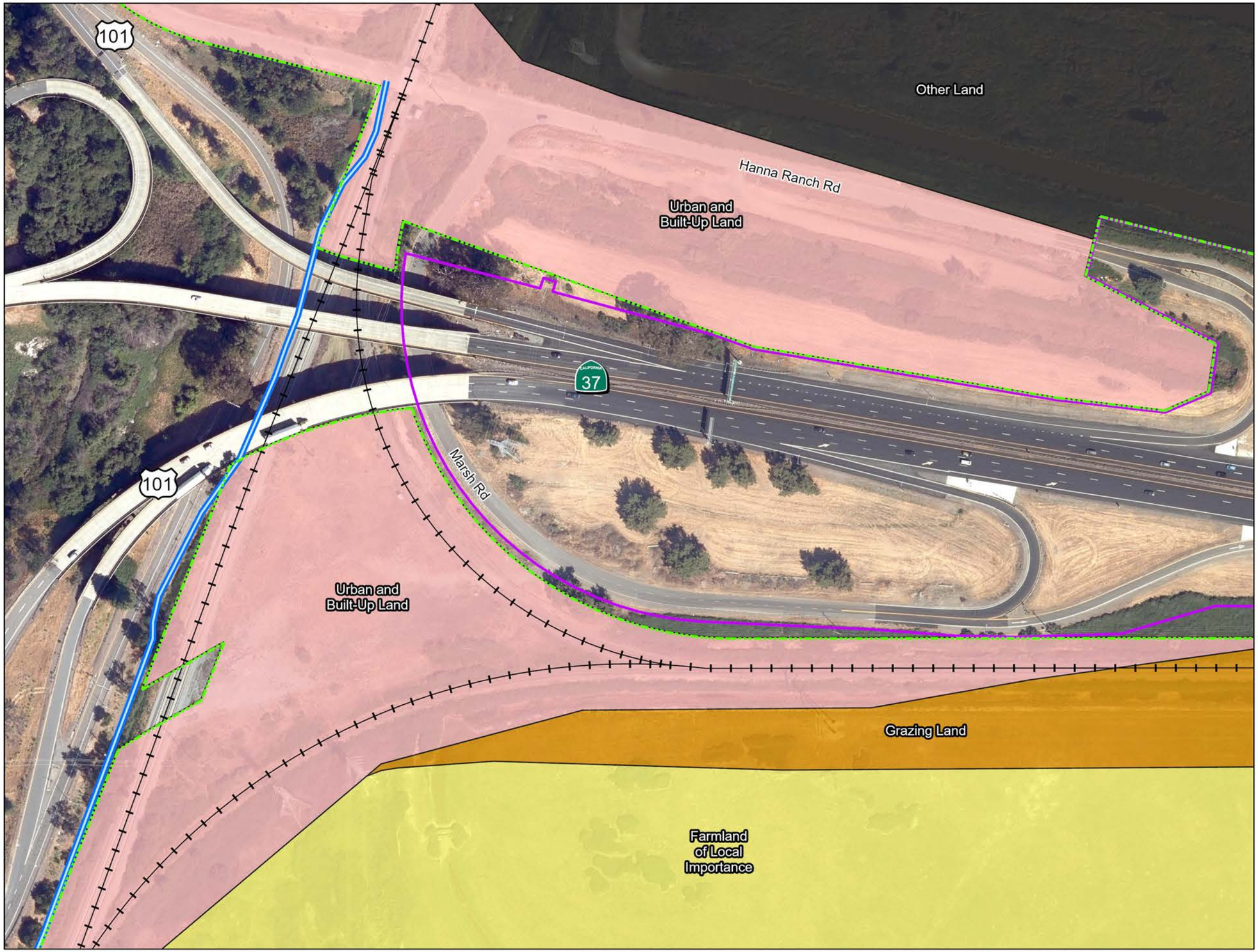
The Build Alternative would not result in a permanent conversion of farmlands. Therefore, there would be no adverse effects on farmlands.

No-Build Alternative

Under the No-Build Alternative, there would be no improvements to SR 37. Therefore, the No-Build Alternative would not result in adverse effects on farmlands.

2.1.5.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, or mitigation measures would be required to reduce effects related to farmlands.



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Farmland of Local Importance
- Grazing Land
- Other Land
- Urban and Built-Up Land

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 1 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Farmland of Local Importance
- Grazing Land
- Other Land
- Urban and Built-Up Land

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 2 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Farmland of Local Importance
- Grazing Land
- Other Land

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

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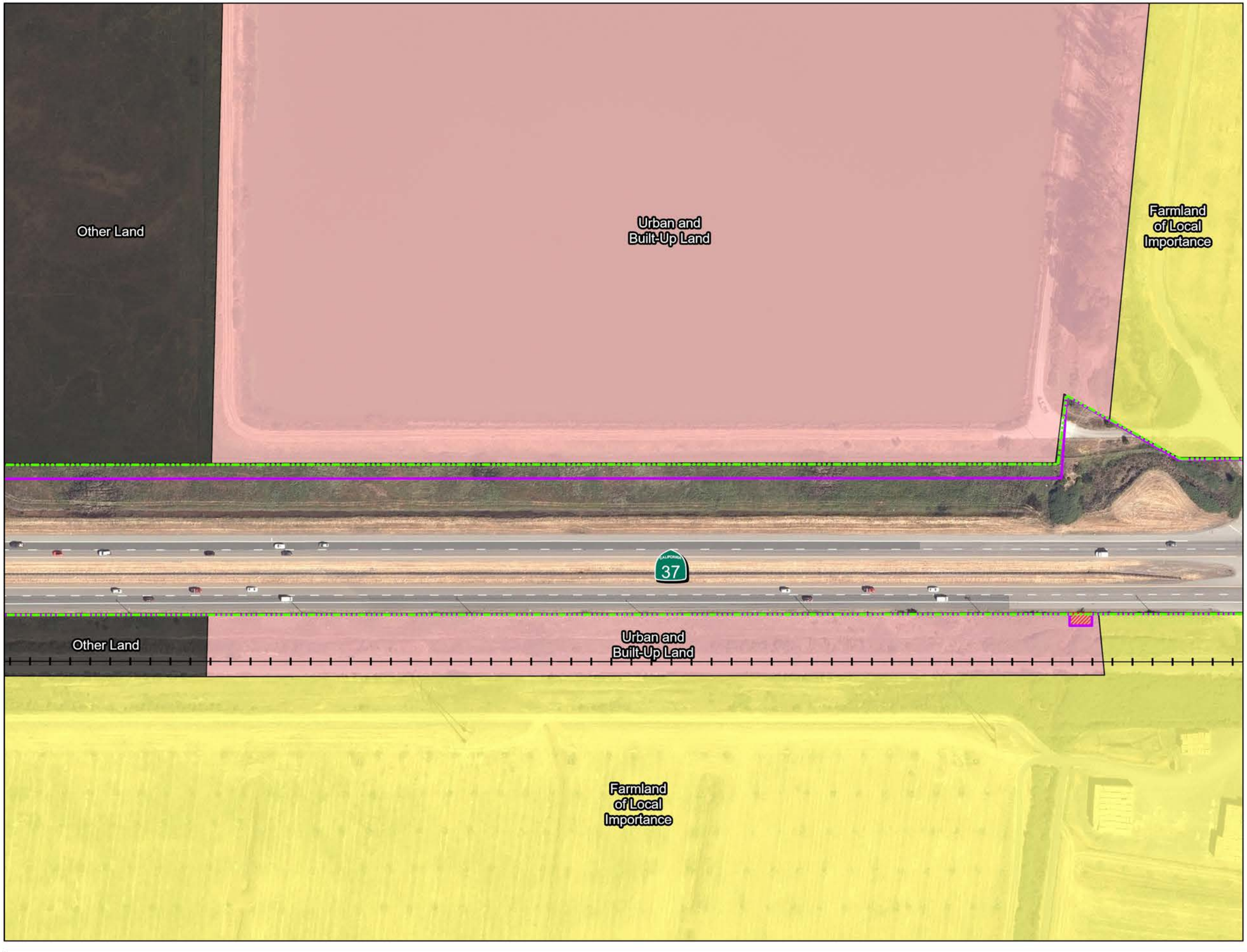
Feet

Figure 2.1.5-1
Farmlands
Map 3 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



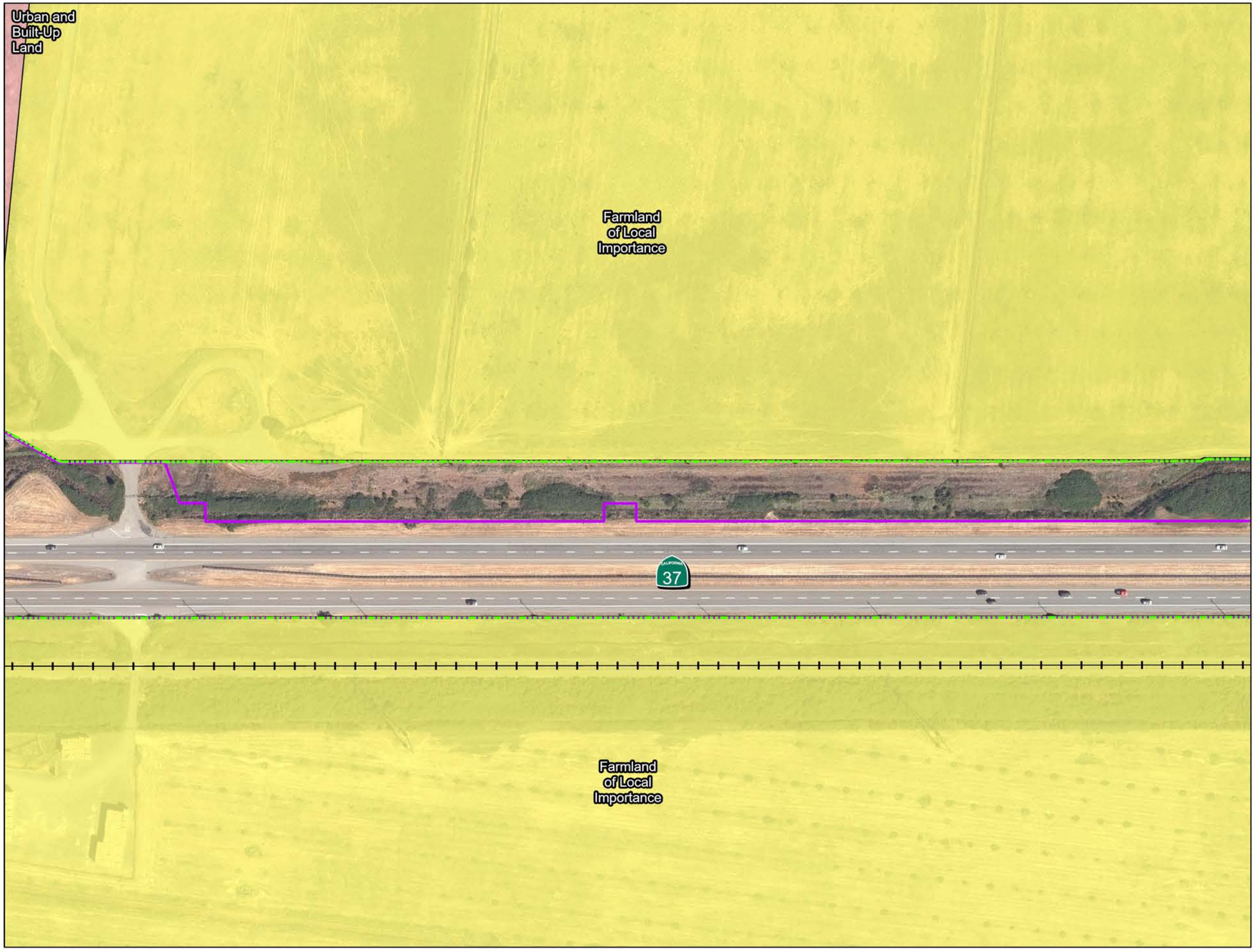
Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Temporary Construction Easement
- Farmland of Local Importance
- Other Land
- Urban and Built-Up Land

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 4 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Farmland of Local Importance
- Urban and Built-Up Land

Data Source:
Caltrans
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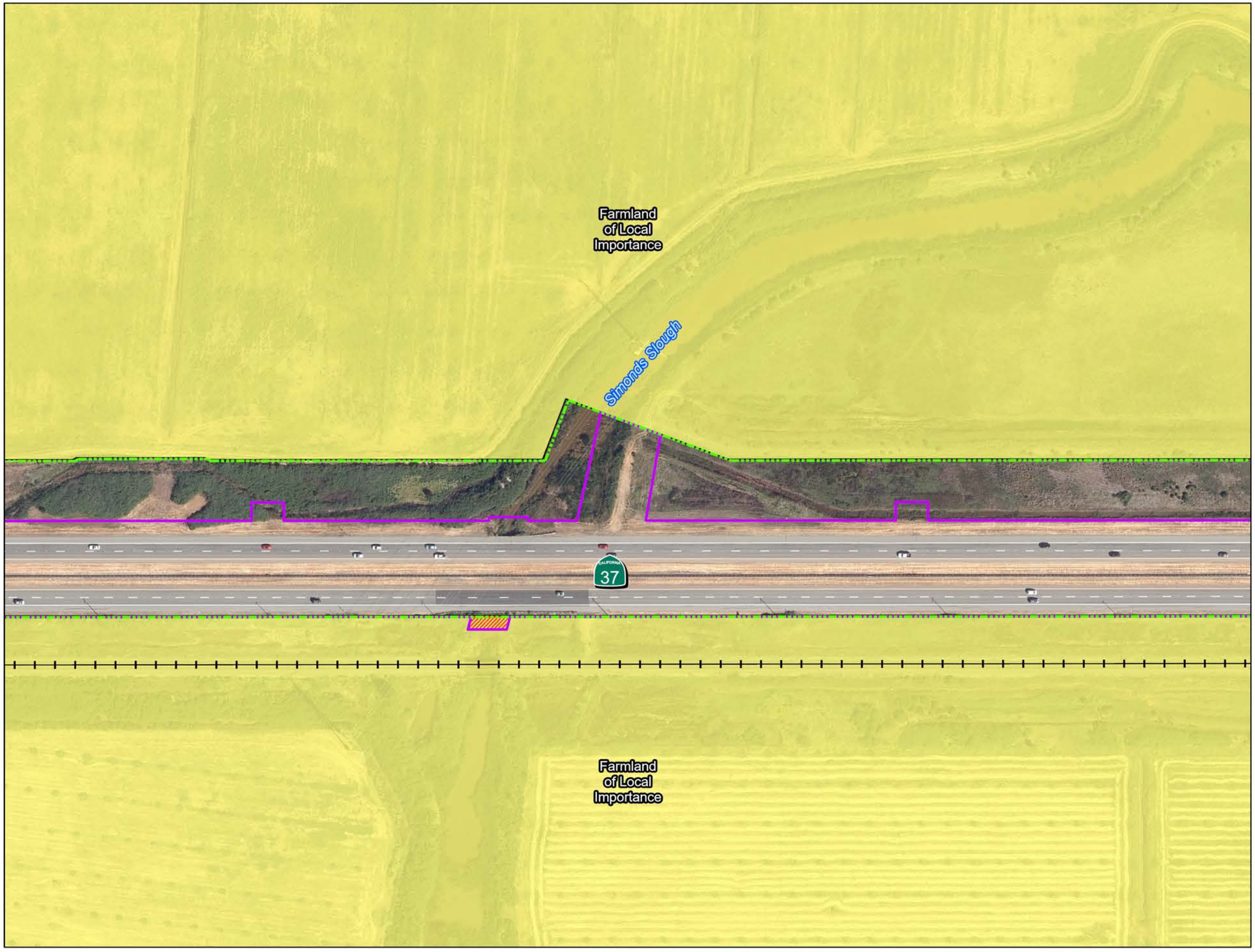
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 5 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Temporary Construction Easement
- Farmland of Local Importance

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 6 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 7 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Farmland of Local Importance
- Grazing Land
- Urban and Built-Up Land

Data Source:
Caltrans
4Q320_ALT_01_PH1_ea00_2023APR.dgn
4Q320_ALT_01_PH2_ea00_2023APR.dgn
Marin County GIS
Natural Resources Conservation Service

0 50 100 150 200
Feet

Figure 2.1.5-1
Farmlands
Map 8 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

2.1.6 Utilities and Emergency Services

2.1.6.1 AFFECTED ENVIRONMENT

Utilities

Pacific Gas and Electric Company 12-kilovolt electric overhead utility lines run adjacent to and within the Project footprint. The overhead utility line running parallel to the westbound lane runs from the westernmost end of the Project footprint until Hanna Ranch Road. The overhead utility line running parallel to the eastbound lane runs the entire length of the Project footprint. The overhead utility lines intersect the Project footprint at Hanna Ranch Road at the western and eastern ends of the Novato Creek Bridge, at approximately 0.5 mile east of the Novato Creek Bridge, at the Simonds Slough Bridge, and just west of the Atherton Avenue Undercrossing.

A Comcast underground fiber optic cable is located at the U.S. 101 and SR 37 interchange, running perpendicular to SR 37. The underground fiber optic cable then continues to run adjacent to the south side of the Project footprint, intersecting the Project footprint from the Marsh Road on- and off-ramps to the Novato Creek Bridge, and then adjacent to the southside of the Project footprint for the remainder of the Project limits. An overhead fiber optic line runs along the south side of the Atherton Avenue off-ramp.

A 36-inch Marin Municipal Water District water line runs west of the Project footprint along Hanna Ranch Road, turning south down Marsh Road and continuing to run south, away from the Project footprint.

A Novato Sanitation District 16-inch-diameter sanitary sewer force main within a 36-inch-diameter casing crosses SR 37 on the western side of the Project area. In addition, a 48-inch-diameter reinforced concrete sewer outfall pipe within a 72-inch-inch steel casing and a 24-inch-diameter irrigation line within a 42-inch-diameter casing crosses SR 37 within the Project area east of Novato Creek.

Fire Protection

The Novato Fire District provides fire protection services in the Project area. The Novato Fire District provides all-risk emergency and non-emergency services to the City of Novato and surrounding unincorporated areas. The city of Novato and surrounding unincorporated area comprises approximately 71 square miles with an estimated population of 65,000 (Novato Fire 2022a). The Novato Fire District has several different divisions within its organization to effectively manage tasks, roles, and responsibilities and ensure the protection and safety of the area. The closest fire station to the Project area is Novato Fire District Station 62 at 450 Atherton Avenue in Novato, approximately 1.3 miles north of the easternmost end of the Project limits. Novato Fire District Station 61 is also close to the Project at 7025 Redwood

Boulevard in Novato, approximately 1.5 miles north of the westernmost end of the Project limits.

Police Protection

The Project area is under the jurisdiction of the Novato Police Department, located at 909 Machin Avenue in Novato, approximately 2.25 miles north of the westernmost end of the Project limits. The Novato Police Department has approximately 80 staff members, including 60 sworn personnel and a volunteer program (City of Novato 2022a).

The California Highway Patrol (CHP) patrols the state's roadways including U.S. 101 and SR 37. The nearest CHP office is located approximately 13 miles from SR 37 at 53 San Clemente Drive in Corte Madera (CHP 2023).

SR 37 within the Project limits is a dedicated evacuation route (Novato Fire 2022b). The Novato Police Department and Novato Fire District provide residents with evacuation tags to place on their mailboxes, fences, gates, or entryways before evacuating to help first responders clear neighborhoods faster during hazardous events (City of Novato 2022b).

2.1.6.2 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

During construction, overhead and underground utilities within the Project area would be relocated, and some overhead utilities would be raised to accommodate the Project and the raised roadway. Utility owners would be notified prior to construction as outlined in PF-UTIL-1, Notify Utility Owners of Construction Schedule to Protect Utilities, to minimize potential disruption to utility services.

During construction of Phase 1, there would be traffic delays of up to 15 minutes with current traffic volumes. Traffic disruption would occur when lane closures are necessary for two weekends. As part of the TMP, described in PF-TRANS-1, Transportation Management Plan, the contractor would notify local residents, emergency service providers, businesses and local agencies of the Local and Regional Detour Plans to minimize delays. During Phase 2, traffic detours would be necessary for the closure of the on- and off-ramps from SR 37. Traffic delays would also occur during construction of Phase 2.

In addition to implementing PF-TRANS-1, Transportation Management Plan, for Phase 1, Caltrans would implement AMM-UTIL-1, Coordinate with Local Emergency Services, to minimize delays to emergency services during Phase 1 and Phase 2. As

discussed in Section 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities, Caltrans will implement MM-TRANS-1, Prepare Traffic Analysis, to evaluate the impacts of Phase 2 detours on traffic during construction and inform a TMP. As discussed in Chapter 1, using current traffic projections for the 56 months of Phase 2 construction that would be completed by 2050 would be speculative; and thus, Caltrans will evaluate construction traffic impacts during the Phase 2 design, as described in MM-TRANS-1, Prepare Traffic Analysis. With the implementation of these measures delays on emergency services and use of SR 37 as an evacuation route would be minimized.

Operation

The Build Alternative would not directly increase the number of residents in the area because residential land uses are not proposed; therefore, the Build Alternative would not result in the need for additional utility lines or services. The Project would not increase the demand for utility service.

During operation, the Build Alternative would have 10-foot-wide shoulders (Phase 1) and 12-foot-wide shoulders (Phase 2) improving accessibility and mobility across SR 37 for emergency service. The Build Alternative would prevent flooding from stormwater overtopping during storm surge events on SR 37 and would provide a resilient evacuation route and emergency services access. There would be no impact.

No-Build Alternative

Construction and Operation

Under the No-Build Alternative, utility relocation would not be required. Recurring flooding from stormwater overtopping would continue to cause temporary inaccessibility across SR 37. In the long term, SLR would make SR 37 permanently inaccessible preventing use of the highway as an evacuation route. Therefore, the No-Build Alternative would result in adverse effects on emergency services.

2.1.6.3 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measure, also listed in Appendix E, would minimize potential effects to related emergency services.

AMM-UTIL-1: Coordinate with Local Emergency Services. During construction, Caltrans would coordinate with local emergency services to minimize delays to emergency services.

2.1.7 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.7.1 REGULATORY SETTING

Caltrans, as assigned by the 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 United States Department of Transportation 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 USC 794). The FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act, including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

2.1.7.2 AFFECTED ENVIRONMENT

Roadway

The Project limits are at the western terminus of the SR 37 corridor, a 21-mile-long facility along the northern shore of San Pablo Bay, from U.S. 101 in Novato, Marin County, to I-80 in Vallejo, Solano County. This corridor links job markets and housing within Marin, Sonoma, Napa, and Solano Counties and also provides access to popular destinations such as the Golden Gate National Recreation Area in Marin County, Sonoma Raceway, the Napa and Sonoma wine regions, and the North Coast. Its commuting, freight movement, and recreational functions require efficient traffic management on both weekdays and weekends.

The roadway within the Project limits is a four-lane highway with metal beam guard rail and includes three bridge structures, the Novato Creek, Simonds Slough, and Atherton Avenue Undercrossing Bridges.

Transit

The Black Point Park & Ride facility is located north of the westbound lane at the Atherton Avenue Undercrossing, at 91 Atherton Avenue, in Novato. This facility is open 24 hours a day, 7 days a week, and offers 30 parking spaces. The facility is a non-restricted, no-cost facility owned by Caltrans.

Currently, no transit services are provided on SR 37 within the Project limits. However, within the Project vicinity, U.S. 101, which intersects SR 37 just west of the Project footprint, is served by Golden Gate Transit, Marin Transit, Marin Airporter, and Sonoma County Airport Express.

The SMART tracks run parallel to the eastbound side of SR 37, adjacent to the Project limits. It is the Bay Area's newest passenger rail servicing Marin and Sonoma Counties. The existing SMART system connects the Sonoma County Airport to Larkspur, where riders can board a ferry to San Francisco. Future extensions and rail stations are planned for Windsor, Healdsburg, and Cloverdale (SMART 2022a).

Three SMART stations are located in Novato. The Novato Downtown Station, located at 695 Grant Avenue approximately 2 miles north of the westernmost end of the Project limits, provides transit connections to the Novato Transit Center, which is served by Marin Transit and Golden Gate Transit. This station offers bicycle racks and lockers, as well as nearby public parking. The Novato Hamilton Station located at 10 Main Gate Road, approximately 2 miles south of the westernmost end of the Project limits, provides transit connections to Golden Gate Transit and Marin Transit. This station offers bicycle racks and lockers, as well as a park and ride lot and passenger drop-off and pick-up zone. The Novato San Marin Station, located at 7700 Redwood Boulevard approximately 3 miles north of the westernmost end of the Project limits, provides transit connections to Golden Gate Transit and Marin Transit. This station offers bicycle racks and lockers, as well as a park and ride lot and passenger drop-off and pick-up zone (SMART 2022b).

Current and Forecasted Traffic

Annual average daily traffic and peak hour traffic data provide an overall assessment of traffic flows. Table 2.1.7-1 lists the current and projected annual average daily traffic on SR 37, and the current and Project peak hour volumes on the ramps.

Bicycle/Pedestrian Facilities

There are no dedicated bicycle or pedestrian facilities along existing SR 37. The SR 37 shoulders within the Project area range from 2 to 10 feet wide and are used by bicyclists. A 0.65-mile Class I bike facility, a segment of the SMART bicycle trail and San Francisco Bay Trail, is located near the western Project terminus adjacent to the SMART rail tracks (MTC 2023). This bicycle pathway will connect with central Novato through a funded Class I bicycle facility, which currently connects with the Hamilton area of Novato (SMART 2023). Currently, there are no pedestrian facilities within the Project limits.

Table 2.1.7-1. Current and Projected Traffic Volumes

Segment	Post Mile	Current (2021)	Phase 1 Construction Year (2029)	Phase 1 Design Year (2049)	Phase 2 Construction Year (2045)	Phase 2 Design Year (2065)
SR 37[a]	R11.2/13.8	42,000	45,000	52,300	50,800	58,200
Eastbound Connector from Southbound U.S. 101[b]	R11.385	370 (AM) 500 (PM)	400 (AM) 540 (PM)	470 (AM) 640 (PM)	450 (AM) 610 (PM)	530 (AM) 720 (PM)
Westbound Connector to Northbound U.S. 101[b]	R11.389	470 (AM) 550 (PM)	510 (AM) 590 (PM)	600 (AM) 700 (PM)	570 (AM) 670 (PM)	670 (AM) 790 (PM)
Westbound On-Ramp from Atherton Avenue[b]	R13.636	160 (AM) 170 (PM)	180 (AM) 190 (PM)	220 (AM) 230 (PM)	200 (AM) 210 (PM)	240 (AM) 250 (PM)
Eastbound Off-Ramp to Atherton Avenue[b]	R13.654	120 (AM) 200 (PM)	130 (AM) 220 (PM)	160 (AM) 260 (PM)	150 (AM) 250 (PM)	180 (PM) 300 (AM)
Westbound Ramp Off-Ramp to Atherton Avenue[b]	R13.705	180 (AM) 140 (PM)	200 (AM) 150 (PM)	240 (AM) 180 (PM)	220 (AM) 170 (PM)	260 (AM) 200 (PM)

[a] Route values are Annual average daily traffic.

[b] Measured by Peak Hour Volume

Source: Data from Caltrans 2023e, adapted by Jacobs.

2.1.7.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Construction would occur in two phases. The first phase would construct the 1,000-foot-long Novato Creek Bridge and approach structures, raising the bridge from its current elevation of 13 feet to 35 feet (North American Vertical Datum of 1988 [NAVD 88]). The second phase would build the remaining portions of the raised causeway, from the Novato Creek Bridge to the western and eastern Project termini.

For Phase 1, the Novato Creek Bridge and its approaches would be reconstructed to meet the existing SR 37 roadway. The western transition bridge structure would be approximately 1,153 feet long, and the eastern transition bridge structure would be approximately 963 feet long. The median of the Novato Creek Bridge would be used to move westbound traffic, and the westbound bridge demolition would follow. The new median structure would then be widened by 30 feet, 6 inches on the north side to allow both eastbound and westbound traffic to be diverted to this structure. The existing eastbound structure would be demolished, and the new median structure would be widened by 29 feet, 6 inches for eastbound traffic. The new Novato Creek Bridge width would be 96 feet.

During Phase 1, two local access roads would be relocated north of the bridge and transitional approach structures, and access would be maintained to adjacent properties. Access to the adjacent properties would be maintained during construction of the local access roads.

Temporary (overnight) closures would be required to complete construction of the bridge median. Longer-term temporary realignment of traffic lanes within the Project limits would also be necessary to accommodate construction activities. Delays during the overnight closures would be up to 15 minutes.

Nighttime and weekend work would be required; however, any weekend work would occur in the evening or outside of the peak travel times. Two weekend closures would be required for constructing the median on the new bridge because of the time needed to cure the concrete deck pours. Hourly traffic volumes would be reviewed to determine the optimal period for the closure.

Signed detour routes would direct westbound SR 37 vehicles to Harbor Drive, then right on Atherton Avenue to access U.S. 101 (Figure 1-9). The detour is expected to be at least 6.5 miles and add 9 minutes of travel time. For eastbound SR 37 traffic from U.S. 101, the connectors would be closed. Traffic would be directed to use the

Atherton Avenue interchange to connect to Harbor Drive. The detour is expected to be at least 6.1 miles and add 8 minutes of travel time.

Phase 2 construction would begin with the removal of 36 feet of the median area from the transition structures and the widening by 18 feet of the new Novato Creek Bridge. The median area would then be constructed at the same elevation to match the new Novato Creek Bridge and U.S. 101 interchange. Temporary widening would be required in the eastbound direction between the eastern edge of the existing Novato Creek Bridge and the Atherton Avenue off-ramp to accommodate the first stage of median construction. This temporary widening would be necessary to maintain two lanes of traffic in each direction during the first stage of median construction. Eastbound traffic would shift onto the median structures. The median structures would be widened to accommodate westbound traffic.

During Phase 2, there would be temporary closures of the SR 37 on- and off-ramps. To minimize delays and disruptions, PF-TRANS-1, Transportation Management Plan, would be prepared. The TMP would be prepared in accordance with Caltrans guidelines, and it would address public and motorist information, incident management, construction strategies, demand management, and alternate routes (detours). The TMP would include requirements to coordinate with local agencies and CHP to notify businesses and local residents. In addition, Caltrans would implement PF-TRANS-2, Coordinate with Adjacent Property Owners, during the design of Phase 2 to discuss access to adjacent properties.

Construction activities during Phase 2 would increase travel times with the potential to have an adverse effect on traffic in the Project area. Therefore, MM-TRANS-1, Prepare Traffic Analysis, will require Caltrans to conduct a traffic analysis during the design of Phase 2 to determine travel delays based on construction strategies, detour routes, and future traffic volumes. MM-TRANS-1, Prepare Traffic Analysis, will be implemented closer to Phase 2 construction.

An updated TMP would be prepared for Phase 2 during the design phase. The updated TMP would reflect then-current traffic conditions, anticipated closures, detours, and impacts.

Access to the adjacent properties via the existing local access roads would no longer be required, as the Project area is projected to be affected by SLR. According to the *SR 37 Segment A – Sea Level Rise Corridor Improvement Study* (TAM 2018), the high-risk aversion category, which is the summation of current mean higher high water (6.2 feet NAVD 88), 100-year storm surge of 3.6 feet, 3 feet of wave action, 2 feet of freeboard, and the expected end-of-century SLR of 6.9 feet comes to 21.7 feet (NAVD 88) for 2100. Under these projections, the minimum roadway elevation in

the Project area would need to be no less than 21.7 feet (NAVD 88). Thus, access from SR 37 to the adjacent properties would no longer be required with projected SLR; and therefore, the Project does not propose to construct new ramps to the adjacent properties.

Operation

The Build Alternative would not increase the vehicular capacity on SR 37 or local streets, and would not affect access to local streets. At Project completion, the Build Alternative would include a dedicated bicycle and pedestrian path, improving multimodal mobility in the region. After completion of Phase 1, the Build Alternative would provide a dedicated bicycle and pedestrian path that would connect to widen shoulders. The Build Alternative would improve the reliability, mobility, and accessibility of SR 37 as a regional route. Therefore, the Build Alternative would result in beneficial impacts on transportation, and pedestrian and bicycle facilities.

Table 2.1.7-1 demonstrates that vehicle volume is forecast to increase after completion of Phase 2. The existing daily traffic volumes for year 2021 are 42,000 vehicles/day, and the traffic volume is expected to be approximately 58,200 vehicles/day by design year 2065. However, the Project would not add vehicle capacity to SR 37, and the traffic increase over this extended period is forecast from other sources such as population and job growth in the region. In other words, there is no induced traffic associated with the Project.

No-Build Alternative

Under the No-Build Alternative, SR 37 would continue to be affected by operational closures, in particular near Novato Creek, from flooding during 10-year storm surge events, and may be permanently inundated around the year 2050 with projected roadway flooding depths ranging up to 5 feet (Caltrans 2021e). SR 37 would be unable to continue linking job markets and housing within the four counties and would no longer provide access to recreational areas and the Sonoma and Napa wine regions or commercial freight movement within Marin, Sonoma, Napa, and Solano Counties. As discussed in Chapter 1, the Napa Valley wine industry provides an annual economic impact of more than $9.4 billion locally and nearly $34 billion in the United States, and creates 44,000 jobs in Napa County and nearly 190,000 jobs nationwide (Napa Valley Vintners 2021). The No-Build Alternative would disrupt connectivity and accessibility during SR 37 highway closures during winter rains and high tide events. Furthermore, SLR would impact traffic circulation and the regional economy in the North Bay Area.

2.1.7.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Project will implement MM-TRANS-1, Prepare Traffic Analysis, to minimize potential traffic impacts during Phase 2.

MM-TRANS-1: Prepare Traffic Analysis. During the Phase 2 design phase, Caltrans will prepare a traffic analysis to evaluate the impacts of Phase 2 detours on traffic during construction. This analysis will evaluate access for local residents, oversized vehicles, and businesses from SR 37, Atherton Avenue, Hanna Ranch Road, and Marsh Road. Caltrans will develop a plan to maintain access for local residents and businesses along existing routes or identify alternate detour routes during Phase 2. The detour traffic analysis will include the estimated detour travel time with the anticipated traffic delays during Phase 2 construction and will identify measures to minimize traffic delays. The traffic analysis results will inform the TMP for Phase 2 construction.

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 must use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, the 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.

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" (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

This section summarizes the Visual Impact Assessment prepared for this Project (Caltrans 2023a). The purpose of the Visual Impact Assessment is to document potential visual impacts caused by the Project and to propose measures to minimize impacts.

The Project location and setting provide the context for determining the type and severity of changes to the existing visual environment that would be caused by the Project. The terms "visual character" and "visual quality" are defined in Section 2.1.8.5 and are used to further describe the visual environment. The Project setting is defined as the area of land that is visible from, adjacent to, and outside the highway ROW and is determined by topography, vegetation, and viewing distance.

Visual Setting

The proposed Project is located on SR 37 between U.S. 101 and Atherton Avenue in the town of Novato in Marin County, California (Figure 1-1). The Project is located along the northern edge of San Pablo Bay, with Deer Island Preserve to the north of the roadway and the Bel Marin Keys neighborhood to the south. The landscape is characterized by flat farmland for much of the Project area. The land use surrounding SR 37 within the Project limits is primarily rural, with naturalized and native vegetation along the roadside, and few residences and businesses at the east and west ends of the Project limits. At Atherton Avenue are the Black Point Park & Ride

and Caltrans storage yard. The SMART[1] railroad tracks run parallel to the Project area to the south. The land use designations adjacent to the Project area are Agricultural, Open Space, and Residential.

Within the Project limits, SR 37 is classified as eligible, but not designated for, California State Scenic Highway status.

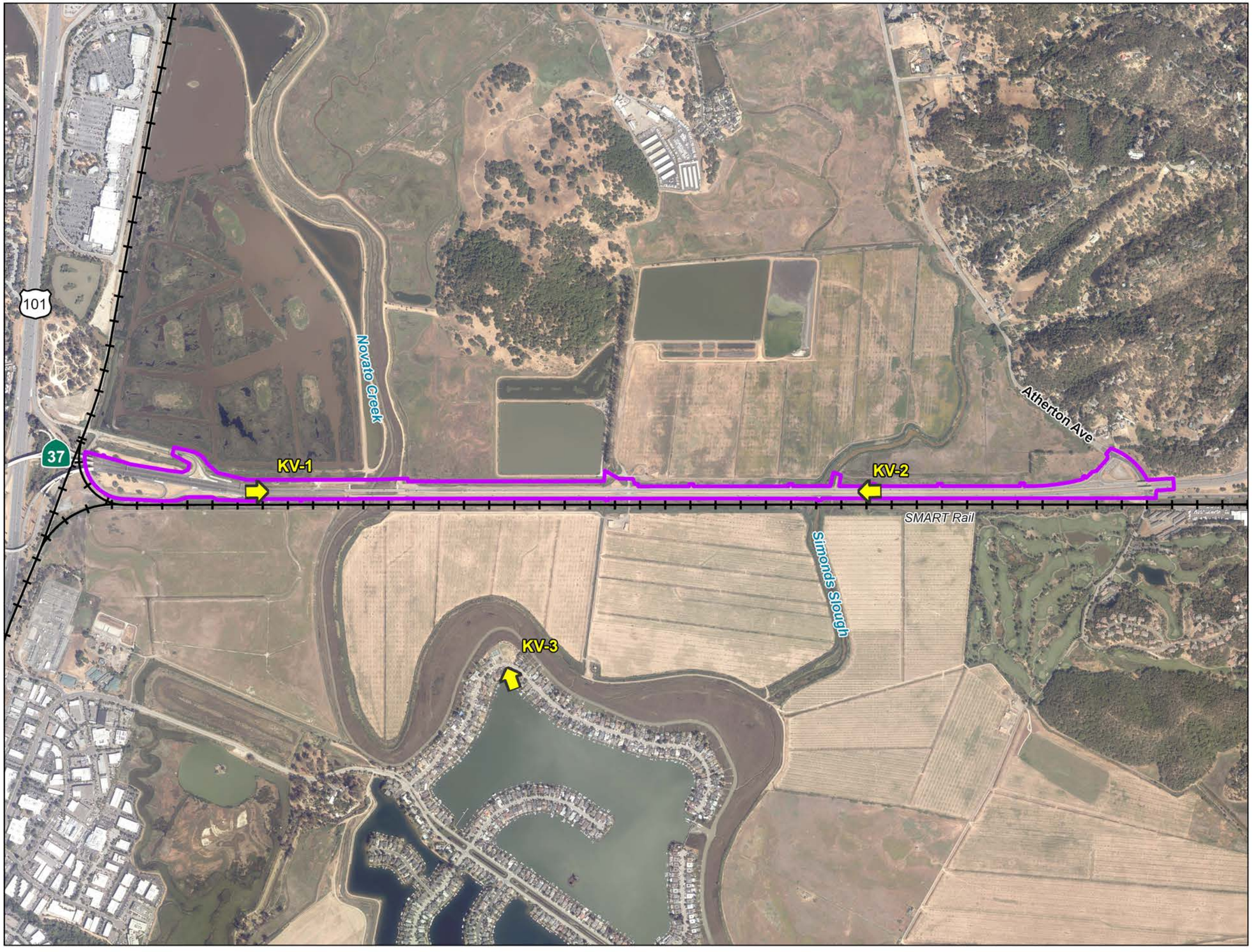
Visual Assessment Units and Key Views

Visual assessment units of an area are established "outdoor rooms" with similar visual character and visual quality attributes. The Project area is within a single visual assessment unit for its ability to be viewed wholly within a single viewshed. Viewsheds are the outdoor rooms (or “views”) that viewers can see from different vantage points. Three representative key views (KV) (KV-1 through KV-3) were selected for this analysis, as follows:

- KV-1: Looking east from the eastbound lane of SR 37 towards the Novato Creek Bridge.
- KV-2: Looking west from the westbound lane of SR 37 towards Simonds Slough.
- KV-3: Looking northwest toward the Project area from Montego Park in Bel Marin Keys.

Together, KV-1 and KV-2 represent the views of travelers in both directions on SR 37. The third key view (KV-3) represents the view of SR 37 from a nearby public park, Montego Park, in Bel Marin Keys (Figure 2.1.8-1).

[1] SMART runs freight service three times per week along SR 37.



Legend

- Project Area
- Key View Location
- SMART Rail

Data Source:
Caltrans April 2023
Marin County GIS

0 500 1000 1500 2000
Feet

Figure 2.1.8-1
Key Views
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Visual Resources and Resource Change

Resource change is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the Project setting before and after the construction of the proposed Project. Resource change is one of the two major attributes calculated that determine visual impacts (the other is viewer response, discussed in the Viewers and Viewer Response sections that follow).

Visual Resources

Visual resources of the Project setting are defined and identified by assessing visual character and visual quality as viewed from the Project area.

Visual Character

Visual character includes attributes such as form, line, color, dominance, scale, continuity and texture, and is used to describe the viewshed. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing condition by using visual character attributes as an indicator. The following attributes were considered for the proposed Project:

- **Form** - visual mass or shape
- **Line** - edges or linear definition
- **Color** - reflective brightness (light, dark) and hue (red, green)
- **Dominance** - position, size, or contrast
- **Scale** - apparent size as it relates to the surroundings
- **Continuity** - an uninterrupted flow of form, line, color, or textural pattern

The visual character of this portion of SR 37 is rural, with expansive views of the surrounding landscape in all directions. Views of rolling hillsides in the distance frame views to the north, east, and west. The dominant textures are scrubby grasslands and agricultural fields. The colors of the adjacent fields are golds and browns in the summer and fall transitioning to green during the winter and spring. The trees dotting the surrounding hillsides remain green all year. Within the Project limits the roadway is a relatively straight, continuous line bisecting the large, flat plains of the undeveloped adjacent land used for state and county flood control. This contrasts with the sinuous lines of Novato Creek, Simonds Slough, and the marsh edge near Bel Marin Keys. Wooden utility poles and high-voltage transmission lines run parallel to the roadway and are dominant vertical features. The existing highway is generally subordinate to the overall landscape setting.

Overall, there is low diversity in visual character elements within the Project viewshed creating coherent, comprehensible visual unity in character patterns, which is described in the Visual Quality section that follows.

Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity of the viewshed within the Project limits. Public attitudes validate the assessed level of quality and predict how changes to the viewshed can affect these attitudes. This process helps identify specific methods for addressing each visual impact that may occur as a result of the Project. The three criteria for evaluating visual quality are as follows:

- **Vividness** is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- **Intactness** is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions.
- **Unity** is the extent to which all visual elements combine to form a coherent, harmonious visual pattern.

Within the Project limits, SR 37 is a bucolic, moderately intact corridor. The landscape character is dominated by expanses of grassy fields and areas of shrub growth. Long-distance views of the Marin Hills and the Sonoma Mountains surround the Project area on three sides. Electric transmission poles and towers slightly diminish the intactness. The Project landscape exhibits a high visual unity, defined by farmland backed by rolling hills. Vividness is moderately high due to the straightness of the roadway and the expansive views of landscapes that are typical of the North Bay. Overall, the existing visual quality of the Project area viewshed is high.

Resource Change

The change in visual resources varies between the Project phases. Phase 1 will introduce a longer, higher bridge at Novato Creek with two approximately 1,000-foot-long sloped transition structures at each end. Phase 1 would diminish the intactness and unity of the Project area and moderately alter the visual character by adding new form, texture, and scale, resulting in a high level of resource change. Phase 2 would remove the transition structures and extend the causeway to U.S. 101 and Atherton Avenue. This phase would restore a sense of intactness by returning the roadway to a relatively straight, continuous line, but would impact the visual character with additional changes in form, texture, and scale. The roadway would become a dominant feature in the landscape due to the widened shoulder, new dedicated

bicycle/pedestrian path, and the overall height of the structure. Phase 2 would result in a moderate-high level of resource change.

Viewers and Viewer Response

Viewers are people whose views of the landscape may be altered by the proposed Project—either because the landscape itself has changed or their perception of the landscape has changed. There are two major types of viewer groups for highway projects: highway neighbors and highway users. Each viewer group has its own level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group which helps to predict their responses to visual changes.

Highway Users

Highway users are people who have views *from* the road. They can be subdivided into different viewer groups in two different ways—by mode of travel or by reason for travel. For example, subdividing highway users by mode of travel may yield pedestrians, bicyclists, transit riders, car drivers and passengers, and truck drivers. Dividing highway users or viewer groups by reason for travel creates categories like tourists, commuters, and haulers. It is also possible to use both mode and reason for travel simultaneously, creating a category like *bicycling tourists,* for example. For this Project, the following highway users were considered: Commuters, Tourists and Commercial Drivers.

Highway Neighbors

Highway neighbors are people who have views *to* the road. They can be subdivided into different viewer groups by land use. For example, residential, commercial, industrial, retail, institutional, civic, educational, recreational, and agricultural land uses may generate highway neighbors or viewer groups with distinct reasons for being in the corridor and therefore having distinct responses to changes in visual resources. For this Project, the following highway neighbors were considered: (1) Residents of the north-facing homes along Montego Key in Bel Marin Keys, (2) Residents in Black Point/Green Point above the Atherton Avenue Undercrossing, and (3) Recreationists.

Viewer Response

Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment and has two dimensions as previously mentioned, viewer exposure and viewer sensitivity.

Viewer Exposure

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. Location

relates to the position of the viewer in relation to the object being viewed. The closer the viewer is to the object, the more exposure. Quantity refers to how many people see the object. The more people can see an object or the greater frequency an object is seen, the more exposure the object has to viewers. Duration refers to how long a viewer can keep an object in view. The longer an object can be kept in view, the more exposure. High viewer exposure helps predict that viewers would have a response to a visual change.

Highway Neighbors: Neighbors in Bel Marin Keys have an unobstructed view of the Project area from a distance of approximately 0.25 mile from the Project area. Neighbors in Black Point/Green Point views are obscured by vegetation. Exposure for the residents is moderate due to the duration of their views, and the tendency of residents to look out to the surroundings of their homes.

Recreationists: Recreationists include hikers and bicyclists using the trails of Deer Island Preserve and nearby bike/pedestrian paths: Due to the relatively flat terrain or elevated viewpoints in the Deer Island Preserve, longer-duration recreationists may have moderate-high viewer exposure to Project-related changes.

Highway Users: SR 37 is an important connection between the four counties of the North Bay, linking the cities of Vallejo and Novato and providing access to the Sonoma and Napa wine regions. Exposure is assumed to be high for all highway users through the Project area due to the number of motorists on the road and the periods of congestion on any given day.

Viewer Sensitivity

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. *Activity* relates to the preoccupation of viewers—are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings. The more they are observing their surroundings, the more sensitivity viewers will have to changes to visual resources. *Awareness* relates to the focus of view—the focus is wide and the view general or the focus is narrow and the view specific. The more specific the awareness, the more sensitive a viewer is to change. *Local values* and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, viewers will likely be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

Views to the Road

Adjacent residents are expected to have a high viewer sensitivity to visual changes resulting from the proposed Project because they have views of the proposed

Project, frequently travel this route, and are familiar with the aesthetic qualities of the roadway.

Views from the Road

Highway users would be primarily focused on traffic and arriving at their destination. Commuters and truck drivers are anticipated to have a moderate-high sensitivity to visual changes, due to their familiarity with the area and local values. Tourists are anticipated to have a moderate sensitivity to visual changes as they are less familiar with the Project area but tend to be focused on the view. Overall, these factors indicate that viewers from the road would have a moderate-high sensitivity to changes to visual resources within the viewshed of the Project area.

Group Viewer Response

The narrative descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

The proposed Project would impact visual character and quality. Viewer exposure and viewer sensitivity for viewers to and from the road are presumed to be moderate-high; thus, viewer response is expected to be moderate-high.

2.1.6.1 ENVIRONMENTAL CONSEQUENCES

Figure 2.1.8-2 provides a reference for determining levels of visual impact by combining resource change and viewer response.

		Viewer Response				
Resource Change		Low (L)	Moderate-Low (ML)	Moderate (M)	Moderate-High (MH)	High (H)
	Low (L)	L	ML	ML	M	M
	Moderate-Low (ML)	ML	ML	M	M	MH
	Moderate (M)	ML	M	M	MH	MH
	Moderate-High (MH)	M	M	MH	MH	H
	High (H)	M	MH	MH	H	H

Figure 2.1.8-2. Visual Impact Ratings Using Viewer Response and Resource Change

Build Alternative

Construction Phase

Construction activities during Phase 1 and Phase 2 would result in impacts to the visual environment. As discussed in Chapter 1, construction of Phase 1 would require 2 years to complete, and construction of Phase 2 would last 56 months and

would start after Phase 1 is complete. Construction activities would create a temporary reduction in visual quality for motorists and nearby highway neighbors for the duration of construction. These activities include the removal of existing vegetation and visibility of dust, construction equipment, materials, and the construction site. Though most construction work would occur during the day, limited night work would occur. Caltrans would implement AMM-AES-1 through AMM-AES-4 (AMM-AES-1, Restore Disturbed Areas, AMM-AES-2, Design Contours to Mimic Natural Terrain, AMM-AES-3, Lighting, AMM-AES-4, Screen Construction Area) to minimize visual impacts during construction. With these measures, disturbed areas would be re-graded and re-vegetated with native and climate-appropriate vegetation, lighting would be directed downwards, and construction areas would be screened. With these measures and the temporary nature of construction, impacts on visual resources would be minimal.

Operation Phase

The following section uses the Key Views to describe and illustrate the visual effects of the Build Alternative, compares existing conditions to the Build Alternative, and includes the predicted viewer response during the Project's operational phase. Key views also represent the viewer groups that have the highest potential to be affected by the Project, considering exposure and sensitivity.

Visual Impacts by Key View

To analyze the Project's visual impacts, three key views associated with the visual assessment unit were selected that would most clearly demonstrate the change in the Project's visual resources (Figure 2.1.8-1). Key views also represent the viewer groups, highway users, and neighbors that have the greatest exposure and sensitivity to the Project.

This section describes and illustrates visual impacts by visual assessment unit, compares existing conditions to the proposed Build Alternative, and includes the predicted viewer response.

KV-1 – From Post Mile 11.8 Looking East toward Novato Creek

KV-1 presents the view looking eastbound along SR 37 from west of Novato Creek (Figure 2.1.8-3). The roadway is four lanes, two in each direction, separated by an unpaved median with metal guardrails. A concrete barrier forms the south edge of the roadway. The SMART rail tracks, roadway signage, wooden utility poles, and electric transmission lines are part of the view immediately to the south and continue parallel to the roadway into the distance. Shrubby vegetation and tree-covered hills of Black Point/Green Point are visible to the north. The Novato Creek Bridge is visible in the distance, starting next to the green roadway sign.

Figure 2.1.8-3. Existing Conditions KV-1

Viewer Response: Moderate-High (MH)

KV-1 represents the perspective of highway motorists including commuters, truckers, local recreationists, and tourists. KV-1 was taken on SR 37 looking eastbound west of Novato Creek. At this specific view, motorists on SR 37 would experience a short duration of the view at speeds 55 or more miles per hour. The view is similar for much of the Project area, so viewers are expected to have an increased sensitivity to visual change. Overall, viewers are anticipated to have a moderate-high response to views from KV-1.

KV-1 Build Alternative – Phase 1

Phase 1 would raise the height of Novato Creek Bridge to elevation 35 feet (NAVD 88) and would construct two transitional bridge structures from the existing roadway elevation to the proposed bridge elevation. A 10-foot-wide bicycle/pedestrian path with a concrete barrier would be added along the southern edge of the roadway.

The realigned roadway would be wider in comparison to the existing profile, but the elimination of the wide, unpaved median and the addition of new, taller barriers would give the roadway a more enclosed, urban character. The new 42-inch-high concrete median barrier, replacing the metal guardrails, would add a structure that would partially block views of the immediate landscape to the north. The transition

structure and raised bridge become large-scale, dominant forms in a relatively low-lying natural setting and block views to the east from the roadway. The concrete barrier separating the bicycle and pedestrian path would be a similar visual element to the existing concrete barrier (Figure 2.1.8-4).

Figure 2.1.8-4. Simulated Condition KV-1 – Phase 1

Resource Change: High (H)

Overall, this phase would result in a high level of resource change from this vantage point.

Project elements of the Build Alternative Phase 1 would create a high level of resource change. Combined with a moderate-high level of viewer response, Phase 1 would create a high level of visual impact from KV-1.

KV-1 Build Alternative – Phase 2

Phase 2 would construct causeway structures from U.S. 101 to the western end of Novato Creek Bridge and from the eastern end to just east of Atherton Avenue at an elevation of 35 feet (NAVD 88). The causeway would include a 22-foot-wide median with a 2-foot-wide median barrier, 10-foot-wide inside shoulders and 12-foot-wide outside shoulders, and a 14-foot-wide bicycle and pedestrian path. The existing Novato Creek Bridge under Phase 1 would be widened to conform to the width of the causeway and the two transitional bridge structures and embankments would be replaced with the causeway.

The widened roadway features prominently in this view and would be noticeable to motorists traveling the roadway. The removal of the transition structures and restoration of the roadway to a consistent elevation would re-establish the open visual character of the Project area, reducing the visual impact from Phase 1. Expansive views of the surrounding landscape in all directions would again be seen. The new, higher vantage point would improve distant views of the surrounding landscape; however, the near vegetation and SMART rail tracks would no longer be visible. The 42-inch-high median barrier would decrease views of the adjacent landscape but would not entirely block it.

Phase 2 would result in a moderate-high level of resource change from this view. Combined with a moderate-high level of viewer response, Phase 2 would create a moderate-high level of visual impact from KV-1 (Figure 2.1.8-5).

Figure 2.1.8-5. Simulated Condition KV-1 – Phase 2

Resource Change: Moderate-High (MH)

KV-2 – Looking West on SR 37 East of Simonds Slough

KV-2 presents the view looking westbound along SR 37 east of Simonds Slough (Figure 2.1.8-6). The roadway is four lanes, two in each direction, separated by an unpaved median with metal guardrails. Stretches of metal beam guardrails at Simonds Slough are in the immediate view. The wooden utility poles and electric transmission lines encroach in the view to the south and continue parallel to the roadway into the distance. Commercial buildings are visible in the distant view to the

south. Shrubby and riparian vegetation are adjacent to the northern edge of the roadway. The Marin Hills create a backdrop in the distance.

Figure 2.1.8-6. Existing Condition KV-2

Viewer Response: Moderate-High (MH)

Motorists would have high-exposure views for several miles of the Project area. The distant views of the Marin Hills are a strong focal point and add to the visual quality of the view. The view is similar for much of the Project area, so viewers are expected to have an increased sensitivity to visual change. Overall, viewers would have a moderate-high response to views from KV-2.

KV-2 Build Alternative – Phase 1

Phase 1 would realign the roadway to the north, raise the height of Novato Creek Bridge to an elevation of 35 feet (NAVD 88), and construct two transitional bridge structures from the existing roadway elevation to the proposed bridge elevation.

The raised bridge and transition structures at Novato Creek would be slightly visible from this vantage point. The view from KV-2 would be the same as under the existing condition (Figure 2.1.8-7). Visual character and quality would not be altered.

KV-2 – Long-term Resource Change for Phase 1 Would Be Low from KV-2

Project elements of the Build Alternative Phase 1 would create a low level of resource change. Combined with a moderate-high level of viewer response, Phase 1 would create a moderate-low level of visual impact from KV-2.

Figure 2.1.8-7. Simulated View KV-2 – Phase 1

KV-2 Build Alternative – Phase 2

As stated previously, Phase 2 would construct causeway structures from U.S. 101 to the western end of Novato Creek Bridge and from the eastern end to the east of Atherton Avenue at elevation 35 feet (NAVD 88). The existing Novato Creek Bridge constructed under Phase 1 would be widened to conform to the causeway and the two transitional bridge structures would be removed. The existing Simonds Slough Bridge and culvert would be removed and replaced by the causeway.

The widened roadway features prominently in this view and would be noticeable to motorists traveling the roadway. The elimination of the wide, unpaved median and the addition of new, taller barriers gives the roadway a more urban character. Expansive views of the surrounding landscape in all directions would again be seen. The new, higher vantage point would improve distance views to the surrounding landscape; however, near vegetation would no longer be visible. The new 42-inch-high concrete median barrier, replacing the metal guardrails, would add a structure that would partially block views. Encroaching elements such as the SMART rail tracks would not be visible (Figure 2.1.8-8).

Figure 2.1.8-8. Simulated View KV-2 – Phase 2

Project elements of the Build Alternative Phase 2 would create a high level of resource change. Combined with a moderate-high level of viewer response, Phase 2 would create a high level of visual impact from KV-2.

KV-3 – Existing Views from Montego Park in Bel Marin Keys Looking Northwest toward SR 37

KV-3 presents the view looking north toward SR 37 from Montego Park in Bel Marin Keys. With no intervening topography and minimal vegetation, the view includes marsh areas in the foreground, agricultural fields, and SR 37 in the middle ground, with Deer Island Preserve and Marin Hills in the distance. Electric transmission lines are dominant vertical forms and some development along U.S. 101 is visible. The general rural character and visual unity of the existing conditions are evident in this key view (Figure 2.1.8-9).

Figure 2.1.8-9. Existing Condition KV-3

Most of the viewers at this location are homeowners and visitors of Bel Marin Keys and would be walking and participating in leisure activities (picnicking, playing tennis, and basketball). The view is open and expansive due to the lack of intervening topography or vegetation. Because homeowners and visitors to the park may be focused on other activities but are familiar with the aesthetic qualities of the view, viewer response to visual changes from this key view is expected to be moderate-high.

KV-3 Build Alternative – Phase 1

The primary visual changes under Phase 1 would include the increased dominance of the roadway with the introduction of the bridge and transition structures, with the visible support bents and columns. The visual character would exhibit a strong change with the introduction of the prominent concrete structure into the visual middle ground. The bridge would also intrude into, though not completely obstruct, existing views of the hills and mountain to the north. Views to the east and west would be minimally affected by this phase.

Project elements of the Build Alternative Phase 1 would create a high level of resource change. Combined with a moderate-high level of viewer response, Phase 1 would create a high level of visual impact from KV-3 (Figure 2.1.8-10). Caltrans would implement AMM-AES-5, Bridge Design Enhancement, to reduce brightness

and the potential for concrete reflectivity. Implementation of this avoidance and minimization measure would reduce the adverse visual impact, but not to a level of minimal impact.

Figure 2.1.8-10. Simulated View KV-3 – Phase 1

KV-3 Build Alternative – Phase 2

The primary visual changes under Phase 2 would include the increased dominance of the roadway with the extension of the causeway structure, with the additional support bents and columns. The visual character would exhibit a strong change with the extension of the prominent concrete structure in the visual middle ground. The bridge would also intrude into, though not completely obstruct, existing views to the north.

Views to the east and west from Montego Park would be minimally affected by this phase.

At completion, the Build Alternative would create a moderate-high level of resource change. Combined with a moderate-high level of viewer response, Phase 2 would create a moderate-high level of visual impact from KV-3 (Figure 2.1.8-11). Caltrans would implement AMM-AES-5, Bridge Design Enhancement, to minimize the visual contrast of the new structure with its surroundings. However, implementation of this avoidance measure would not reduce the adverse visual impact to a less than significant level.

Figure 2.1.8-11. Simulated View KV-3 – Phase 2

Resource Change: Moderate-High (MH)

No-Build Alternative

Under the No-Build Alternative, SR 37 would not be improved or changed. The existing visual characteristics immediately adjacent to the Project area would remain unaltered. If the Project were not constructed, no adverse visual changes associated with the Project would occur. This portion of SR 37 would continue to be subject to recurring flooding and inundation from the projected SLR. Under the No-Build Alternative, the highway would retain its rural character with expansive views.

2.1.6.2 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following measures to avoid, minimize or mitigate visual impacts would minimize visual impacts.

AMM-AES-1: Restore Disturbed Areas

Caltrans would re-grade and re-vegetate areas disturbed by construction, staging, and storage, and would re-vegetate areas of removed roadways with native and climate-appropriate vegetation species along roadway and bridge embankments.

AMM-AES-2: Design Contours to Mimic Natural Terrain

Prior to completion of construction activities, slopes would be graded to be consistent with site topography, to increase context sensitivity, and reduce engineered appearance of slopes to the maximum extent practicable.

AMM-AES-3: Lighting

During construction, lighting for the Project would be of color, height, and design consistent with the overall aesthetic approach of the Project to minimize visual intrusion into the corridor.

AMM-AES-4: Screen Construction Area

Caltrans or its contractor would set up construction staging and storage areas with opaque screening wherever work would be exposed to public view for extended periods.

AMM-AES-5: Bridge Design Enhancement

To minimize the degree of visual contrast, Caltrans would incorporate design enhancement measures such as column, bent, and parapet into the final Project design. Caltrans would also consider surface texture treatments to reduce brightness and the potential for concrete reflectivity.

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” (including structures, bridges, railroads, and water conveyance systems), 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 those described in the sections that follow.

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places. Section 106 of the 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 ACHP (36 CFR 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among FHWA, ACHP, the California State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements ACHP’s regulations (36 CFR 800), streamlining the Section 106 process and delegating certain responsibilities to Caltrans. FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 USC 327).

CEQA requires the consideration of cultural resources that are historic resources and tribal cultural resources, as well as “unique” archaeological resources. PRC Section 5024.1 established the California Register of Historical Resources and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the California Register of Historical Resources, and therefore, a historic resource. Historic resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 added the term “tribal cultural resources” to CEQA, and Assembly Bill 52 is commonly referenced instead of CEQA when discussing the process for identifying 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 California Register of Historical Resources- or local-register-eligible site, feature, place, cultural landscape, or object that has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historic 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 National Register of Historic Places listing criteria. It further requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion on the National Register of Historic Places, 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 between Caltrans 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 studies for this undertaking were carried out by Caltrans Professionally Qualified Staff in a manner consistent with Caltrans regulatory responsibilities under Section 106 of the NHPA (36 CFR Part 800) and pursuant to the PA among FHWA, ACHP, the California SHPO, and Caltrans regarding compliance with Section 106 of the NHPA, as it pertains to the administration of the Federal Aid Highway Program in California. These studies include the results of background literature and records research, pedestrian field surveys, and consultations with the Native American community, the SHPO, and other interested parties, as well as local and state authorities. The reports in Table 2.1.9-1 document Caltrans' compliance with Section 106 of the NHPA.

Table 2.1.9-1. Section 106 Technical Reports

Report Title	Date
Historic Property Survey Report	December 11, 2023
Archaeological Survey Report and Extended Phase I Study	December 11, 2023

Area of Potential Effects

The Area of Potential Effects (APE) is the study area for both architectural history and archaeology, and encompasses the Project footprint from Post Mile 11.2 to Post Mile 13.8 on SR 37 where construction activities would occur, including all areas of potential direct and indirect effects. This includes staging and access areas, TCEs, bridge replacement, and causeway construction. The Project would involve both surface-level and subsurface disturbance. The vertical APE consists of all activities below the current ground surface, such as excavation. The maximum depth of ground disturbance extends from the ground surface to 150 feet to accommodate the bridge construction.

Archaeology

Caltrans Professionally Qualified Staff conducted a combined intensive pedestrian and windshield survey of the APE on January 23 and 25, 2022. Within the accessible areas of SR 37, no previously unrecorded archaeological resources were identified during this field investigation. An Extended Phase I study, which involves testing archaeological sensitive areas within the APE for presence or absence of cultural resources, was completed at the western and eastern limits of the Project area between July 10-14, 2023. The Extended Phase I did not identify any previously unrecorded archaeological resources, nor were any archaeological materials or culturally sensitive soils identified within the APE.

Architectural History

The Caltrans Professionally Qualified Staff Architectural Historian reviewed the provided Project information, the Caltrans Cultural Resource Database, State Lands database for shipwrecks, as-built plans, aerial photographs, and maps.

Based on this review, Caltrans determined that there are no architectural history resources within the APE.

No further architectural history studies are required at this time.

2.1.9.3 Environmental Consequences

Build Alternative

Section 4(f) of the Department of Transportation Act of 1966 provides protection for historic properties. There are no historic properties present within the APE; therefore, there are no Section 4(f) historic sites affected by the proposed Project. A Resources Evaluated Relative to the Requirements of Section 4(f) memorandum is provided in Appendix A for Section 4(f) recreational sites near the proposed Project.

Construction

There are no eligible or listed structures within the Project area. There would be no impact to architectural history during construction.

Construction of the Build Alternative would occur over two phases, named as Phase 1 and Phase 2. For both Phase 1 and 2, staging areas would be located between Marsh Road and the eastbound SR 37 off-ramp to Marsh Road, between SR 37 and the westbound off-ramp to Atherton Avenue, and two staging areas north of SR 37 on both sides of Novato Creek. These staging areas would be used to store and move heavy construction equipment and construction materials.

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

If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner would be contacted. If the remains are thought by the coroner to be Native American, the coroner would notify the Native American Heritage Commission, who, pursuant to PRC Section 5097.98, would then notify the Most Likely Descendent. Caltrans would consult with the Most Likely Descendant on treatment and reburial of the remains. Further provisions of PRC 5097.98 would be followed as applicable.

Phase 1

The new Novato Creek Bridge would have a total of 48 piles across 8 bridge bents to support the bridge. The piles would be installed by vibrating them into the ground as deep as possible before switching to an impact pile hammer, as needed, to complete the pile driving. The maximum depth for the piles would be 150 feet below the ground. Two abutments would be constructed, at each end of the bridge, with a maximum depth of 10 feet below ground.

Two temporary transition structures would be installed to connect the new Novato Creek Bridge with the existing at-grade SR 37 roadway. Construction of the two transition structures would also involve excavation to install the piles. The proposed embankments would involve ground disturbance and excavation that could encounter unknown archaeological resources. The transition structures and embankments are not proposed in culturally sensitive areas near Novato Creek.

Demolition of the existing westbound bridge and construction of the new bridge would require construction equipment to enter the Novato Creek area. A temporary trestle that would be constructed during construction would provide access to the creek area. The temporary construction trestle would install up to 50 piles to a maximum depth of 100 feet below the surface using a combination of vibration and impact pile hammer. Vibration would be used to drive piles as deep as possible before using the impact pile hammer. The piles would be fully removed after construction.

Relocating and elevating the local access roads on a 2:1 slope would require earthmoving activities that could encounter unknown archaeological resources. Regionally imported soil would be used to elevate the western local access road to 7 feet and the eastern local access road to 5 feet.

The pile driving, through vibrating and impact pile hammer, for the new Novato Creek Bridge and the installation of the temporary construction trestle structure and ground moving for the local access roads and embankments have the potential to encounter and impact unknown archaeological sites. Any identification of new archaeological resources or human remains would cease work with implementation of PF-CULT-1, Cease Work upon Unanticipated Discovery of Cultural Resources or Tribal Cultural Resources, and PF-CULT-2, Stop Work upon Discovery of Human Remains, as described in Appendix D.

Phase 2

The Novato Creek Bridge would be widened from 96 to 114 feet wide, and new substructure would be required in the marsh area near Novato Creek. Similar to the construction activities under Phase 1, the new piles required to widen the Novato Creek Bridge and build out the rest of the causeway, including the on- and off-ramps, would be installed to a maximum depth of 150 feet below the ground surface and require earthmoving activities. These construction activities would also have the potential to encounter unknown archaeological resources within the Project footprint.

Construction activities for Phase 2, such as pile driving for the Novato Creek Bridge, causeway, and on- and off-ramps could encounter unknown archaeological resources. Potential impacts to discovered unknown resources and human remains would be minimized with the implementation of PF-CULT-1, Cease Work upon Unanticipated Discovery of Cultural Resources or Tribal Cultural Resources, and PF-CULT-2, Stop Work upon Discovery of Human Remains, which require construction activities to stop until a qualified archaeologist can evaluate the nature and significance of the find and determine the need for archaeological and Native American monitoring during the remainder of construction.

Operation

There are no built environment resources within the APE. Therefore, operations would have no impact on built resources.

No-Build Alternative

Under the No-Build Alternative, SR 37 would continue to experience stormwater overtopping and over time experience the effects of the projected SLR. There would be no ground disturbance or through excavation earthmoving activities with the potential to encounter an unknown cultural resource. There would be no impact to cultural resources under the No-Build Alternative.

2.1.9.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following avoidance, minimization, or mitigation is required to reduce effects related to cultural resources:

AMM-CULT-1: Cultural Sensitivity Training. Prior to the initiation of construction for the Project, an agency-approved archaeologist and Tribal representative from Federated Indians of Graton Rancheria would conduct an education program for all construction personnel with a focus on cultural, tribal, and archaeological resources. At minimum, the training would include discussion of archaeological and tribal resources that may be encountered (including the traditional importance of resources such as cultural landscapes, significant waterways, and ethnobotanical plants); the procedures to be followed when working within archaeological monitoring areas or near environmentally sensitive areas, if applicable; and state and federal regulations pertaining to cultural resources, as well as the importance of compliance with Caltrans' conditions.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 REGULATORY SETTING

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

To comply, the following must be analyzed:

1. The practicability of alternatives to any longitudinal encroachments
2. Risks of the action
3. Impacts on natural and beneficial floodplain values
4. Support of incompatible floodplain development
5. 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

This section summarizes the *Location Hydraulic Study* (Appendix M) prepared for the Project (WRECO 2023). The report incorporates information from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) and Flood Insurance Study for Marin County. The report also incorporates information from the USACE Hydrologic Engineering Center River Analysis System (HEC-RAS), and the USGS topographic maps.

Watershed Description

Novato Creek watershed is located in eastern Marin County (Figure 2.2.1-1). The basin size is approximately 45 square miles, and the channel length is approximately 17 miles. Novato Creek, consisting of mostly natural channel, drains most of the City of Novato and flows through the center of the city, past medium and low-density residential areas. Tributaries to Novato Creek are Bowman Canyon, Stafford Lake, Vineyard, Sandy, Wilson, Warner, and Arroyo Avichi Creeks. At Arroyo Avichi Creek just upstream of U.S. 101, Novato Creek drains approximately 26 square miles of urban and rural watershed. Novato Creek flows past a series of marshes, meeting

the Novato ditch system and Lynwood Slough, then crosses under SR 37, flows through marshes, past Bel Marin Keys, and into the San Pablo Bay mouth of the Petaluma River located approximately 0.7 mile north.

Land Use

The land use within Novato Creek watershed is mostly Agriculture/Rural or Open Space in the upper watershed. Within Novato's city limits, land use is mostly residential. The land use adjacent to SR 37 is a mix of Agriculture/Rural at the freeway segment near U.S. 101 interchange, and commercial near the Atherton Avenue Undercrossing. Adjacent land use along SR 37 between the two interchanges is Open Space.

Floodplains

The Project site is located within FEMA FIRM panel numbers 06041C282E, 06041C283E, and 06041C0284E, effective March 16, 2016 (Figure 2.2.1-2). Table 2.2.1-1 summarizes FEMA special flood hazard areas crossed by SR 37 in Marin County.

Table 2.2.1-1. FEMA Special Flood Hazard Areas Crossed by SR 37 in Marin County

FEMA FIRM Number	Floodplain Type	Floodplain Length Measured along SR 37 Centerline	Existing Bridge Structure(s) in Caltrans Log of Bridges	Post Mile
06041C283E	Zone AE (10 feet)	830 feet	U.S. 101 Junction	11.2
06041C283E	Zone X (unshaded)	750 feet	N/A	N/A
06041C283E	Zone AE (10 feet)	3,000 feet	Novato Creek Bridge	11.96
06041C283E	Zone AE (11 feet)	1,080 feet	Novato Creek Bridge	11.96
06041C284E	Zone AE (11 feet)	1,950 feet	N/A	N/A
06041C282E	Zone AE (11 feet)	820 feet	N/A	N/A
06041C282E	Zone AE (10 feet)	4,560 feet	Simonds Slough Bridge	13.04

Source: WRECO 2023

Notes:

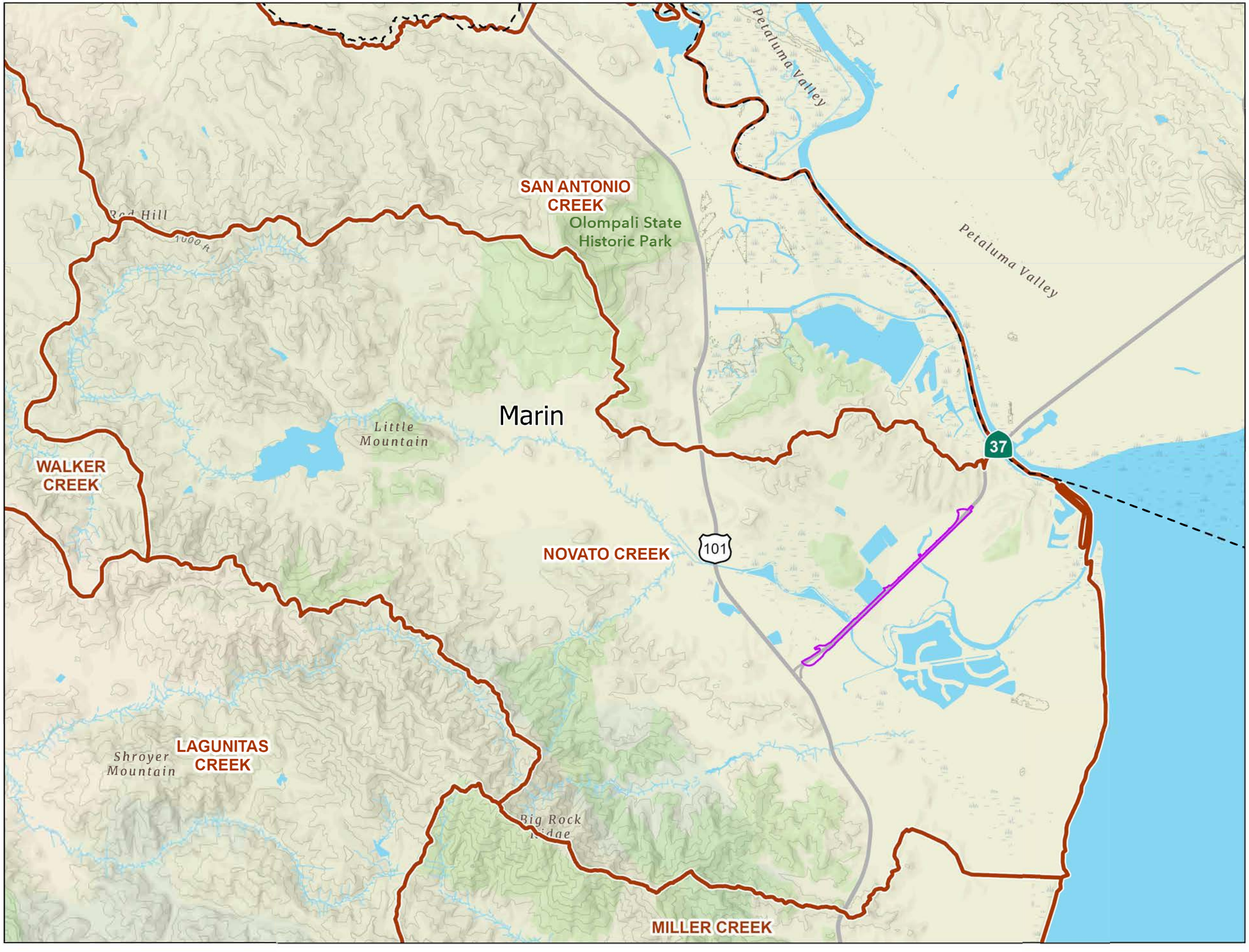
Floodplain lengths are rounded to the nearest 10 feet.

The transition from FEMA special flood hazard areas Zone AE (10 feet) to Zone AE (11 feet) occurs at the Novato Creek Bridge.

Zone AE = 1% probability of flooding per year

Zone X = Less than 0.2% probability of flooding per year

N/A = not applicable



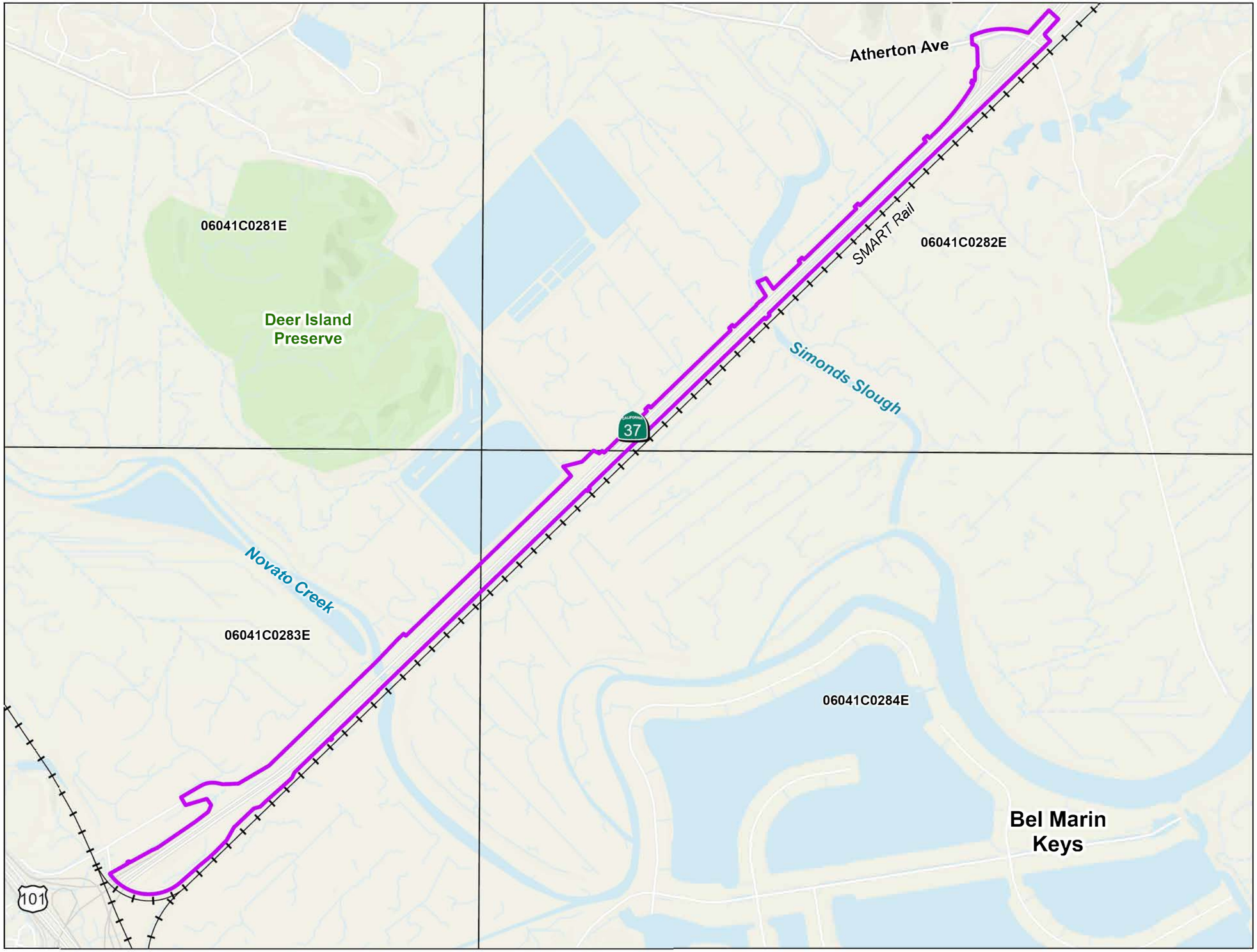
Legend

- Project Area
- County Boundary
- Major Watersheds

Data Source:
Caltrans April 2023
Marin County GIS

0 0.5 1 1.5 2
Miles

Figure 2.2.1-1
Major Watersheds within Marin County
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Railroad
- FEMA FIRM Panels

Data Source:
Caltrans April 2023
Marin County GIS
FEMA

0 500 1000 1500 2000
Feet

Figure 2.2.1-2
FEMA FIRM Panels within Project Area
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Special flood hazard areas Zone AE represents areas subject to flooding by the 100-year flood event. SR 37 is subject to tidal backwater from San Pablo Bay, and the elevations 10 feet and 11 feet (NAVD 88) represent the tidal backwater elevations during the 100-year storm event. Zone X (unshaded) represents areas outside of the 500-year floodplain limits. The FEMA flood zones within the Project limits are depicted on Figure 2.2.1-3.

Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values include fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

The San Francisco Bay Regional Water Quality Control Board (SBFRWQCB) Water Quality Control Plan (Basin Plan) lists the beneficial uses for the Project's water bodies (SFBRWQCB 2023). Beneficial uses for Novato Creek include estuarine habitat, fish migration, rare and endangered species, fish spawning, and contact and non-contact water recreation.

Incompatible Floodplain Development

The Project would raise the vertical profile of SR 37, and changes made to the horizontal alignment of SR 37 would be minimal. The Project does not include construction of new interchanges or intersections. Therefore, the Project would not create new access to developed or undeveloped land and would not support incompatible floodplain development.

Sea Level Rise

The Project area is located within a tidal zone of the San Pablo Bay. The medium to high risk SLR projection for the Project area in the year 2030 is 0.8 feet, 2050 is 1.9 feet, for year 2100 is 6.9 feet, and for year 2130 is 10 feet (WRECO 2023).

During a 10-year storm surge event, flooding would occur and the Project area would be permanently inundated around the year 2050 with roadway flooding depths ranging up to 5 feet (Caltrans 2021e). Under the medium-high risk aversion SLR scenario, a levee or highway elevation of 9 feet (NAVD 88) is projected to have a 22 percent chance of flooding due to inundation by 2030, a 38 percent chance by 2035, a 64 percent chance by 2040, and a 100 percent chance by 2045.

The existing Novato Creek Bridge is at approximately 9 feet (NAVD 88), and the remainder of the Project area, excluding the begin and end points, is at an elevation between 4 to 6 feet (NAVD 88). Under existing conditions, the Project area experiences flooding and is projected to continue to experience a higher frequency of flooding as the year 2050 approaches.

Legend

- Project Area
- Road
- Railroad
- 1% Annual Chance Flood Hazard - Zone AE
- 0.2% Annual Chance Flood Hazard - Zone X
- Area of Minimal Flood Hazard - Zone X

Data Source:
Caltrans April 2023
Marin County GIS
FEMA National Flood Hazard Layer

0 500 1000 1500 2000
Feet

Figure 2.2.1-3
FEMA Flood Zones
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Hydrologic Assessment

The FEMA Flood Insurance Study for Marin County, California, and Incorporated Areas provided the peak flows of Novato Creek in the Project vicinity, upstream of the Project location (Table 2.2.1-2 and Figures 2.2.1-4 and 2.2.1-5).

Table 2.2.1-2. FEMA Flood Insurance Study Hydrologic Data Summary

Flooding Location	Peak Discharge (cfs) 50-year	Peak Discharge (cfs) 100-year
Downstream of confluence with Arroyo Avichi	5,140	6,230
Downstream of confluence with Warner Creek	4,690	5,690
Upstream of Warner Creek	3,310	4,080

Source: WRECO 2023

Note:

cfs = cubic feet per second

The outputs from the hydraulic analysis showed that Novato Creek upstream of the Project area does not have the capacity to convey the 50- and 100-year storm events. The extents of the 50- and 100-year floodplain from the preliminary hydraulic analyses are shown on Figures 2.2.1-4 and 2.2.1-5. Table 2.2.1-3 summarizes the peak 50-year and 100-year flow of Novato Creek in the Project vicinity that is conveyed inside the main channel.

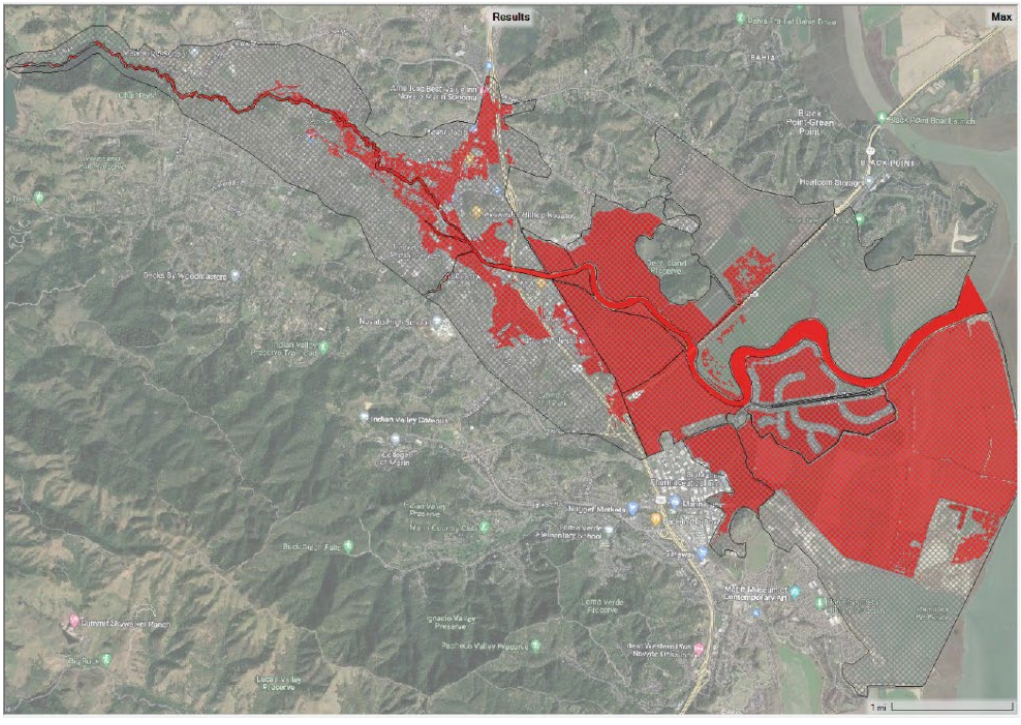


Figure 2.2.1-4. Flooding Extents of Novato Creek under the 50-year Storm Event

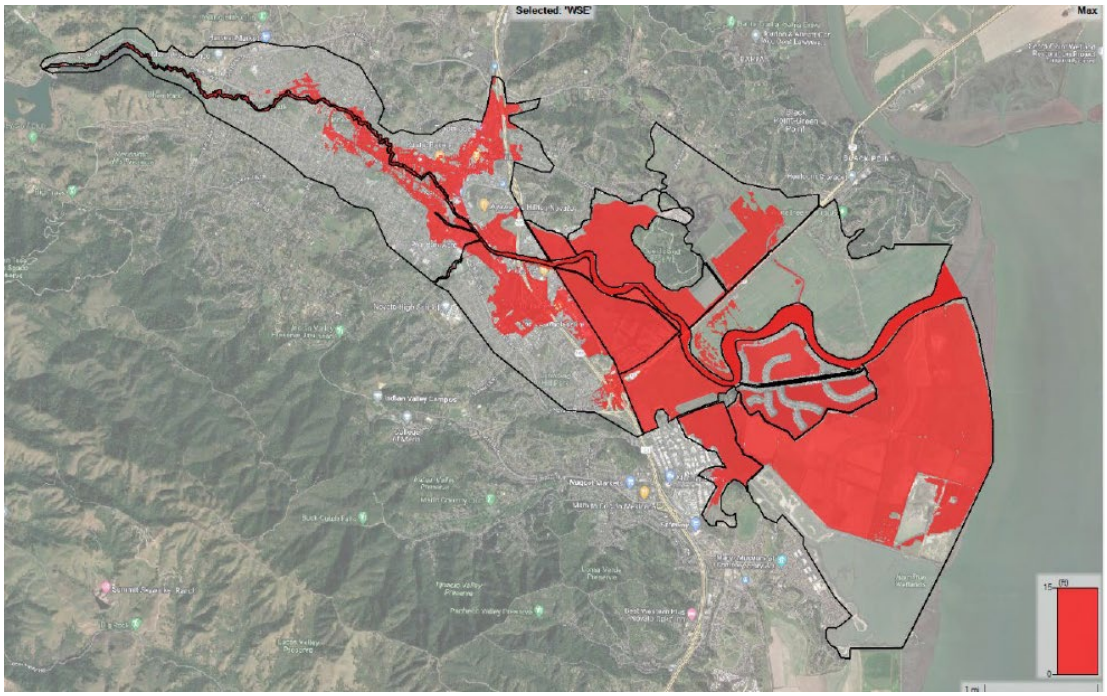


Figure 2.2.1-5. Flooding Extents of Novato Creek under the 100-year Storm Event

Table 2.2.1-3. Peak 50-year and 100-year Flows inside Novato Creek Main Channel

Location	Peak 50-year Flow in the Creek Main Channel (cubic feet per second)	Peak 100-year Flow in the Creek Main Channel (cubic feet per second)
Stafford Dam outlet	1,083	1,322
At De Long Avenue (approximately 2,000 feet upstream of confluence with Warner Creek)	2,988	3,073
Downstream of confluence with Warner Creek	3,946	4,299
Downstream of confluence with Arroyo Avichi Creek	4,594	5,162
At SMART bridge	4,791	5,167
At SR 37 bridge	3,103	3,213

Source: WRECO 2023

Hydrologic Modeling Results

Hydraulic analyses were performed for the 100-year storm event with current tide conditions for existing, Phase 1, and Phase 2 conditions (Table 2.2.1-4); 2050 SLR for the existing, Phase 1, and Phase 2 conditions (Table 2.2.1-5); and 2030 SLR for the existing and Phase 1 conditions (Table 2.2.1-6). Phase 2 would not be complete

in 2030 and, therefore, was not modeled. The outputs were compared with the following nine locations, shown on Figure 2.2.1-6:

1. Novato Creek Main Channel, upstream of SR 37 bridge
2. Novato Creek Main Channel, downstream of SR 37 bridge
3. Open Space north of SR 37, near U.S. 101 interchange
4. Open Space south of SR 37, near U.S. 101 interchange
5. Open Space north of SR 37, east of SR 37 bridge
6. Open Space south of SR 37, east of SR 37 bridge
7. Simonds Slough, immediately north of SR 37 bridge
8. Simonds Slough, immediately south of SR 37 bridge
9. At SMART track parallel to SR 37

Table 2.2.1-4 presents the 100-year water surface elevations (WSEs) under existing and proposed conditions in the Project vicinity with no SLR. As presented in the table, the WSE at locations 2 and 5 would change with the Project.

Table 2.2.1-4. Summary of Existing and Proposed Water Surface Elevation Conditions with No Sea Level Rise

Location	Maximum 100-year WSE (feet NAVD 88) Existing	Maximum 100-year WSE (feet NAVD 88) Phase 1	Maximum 100-year WSE (feet NAVD 88) Phase 2
1	11.1	11.1	11.1
2	10.9	11.0	11.0
3	10.6	10.6	10.6
4	10.6	10.6	10.6
5	4.5	4.6	4.4
6	3.9	3.9	3.9
7	3.0	3.0	3.0
8	3.9	3.9	3.9
9	10.6 to 11.0	10.6 to 11.0	10.6 to 11.0

Source: WRECO 2023

Both Phase 1 and Phase 2 would have minimal impacts to the 100-year WSE inside the Novato Creek main channel in the vicinity of the SR 37 bridge. Change in the 100-year WSE from the existing condition within the footprint of the hydraulic model was approximately 0.1 foot or less for both phases of the Project. Additionally, Phase 1 and Phase 2 would have minimal impact to the SMART railroad track parallel to SR 37. The change in 100-year WSE was approximately 0.01 foot or less;

therefore, the Project would not change the extents of the 100-year floodplain overtopping the SMART railroad track.

Table 2.2.1-5 presents the WSE under existing and Project conditions with 2050 SLR. As presented in the table, the WSE at locations 2, 5, 6, 7, 8, and 9 would change with the Project.

Table 2.2.1-5. Summary of Existing and Proposed Water Surface Elevation Conditions with 2050 Sea Level Rise

Location	Maximum 100-year WSE (feet NAVD 88) Existing	Maximum 100-year WSE (feet NAVD 88) Phase 1	Maximum 100-year WSE (feet NAVD 88) Phase 2
1	11.1	11.1	11.1
2	10.9	11.0	11.0
3	10.6	10.6	10.6
4	10.6	10.6	10.6
5	7.3	6.8	7.3
6	7.4	7.5	7.4
7	7.2	6.9	7.2
8	7.4	7.6	7.4
9	7.4 to 11.0	7.5 to 11.0	7.4 to 11.0

Source: WRECO 2023

The proposed embankment fill for the construction of the Novato Creek Bridge approach during Phase 1 would result in more 100-year floodplain fill than Phase 2 construction. The hydraulic analysis under the 2050 SLR indicates the proposed embankment would act as a flood barrier for tidal backwater, resulting in an increase of approximately 0.1 foot or less in the 100-year WSE at the basins southeast of the SR 37 alignment and a decrease of approximately 0.5 foot or less in the 100-year WSE at the basins northwest of the SR 37 alignment. However, by 2050 the Phase 1 embankment would be replaced by a causeway, as part of the construction of Phase 2. Under the existing conditions, at completion of Phase 1 and at completion of Phase 2 conditions, the SMART railroad track is fully submerged in the modeled 100-year storm event under 2050 SLR. Changes to the 100-year WSE would be minimal between the split from the U.S. 101 line and the Novato Creek Bridge; however, the segment between Novato Creek Bridge and Atherton Avenue would increase by approximately 0.1 foot in the 100-year WSE for Phase 1.

Legend

- Project Area
- SMART Rail
- Observation Location

Data Source:
Caltrans April 2023
Marin County GIS

0 500 1000 1500 2000
Feet

Figure 2.2.1-6
Hydrology Observation Locations
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Table 2.2.1-6 presents the WSE under existing and Project conditions with 2030 SLR. As presented in the table, the WSE at locations 2, 5, 6, 7, 8, and 9 would change (increase or decrease) with the Project.

Table 2.2.1-6. Summary of Existing and Proposed Water Surface Elevation Conditions with 2030 Sea Level Rise

Location	Maximum 100-year WSE (feet NAVD 88) Existing	Maximum 100-year WSE (feet NAVD 88) Phase 1
1	11.1	11.1
2	10.9	11.0
3	10.6	10.6
4	10.6	10.6
5	5.6	5.1
6	5.9	6.1
7	5.3	5.1
8	6.0	6.1
9	5.9 to 11.0	6.1 to 11.0

Source: WRECO 2023

Similar to the hydraulic summary analysis under 2050 SLR (Table 2.2.1-5), the proposed embankment fill for the construction of the bridge approach during Phase 1 would act as a flood barrier for the tidal backwater, therefore, resulting in an increase of approximately 0.1 foot or less in the 100-year WSE at the basins southeast of the SR 37 alignment and a decrease of approximately 0.5 foot or less in the 100-year WSE at the basins northwest of the SR 37 alignment.

For the existing and phase conditions, the SMART railroad track is fully submerged in the modeled 100-year storm event under 2030 SLR. Changes to the 100-year WSE would be minimal between the split from the U.S. 101 line and the Novato Creek Bridge; however, the segment between Novato Creek Bridge and Atherton Avenue would increase by approximately 0.1 foot in the 100-year WSE for Phase 1.

2.2.1.3 Environmental Consequences

Build Alternative

Construction

Potential short-term adverse effects to the natural and beneficial floodplain values during the construction of Phase 1 and Phase 2 may include the following: (1) the loss of vegetation during construction activity and (2) temporary disturbance of wildlife and aquatic habitat. Construction would not create a hazard during the service life of the highway and would not result in adverse effects to natural and

beneficial floodplain values. During both phases, the Project would involve earthmoving activities in vegetated and non-vegetated areas, resulting in direct impacts to the habitats that support the natural and beneficial floodplain values such as fish and wildlife. Biological compensation described in Section 2.3 would be provided as appropriate where natural and beneficial floodplain values are potentially impacted within the Project area. Construction activities would minimize effects to the natural and beneficial floodplain areas to the maximum extent practicable. The following Project features and AMMs would further reduce impacts to natural and beneficial floodplain values:

- PF-BIO-1: Documentation at Project Site
- PF-BIO-2: Work According to Documents
- PF-BIO-3: Worker Environmental Awareness Training
- PF-BIO-4: Mark Environmentally Sensitive Areas
- PF-BIO-5: Wildlife Exclusion Fencing
- PF-BIO-6: Nesting Bird Surveys and Buffers
- PF-BIO-7: Construction Site Management Practices
- PF-BIO-8: Erosion Control Matting
- PF-BIO-9: Restore Disturbed Areas
- PF-BIO-10: Vegetation and Tree Removal
- PF-BIO-11: Landscaping and Revegetation Plan
- PF-BIO-12: Prevent Inadvertent Entrapment of Animals
- PF-BIO-15: Construction Noise
- PF-BIO-16: Stop-work Authority
- PF-BIO-18: Wildlife Species Relocation
- PF-BIO-19: In-channel Work Period
- PF-BIO-20: Work Period in Dry Weather Only
- PF-BIO-21: Wetland Protection

- PF-BIO-22: Invasive Weed Control
- PF-BIO-23: Vibratory Pile Driving
- PF-BIO-24: Invasive Aquatic Species Control
- PF-WQ-1: Stormwater Pollution Prevention Plan
- PF-WQ-2: Implementation of Construction Site Best Management Practices
- AMM-AES-1: Restore Disturbed Areas
- AMM-AES-2: Design Contours to Mimic Natural Terrain
- AMM-AES-3: Lighting
- AMM-AES-4: Screen Construction Area
- AMM-AES-5: Bridge Design Enhancement
- AMM-BIO-1: Maternity-season Survey for Roosting Bats
- AMM-BIO-2: Replacement of Lost Bat Roost Habitat
- AMM-BIO-3: Pre-activity Survey for Roosting Bats
- AMM-BIO-4: Bat Exclusion
- AMM-BIO-5: Fish Removal and Relocation Plan
- AMM-BIO-6: Cofferdam Installation
- AMM-BIO-7: Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring
- AMM-BIO-8: Salt Marsh Harvest Mouse Exclusion Fencing
- AMM-BIO-9: California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers
- AMM-BIO-10: Swainson's Hawk Pre-construction Surveys and Avoidance
- AMM-BIO-11: California Red-legged Frog Work Window

- AMM-BIO-12: California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys
- AMM-BIO-13: California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols
- AMM-HAZ-1: Dewatering Treatment and Disposal
- AMM-NOI-1: Pile Driving
- AMM-WQ-1: Low-impact Development Controls

Operation

Under the Build Alternative, the Project would not change the overall land uses within the Novato Creek watershed basin. The Build Alternative would add additional impervious surface; however, considering the Novato Creek watershed area at the Project site is approximately 28,800 acres, the addition of 5.4 acres of net new impervious areas would be relatively minor and considered insignificant. Additionally, the proposed embankment fill for the bridge approach area and new piers that would support the proposed bridge and causeway would be considered relatively minor in the context of the greater floodplain area and is not anticipated to impede floodwaters, affect bay level floodplains, or substantially reduce the area available to convey floodwaters. Furthermore, once completed, the Project would remove the existing roadway, thereby removing fill from the floodplain, and would improve the hydrologic conditions in the watershed.

23 CFR 650.105 defines a significant floodplain encroachment of a highway as (1) a significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route, (2) a significant risk, or (3) a significant adverse impact on natural and beneficial floodplain values. Phase 1 would raise the SR 37 bridge over Novato Creek, and the vertical profile of SR 37 outside of the construction footprint would remain unchanged. Therefore, freeway closure during the 100-year storm event would be expected to occur after completion of Phase 1. Phase 2 would raise the entire profile of SR 37 within the Project limits to 35 feet elevation (NAVD 88). The roadway overtopping is not anticipated to occur during construction of Phase 2.

As defined by FHWA, a longitudinal encroachment is an action within the limits of the base floodplain that is longitudinal to the normal direction of the floodplain. The alignment of SR 37 is not parallel to the 100-year flow direction of Novato Creek. There is no defined flow direction for the overland floodplains adjacent to SR 37, other than Simonds Slough, which is also not parallel to the alignment of SR 37.

Therefore, the Project would not result in a longitudinal encroachment on the existing FEMA 100-year floodplain.

No-Build Alternative

Under the No-Build Alternative, the Project would not replace the Novato Creek Bridge or elevate the causeway. The results of the hydraulic analysis indicate that under the No-Build Alternative, SR 37 would be inundated during the 100-year storm event and would be closed to traffic; thereby, allowing for reoccurring floods to disrupt accessibility and mobility between Marin and Sonoma Counties.

2.2.1.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The amount of net new impervious surface area added would not have an impact on the flows within the Project limits. Implementation of AMM-AES-1 through AMM-AES-5, AMM-BIO-1 through AMM-BIO-13, AMM-NOI-1, and AMM-WQ-1 (as summarized in Appendix E) would reduce impacts on floodplains during construction of the Build Alternative.

2.2.2 Water Quality and Stormwater 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 United States (U.S.) from any point source unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit program. Important CWA sections are as follows:

- 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. (Most frequently required in tandem with a Section 404 permit request, as described in the following bullets.)
- 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 stormwater 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 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 effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the 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 United States Environmental Protection Agency's (USEPA's) Section 404 (b)(1) Guidelines (40 CFR Part 230) and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines were developed by USEPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative 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 to show that a sequence of avoidance, minimization, and compensation measures has been followed. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements (33 CFR 320.4).

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Water Quality Control Act (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

water 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., such as 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 as required by the CWA and regulating discharges to protect beneficial uses of water bodies. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect those uses. Consequently, the water quality standards developed for particular water body segments are based on the designated use and vary depending on such use. Water body segments that fail to meet standards for specific pollutants are included in a Statewide List in accordance with CWA Section 303(d). If an RWQCB 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. The SWRCB implemented the requirements of CWA Section 303(d) through Attachment D of the Caltrans Statewide MS4 Permit NPDES No. CAS000003, SWRCB Order No. 2022-0033-DWQ (Caltrans Permit; effective on January 1, 2023), as it includes specific TMDLs for which Caltrans is named a responsible party.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights; sets water pollution control policy; 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. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater discharges, including 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 stormwater, that is designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans ROW, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans' Statewide MS4 Permit NPDES No. CAS000003, SWRCB Order No. 2022-0033-DWQ (effective on January 1, 2023), has four basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (more information is presented in the paragraphs that follow);

2. Caltrans must implement a year-round program in all parts of the state to effectively control stormwater and non-stormwater discharges;

3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices (BMPs) and other measures deemed necessary by the SWRCB and/or other agency having authority reviewing the stormwater component of the Project;

4. Caltrans must comply with the prohibition of discharge of trash to surface waters of the state or deposition of trash where it may be discharged into surface waters of the state through compliance with the requirements of Attachment E of the Caltrans Permit, with a demonstration of full compliance by December 2, 2030.

The Caltrans Permit incorporated the requirements of SWRCB Resolution 2015-0019, which amended the *Water Quality Control Plan for Ocean Waters of California and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2015) to include trash-related requirements, referred to in the Order as the "Trash Provisions" (HDR 2023).

Implementation of the Trash Provisions requires the following:

- Caltrans must install, operate, and maintain any combination of full capture systems, other treatment controls, and/or institutional controls for all storm drains that capture runoff from Significant Trash Generating Areas (STGA) (where trash accumulates in substantial amounts as defined in Section E4). Caltrans must develop and implement monitoring plans that demonstrate that such combinations achieve full capture system equivalency.

- Caltrans must coordinate efforts with MS4 permittees, subject to NPDES permits that implement the Trash Provisions, to install, operate, and maintain full capture systems; other treatment controls; and/or institutional controls in SGTA and/or Priority Land Uses.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes Caltrans' stormwater management program and the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. At the time of the preparation of the *Water Quality Assessment Report* (HRD 2023), the SWMP was being updated to meet the requirements of the Caltrans Permit and Construction General Permit. The proposed Project would follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

The Caltrans Permit is scheduled to expire on December 31, 2027; therefore, if the Project is not constructed by that date, then the Project may be subject to future water quality requirements of the permit effective at that time.

Construction General Permit

The Construction General Permit (NPDES No. CAS000002, SWRCB Order No. 2022-0057-DWQ) was adopted on September 8, 2022, and is effective on September 1, 2023. The permit regulates stormwater discharges from construction sites that result in a disturbed soil area of 1 acre or greater and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least 1 acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by RWQCB. Operators of regulated construction sites are required to develop Stormwater 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 Level 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 stormwater runoff pH and turbidity monitoring, as well as 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 Caltrans' SWMP and Standard Specifications, a Water Pollution Control Program is necessary for projects with a disturbed soil area less than 1 acre.

The Construction General Permit is scheduled to expire on August 31, 2028; therefore, if the Project is not constructed by that date, then the Project may be subject to future water quality requirements of the permit effective at that time.

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 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as 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

This section summarizes the findings of the *Water Quality Assessment Report* for the Project (HDR 2023).

Regional and Local Hydrology

The Project site is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). The SFBRWQCB is responsible for the enforcement of state and federal water quality regulations for the Project. The Project is within the Novato Creek watershed. In addition to the Caltrans NPDES permit, the Build Alternative would also be consistent with the City of Novato Phase II Small

MS4 Permit Order 2013-0001-DWQ. As summarized in Section 2.2.1.2, Affected Environment, the watershed is 45 square miles. Novato Creek consists mostly of natural channel and drains into the San Pablo Bay. The land uses within the Novato Creek watershed are agriculture/rural, open space, residential, and commercial.

Topography

The Project is located within the Novato 7.5-minute quadrangles. Regionally, the Project corridor is located in an area that generally slopes east toward the San Pablo Bay. Locally, the Project area is relatively flat with elevations under 40 feet (NAVD 88) (HDR 2023).

Climatography

The Project area has a Mediterranean climate, characterized by mild, moist winters and hot, dry summers. The Project area generally experiences precipitation between mid-October and mid-April. A climate summary from the National Oceanic and Atmospheric Administration weather station nearest to the Project reports the following precipitation and temperature information for the Hamilton Air Force Base in the city of Novato, approximately 2.5 miles south of the Project area. The average annual rainfall is 25.49 inches, and the average annual temperatures range seasonally from 46.3 to 68.4 degrees Fahrenheit (°F).

The maximum average temperature reported for the Novato area was 79.9°F in July, and the minimum average temperature was 38.7°F in January. The wettest month of the year is January with an average rainfall of 5.80 inches, and the driest month is July with an average of 0.00 inches (HDR 2023).

Clean Water Act 303(d) List

Under Section 303(d) of the CWA, states, territories, and authorized tribes are required to develop a list of water quality segments that do not meet water quality standards. Novato Creek, Petaluma River, and the San Pablo Bay are in the 2020–2022 303(d)-listed impaired water bodies for the listed pollutants in Table 2.2.2-1.

Table 2.2.2-1. Impaired Water Bodies

Water Body	Pollutant	Status
Novato Creek	Diazinon	303(d) List and TMDL
Petaluma River (tidal portion)	Diazinon, Nickle, Nutrients, and Pathogens	303(d) List and TMDL

Source: HDR 2023

Surface Water Quality Objectives and Beneficial Uses

The Project is within the jurisdiction of the San Francisco Bay Municipal Regional Stormwater Permit. The SFBRWQCB Basin Plan (SFBRWQCB 2023) states the goals and policies, beneficial uses, and water quality objectives that protect surface waters and groundwater throughout the San Francisco Bay region, including Novato Creek and Petaluma River. Beneficial uses for Petaluma River include cold freshwater habitat, estuarine habitat, fish migration, navigation, preservation of rare and endangered species, water contact recreation, non-contact water recreation, fish spawning, warm freshwater habitat, and wildlife habitat. Beneficial uses for Novato Creek include cold freshwater habitat, fish migration, municipal and domestic supply, preservation of rare and endangered species, water contact recreation, non-contact water recreation, fish spawning, warm freshwater habitat, and wildlife habitat. Novato Creek is designated as a sediment-sensitive water body (HDR 2023), meaning the beneficial uses of Novato Creek could be affected by an increase in sediments.

Groundwater

The Project corridor is within the Novato Valley Subbasin (Basin # 2-030) within the Novato Valley groundwater basin. According to the *California Groundwater Bulletin 118 Update 2020*, the Niles Cone Subbasin covers 20,535 acres in Marin County (HDR 2023).

According to the *California's Groundwater* (Bulletin 118) "Novato Valley Basin," natural recharge of groundwater occurs as infiltration from streambeds and from direct percolation of precipitation (DWR 2004).

Per the *Structure Preliminary Geotechnical Report for Novato Creek Bridges* (Caltrans 2022a), the depth to groundwater varies from 0.5 to 9.2 feet, and the groundwater elevation at the Project area varies between -1.1 and 6 feet (NAVD 88). Groundwater level is likely to vary during seasonal and tidal fluctuations in the San Pablo Bay.

2.2.2.3 Environmental Consequences

Build Alternative

Construction

Construction of the Build Alternative would include building a causeway along SR 37 within the Project limits, which would be constructed in two phases. Phase 1 would include replacing the Novato Creek Bridge, and Phase 2 would include building the remaining portions of the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue.

The disturbed surface area for the Build Alternative is anticipated to be more than 1 acre; therefore, prior to commencement of construction activities, a SWPPP must be prepared by the contractor and approved by Caltrans, pursuant to Caltrans 2022 Standard Specification 13-3 (PFWQ-1, Stormwater Pollution Prevention Plan). Several temporary measures would be implemented during construction, such as temporary construction site BMPs, to control and minimize sedimentation, erosion, or the discharge of other pollutants. The temporary construction site BMPs would be deployed for sediment control and material management, and would include fiber rolls, drainage inlet protection, street sweeping, concrete washout, job site sediment control, and erosion control measures (PF-WQ-2, Implementation of Construction Site Best Management Practices). Temporary environmentally sensitive area (ESA) fencing would be installed to protect the wetland areas (PF-BIO-4, Mark Environmentally Sensitive Areas).

During construction of Phase 1, thirteen culverts would be replaced in-kind, one culvert would be extended, and four culverts would be replaced with longer culverts of the same diameter. The culvert replacement and culvert extension areas are shown on Figure 1-6. During Phase 2, one culvert would be replaced with a longer culvert, and one culvert would be removed (Figure 1-7). Removal of these culverts would require earthmoving activities with the potential to increase sedimentation and erosion. Implementation of the SWPPP and construction BMPs would minimize potential effects from sedimentation and erosion.

Installation of the piles for the Novato Creek Bridge and causeway would require dewatering because the piles would be installed to a maximum depth of up to 150 feet below ground surface. Groundwater extracted during construction would be tested for contaminants. Clean groundwater would be used for dust control, collected onsite using desilting basins and/or tanks prior to discharging to receiving waters, or transported to a publicly owned treatment facility. With implementation of PF-HAZ-7, Preliminary Site Investigations, soil and groundwater within the Project limits would be examined for hazardous materials. An active treatment system would be used, as necessary and appropriate, to treat contaminated groundwater exposed during excavation activities (PF-HAZ-12, Active Treatment System). Dewatering requirements and design of any necessary active treatment system would be determined prior to construction.

Operation

Operational impacts to water quality from pollutants such as the deposition and transport of sediment and vehicular-related pollutants would remain the same as existing conditions.

Existing impervious area within the Project limits is 51.4 acres. Anticipated net new impervious surface from Phase 1 is 5.6 acres, and net new impervious surface from Phase 2 is 5.4 acres. The approximate replaced impervious surface during Phase 1 is 8.7 acres, and during Phase 2 is 28.3 acres. Therefore, the Project is anticipated to result in the creation or replacement of 14.3 acres during Phase 1, and 33.7 acres during Phase 2, for a total of 48 acres of impervious area. Additional impervious area prevents runoff from naturally dispersing and infiltrating into the ground, resulting in potentially increased erosion, pH levels, and sedimentation in water bodies.

Post-construction stormwater impacts would be avoided through the proper implementation of design pollution prevention and stormwater treatment BMPs. Design pollution prevention BMPs include permanent erosion control that would be applied to all exposed areas once grading or soil disturbance work is completed. Because the new impervious surface quantity is greater than 10,000 square-feet, post-construction stormwater treatment measures would be required for the equivalent of the new impervious surface quantity, according to the Caltrans Permit. Treatment BMPs, such as bioretention facilities, would be incorporated to achieve the acreage obligation within Caltrans ROW and/or via off-site mitigation, as needed. Furthermore, the Project would consider hydromodification management; however, hydromodification impacts are not anticipated for this Project because it discharges to tidally influenced receiving waters.

According to the Caltrans District 4 Trash Generation Map, the Project area contains a low trash density area and moderate trash density at PM R11.32. The Build Alternative would be required to implement trash capture devices at the moderate trash density areas to minimize trash from entering the waterways (HDR 2023).

There would be an incremental increase in stormwater runoff associated with the Build Alternative. Treatment of this additional runoff would be incorporated into the Build Alternative. Since SR 37 within the Project limits is bound on most sides by wetlands and waters, which are protected environmentally sensitive areas, onsite treatment may be limited due to the narrow ROW. If the Project cannot treat the entirety of the new impervious surface on-site, alternative stormwater treatment compliance (off-site treatment) would be required. Alternative stormwater treatment compliance locations would need to be coordinated between Caltrans and local agencies and municipalities. With implementation of AMM-WQ-1, Low-impact Development Controls, operation of the Project is not anticipated to result in significant impacts to water quality or stormwater runoff.

No-Build Alternative

Under the No-Build Alternative, there would be no reconstruction of SR 37 between U.S. 101 and Atherton Avenue. Therefore, the No-Build Alternative would not have any effects related to water quality and stormwater runoff.

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

Caltrans would implement the following AMM to avoid and/or minimize impacts to water quality and stormwater runoff.

AMM-WQ-1: Low-impact Development Controls. Post-construction water quality impacts would be reduced through proper implementation of stormwater treatment measures such as bioretention swales. The anticipated post-construction stormwater treatment obligation would be to require treatment of runoff from the equivalent of the new impervious surface quantity. Stormwater treatment measures would be implemented within Caltrans ROW and/or off-site, as needed. All proposed stormwater treatment measures would be compliant with Caltrans and local requirements. Caltrans or the contractor would implement this AMM during construction.

2.2.3 Geology/Soils/Seismic Topography

2.2.3.1 Regulatory Setting

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

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

2.2.3.2 Affected Environment

This section summarizes the *Structure Preliminary Geotechnical Report for Novato Creek Bridges* prepared by Caltrans (Caltrans 2022a).

Site Geology

The Project area is located in the central portion of the Coast Range geomorphic province, east of the San Andreas fault, where the Tertiary strata rest with angular unconformity on two deformed Mesozoic rock complexes: the Great Valley Complex and the Franciscan Complex.

The Project area contains deposits of rock fragments, sands and silts, and Holocene Bay Mud near the surface, overlain by artificial fills consisting of Young Bay Mud. The Holocene sediments were deposited in tidal marsh, estuary, delta, or lagoon environments. These sediments contain silt, fine sands, peats, and clays. These deposits include artificial fill over marine and marsh deposits (Young Bay Mud).

According to the USGS Geologic Map “Parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma Counties, California,” USGS – MF 2337, the entire Project area is underlain by Artificial fill (Qmf) over marine and marsh deposits.

The site bedrock underlying the marine and marsh deposits is represented by the Franciscan Complex, which underlies the majority of Marin County east of the San Andreas fault and is dominated by the mélange. It consists of sandstone, shale, and weakly to strongly metamorphosed graywacke, argillite, basalt, serpentinite, chert, limestone, and other rocks.

Surface Conditions

The Project area lies within the low-lying marsh that borders the San Pablo Bay. It is exposed to both riverine and coastal flood hazards under existing conditions and projected SLR. Based on the site topography and the existing fill slopes of 4 feet horizontal for every 1 foot vertical or flatter, the site does not have seismic slope stability issues.

Subsurface Conditions

The subsurface conditions along the Project alignment generally consist of three main units. The upper unit is fill material that consists mainly of very loose to medium dense sandy and gravelly soils. The fill extends from ground surface to a depth of about 15 to 20 feet. The middle unit, Young Bay Mud, consists of very soft to soft clay. The thickness of Young Bay Mud varies from zero to as thick as 45 feet within the Project area. The lowest unit, Old Bay Mud/Mud, consists of very soft to very stiff clayey soils with zones of loose to very dense sandy and silty soils up to the maximum exploration depth of 121.5 feet.

Seismic Hazards

The Project area is susceptible to strong earthquake-induced ground motions. However, the area is not located within an Alquist-Priolo Earthquake Fault Zone or 1,000 feet from any Holocene or younger aged fault.

Liquefaction Potential. Based on the as-built log of test borings, borehole data in the vicinity of the Project area, and available laboratory test results, the fill encountered at shallow depths (up to 20 feet) and sandy soils encountered immediately below the Young Bay Mud are saturated and consist of potentially liquefiable silty/clayey sand to clayey gravel with sand.

Lateral Spreading Potential. Since the subsurface at the site includes potentially liquefiable soil layers at shallow depths, the site has the potential for lateral spreading. Lateral spreading occurs when ground sharing causes the soil to become loose. Lateral spreading is a term referring to landslides that commonly form on gentle slopes that have rapid fluid-like movement (USGS 2022).

Tsunami Risk. The closest part of the Project limits to the San Pablo Bay is the easternmost end, which is approximately 1.12 miles from the shoreline of the San Pablo Bay. The site is not within the tsunami inundation zone shown in the Marin County Tsunami Hazard Area Map. Based on this information, a tsunami hazard does not exist at the site.

2.2.3.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Construction of the Build Alternative would include earthmoving activities from temporary and permanent utility relocation of existing utilities, bridge demolition, and construction. Grading and vegetation removal during construction would expose bare soil that could result in the erosion and loss of topsoil. With implementation of PF-WQ-2, Implementation of Construction Site Best Management Practices, the Project would comply with the NPDES permit, the Construction General Permit, and would implement Project features to reduce erosion impacts during construction.

SR 37 within the Project corridor is not considered susceptible to surface fault rupture hazards, nor does the site have any slope stability issues.

The Project area is in a region that is seismically active and on soil with the potential to experience lateral spreading and liquefaction during an earthquake. With implementation of PF-GEO-1, Perform Site-specific Geotechnical and Engineering Analyses, prior to construction, Caltrans would conduct a field investigation and

laboratory testing to further characterize the site and complete the necessary site-specific engineering analyses (Caltrans 2022a). The results of the field investigation and laboratory testing would inform the final design of the Build Alternative. All construction would be in compliance with Caltrans design standards and seismic code for transportation facilities. Because the Build Alternative proposes to replace an existing facility with a new one that would provide the same capacity, the Build Alternative would not increase the exposure of people or structures to an increased risk from ground shaking or seismic hazards. Implementation of PF-GEO-1, Perform Site-specific Geotechnical and Engineering Analyses, would minimize potential effects from exposure of seismic activity.

Therefore, there would be no adverse effects during construction from the potential exposure of structures or persons to erosion, surface rupture or slope instability, or seismic activity.

Operation

Operation of the Build Alternative would not increase the exposure of people or structures to hazards from geology, soils, or seismic activity. Therefore, there would be no impact.

No-Build Alternative

Under the No-Build Alternative, SR 37 would continue to experience stormwater overtopping and over time experience the effects of projected SLR. The No-Build Alternative would not expose people or structures to a greater risk from geologic and seismic hazards. There would be no impact.

2.2.3.1 Avoidance, Minimization, and/or Mitigation Measures

No AMMs or mitigation measures would be required to avoid and/or minimize, or mitigate effects related to geology, soils, seismicity, and topography.

2.2.4 Paleontology

2.2.4.1 Regulatory Setting

Federal

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. A number of federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized projects.

16 USC 461-467 established the National Natural Landmarks program. Under this program property owners agree to protect biological and geological resources such as paleontological features. Federal agencies and their agents must consider the

existence and location of designated National Natural Landmarks, and of areas found to meet the criteria for national significance, in assessing the effects of their activities on the environment under NEPA.

NEPA (Public Law 91-190, 31 Statute 852, NEPA, 42 USC 4321-4327) requires that important natural aspects of our national heritage be considered in assessing the environmental consequences of any proposed project and directs federal agencies to "Preserve important historic, cultural, and natural aspects of our national heritage…" (Section 101[b] [4]). Regulations for implementing the procedural provisions of NEPA are found in 40 CFR 1500-1508.

23 USC 1.9(a) requires that the use of federal-aid funds must be in conformity with all federal and state laws.

23 USC 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 and state law.

State

Under California law, paleontological resources are protected by CEQA.

2.2.4.2 AFFECTED ENVIRONMENT

This section summarizes the Paleontological Identification Report prepared for State Route 37 Flood Reduction Project (Caltrans 2022b). A windshield/field survey of the Project area was performed on June 11, 2022.

Caltrans Categories of Sensitivity

Caltrans utilizes a tripartite scale to characterize paleontological sensitivity consisting of no potential, low potential, and high potential. Table 2.2.4-1 includes the categories of sensitivity and their definitions.

Table 2.2.4-1. Caltrans Categories of Paleontological Sensitivity

Category	Definition
High Potential	Rock units which, based on previous studies, contain or are likely to contain significant vertebrate, invertebrate, or plant fossils. These units include, but are not limited to, sedimentary formations that contain significant non-renewable paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils. These units may also include some volcanic and low-grade metamorphic rock units. Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and caves) are given special consideration and ranked as highly sensitive. High sensitivity includes the potential for containing: (1) abundant vertebrate fossils; (2) a few significant fossils (large or small vertebrate, invertebrate, or plant fossils) that may provide new and significant taxonomic, phylogenetic, ecologic, and/or stratigraphic data; (3) areas that may contain datable organic remains older than Recent, including Neotoma (sp.) middens; or (4) areas that may contain unique new vertebrate deposits, traces, and/or trackways. Areas with a high potential for containing significant paleontological resources require monitoring and mitigation.
Low Potential	This category includes sedimentary rock units that: (1) are potentially fossiliferous, but have not yielded significant fossils in the past; (2) have not yet yielded fossils, but possess a potential for containing fossil remains; or (3) contain common and/or widespread invertebrate fossils if the taxonomy, phylogeny, and ecology of the species contained in the rock are well understood. Sedimentary rocks expected to contain vertebrate fossils are not placed in this category because vertebrates are generally rare and found in more localized stratum. Rock units designated as low potential generally do not require monitoring and mitigation. However, as excavation for construction gets underway it is possible that new and unanticipated paleontological resources might be encountered. If this occurs, a Construction Change Order must be prepared in order to have a qualified Principal Paleontologist evaluate the resource. If the resource is determined to be significant, monitoring and mitigation is required.
No Potential – Artificial fill, Surficial soils, Bay mud	This category includes rock units of Holocene age, artificial fills, intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks.

Regional Geologic Setting

The Project is located in the Coast Range Physiographic province of California. The features of this province were formed by tectonic forces resulting in extensive uplifting, folding, and faulting of the area. Northwest-trending elongated ridges and intervening valleys characterize the province. The northern and western portion of the city of Novato is underlain by bedrock of the Franciscan Complex of Late Jurassic to Cretaceous age. The Franciscan Complex consists of a mixture of metamorphosed sandstone, shale, volcanics, serpentine and chert. The eastern end

of the Project area, from PM 13.6 to PM 13.8, is underlain by the Early Cretaceous Great Valley Sequence consisting of the Novato Conglomerate that is believed to have been tectonically thrust over the Franciscan Formation rocks. The upper portion of the Great Valley Sequence, in which the Project is situated, contains deposits of rock fragments, sands and silts, and Holocene Bay Mud near the surface, overlain by artificial fills consisting of young Bay Mud.

Project Geology

The geology of the general Project area has been mapped by the California Geologic Survey. The geology map (Figure 2.2.4-1) indicates that the western and central portion of the Project area is underlain by thick artificial fill followed by native soils developed atop very thick Holocene-age Bay Mud deposits. The easternmost portion of the site is situated in thin artificial fill immediately below SR 37, and the Novato Conglomerate of the Early Cretaceous Great Valley Sequence is at the surface and exposed in road cuts along SR 37.

Great Valley Sequence (Novato Conglomerate)

The Great Valley Sequence is composed of interbedded sandstones, mudstones and shales originally deposited on a submarine fan along the continental margin. In the Project area, the Great Valley Sequence consists of Lower Cretaceous marine sandstones, mudstones and conglomerate. This unit is exposed at the surface within the Atherton Avenue Undercrossing portion of the Project and is known to contain fossils (Buchia sp.) of Early Cretaceous age. The silty sandy matrix of the Novato Conglomerate has yielded additional Buchia fossils in another locality about 7.5 miles to the northwest. No vertebrate fossils have been reported from the Great Valley Sequence in Sonoma County; however, Jurassic marine reptile and dinosaur fossils have been reported from Great Valley geologic units on the western side of the Sacramento Valley and in Shasta County, and Late Cretaceous marine reptile fossils have been collected from the Great Valley Sequence south of the Bay Area.

The Cretaceous Great Valley Sequence has a High paleontological sensitivity (Table 2.2.4-1) due to its production of marine invertebrate and vertebrate fossils elsewhere in the Bay Area and Sacramento Valley. This unit underlies the staging area at the Atherton Park & Ride. The unit is assigned a High potential using Society of Vertebrate Paleontology Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources (2010), and Caltrans Standard Environmental Reference criteria. Any additional fossils discovered in this stratigraphic unit during Project excavations could be highly significant.

Artificial Fill and Holocene Bay Mud Deposits

The majority of the Project area is situated on artificial fill which overlies native soils and thick Holocene-age Bay Mud deposits (Figure 2.2.4-1). These units are either too young to contain fossils (Holocene Bay Mud) or are human-made artificial fills derived from native Holocene Bay Mud and local soil stripping to raise SR 37.

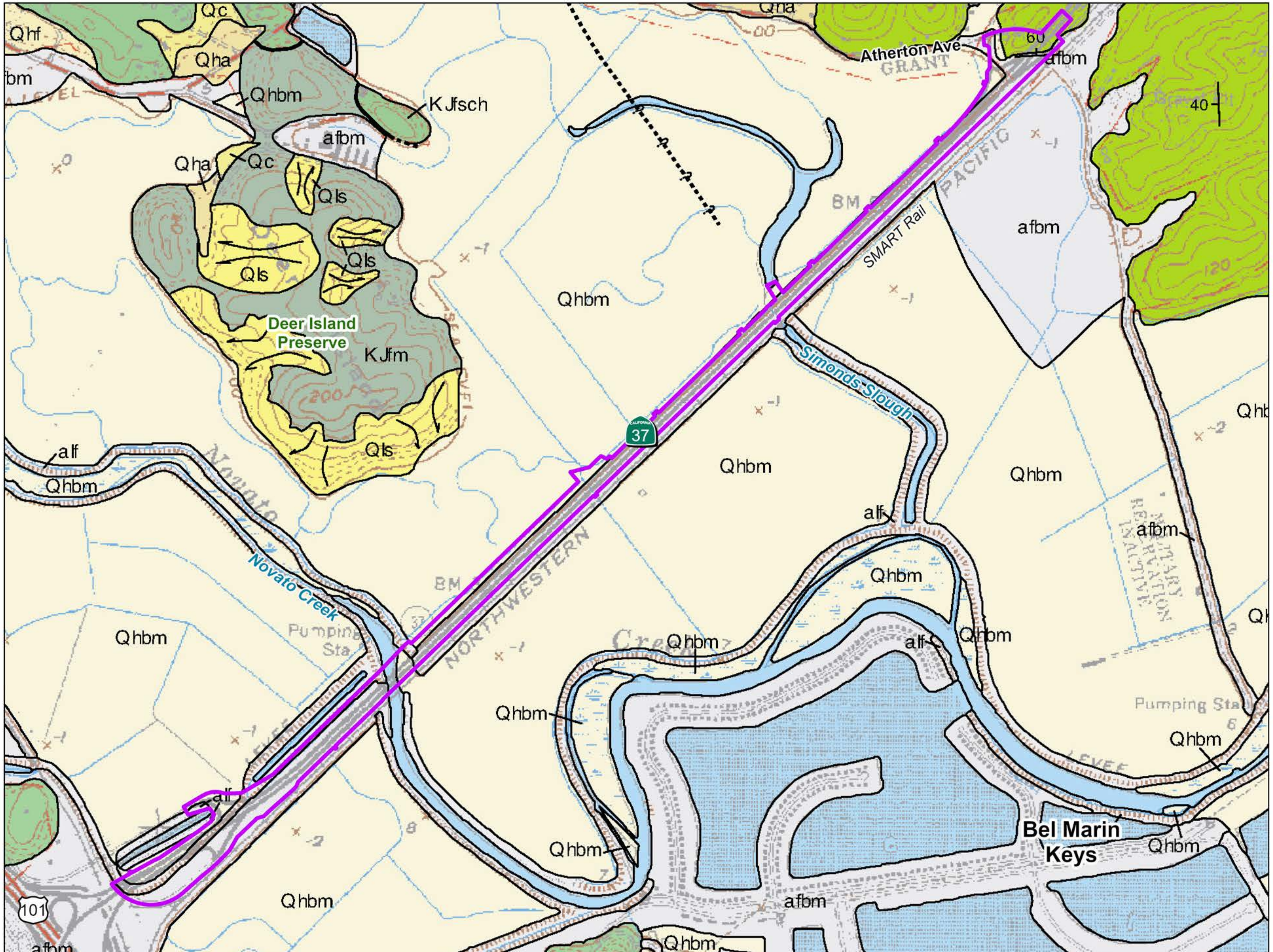
Project Paleontology

An inventory of known paleontological resources discovered in the vicinity of the Project is presented in the following. Table 2.2.4-2 presents a summary of the geologic units within the Project area and their respective paleontological sensitivities. The inventory that follows is largely based on a review of the available literature, a search of the University of California Museum of Paleontology online database, and the results of the field survey. The literature and museum record review conducted for this inventory documented no previously recorded fossil sites within the limited footprint of the Project.

Table 2.2.4-2 summarizes the paleontological potential of geologic units found within the Project area (Figure 2.2.4-1).

Table 2.2.4-2. Paleontological Potential of Geologic Units in the Project Area

Geologic Unit	Age	Lithology	Known Paleontological Resources	Paleontological Potential
Artificial Fills and Holocene Bay Mud	Recent and Holocene	Silty clay, sand, debris	None	None
Novato Conglomerate	Early Cretaceous	Mudstone, Sandstone conglomerate	Invertebrates (Buchia), Vertebrates possible	High



Legend

- Project Area
- Novato Conglomerate
- Holocene
- Artificial Levee Fill

Data Source:
Caltrans April 2023
Marin County GIS
California Geological Survey 2002
Geologic Map of the Novato 7.5' Quadrangle
Marin and Sonoma Counties, California
A Digital Database, Version 1.0

N

0 500 1000 1500 2000
Feet

Figure 2.2.4-1
Geological Components
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

2.2.4.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Adverse effects to paleontological resources would occur from excavating and other earthmoving activities in areas with a high paleontological sensitivity, which could result in the destruction of paleontological resources. As shown on Figure 2.2.4-1, the area north of the Atherton Avenue Undercrossing is a Novato Conglomerate, which has high sensitivity for paleontological resources. This area is outside the Project Area. Other areas in the Project area are not designated as having high sensitivity for paleontological resources. Therefore, construction activities would not adversely affect paleontological resources.

Operation

Operation of the Project would not affect the paleontological resources present in the Project corridor. Therefore, there would be no impact.

No-Build Alternative

The No-Build Alternative would not create ground disturbance; therefore, there would be no adverse effects on paleontological resources.

2.2.4.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, or mitigation is required to reduce effects related to paleontological resources.

2.2.5 Hazardous Waste/Materials

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

- Community Environmental Response Facilitation Act of 1992

- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act
- Atomic Energy Act
- Toxic Substances Control Act
- Federal Insecticide, Fungicide, and Rodenticide Act

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

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement the Resource Conservation and Recovery Act of 1976 in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne 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.

2.2.5.2 AFFECTED ENVIRONMENT

This section summarizes the *Assessment of Hazardous Materials Potentially Affecting Highway 37 Flood Reduction Project in Marin County* (Caltrans 2022d) prepared for this proposed Project.

A review of the SWRCB's GeoTracker website and the California Department of Toxic Substances Control's EnviroStor database was conducted for this Project. These regulatory databases of known hazardous materials releases, storage tank sites, legal and illegal dump sites, and remediation sites demonstrated that there is a lack of such sites within 1,000 feet of the Project footprint, with the exception of three long-closed, small-scale storage tank cases. This is primarily due to the lack of commercial development and industrial operations along the margin of the bay.

Aerially deposited lead exists along roadways throughout California from the historical use of leaded gasoline. As a result, shallow soils (less than 2 feet deep) within the Project area may have increased levels of lead due to aerially deposited lead, heavy metals, and petroleum products. The Project area is also adjacent to designated farmlands, and surface soils may contain residual pesticides. Bridge components could potentially contain asbestos or lead-based paint coatings.

2.2.5.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Aerially Deposited Lead

During earthmoving activities, aerially deposited lead potentially present in the surface and near-surface soils in proximity to the roadway edge could be encountered. Lead can be hazardous to humans as excessive exposure can adversely affect the nervous, circulatory, and reproductive systems; can severely damage the brain and kidneys; and is a probable human carcinogen. Caltrans' construction contractor would prepare a lead compliance plan under PF-HAZ-2, Lead Compliance Plan, to reduce the risk of exposure of construction workers to lead during construction.

PF-HAZ-3, Asbestos and Lead-based Paint Surveys, would require a qualified and licensed inspector to survey each bridge for asbestos-containing materials and lead-based paints. All asbestos-containing material, if found, would be removed by a certified abatement contractor in accordance with local, state, and federal requirements. If contaminated soils encountered during the site investigation are found in concentrations above regulatory levels defined for any particular compound or element, Caltrans would use construction contract specifications to define the appropriate management and disposal requirements for the soils to protect the construction workers and the environment, thereby implementing PF-HAZ-5, Hazardous Waste Management, PF-HAZ-6, Aerially Deposited Lead from Gasoline, PF-HAZ-7, Preliminary Site Investigations, and PF-HAZ-8, Aerially Deposited Lead Site Investigation Work Plan.

Soils excavated in areas where the structure foundations would be installed (e.g., 10 feet below ground) are expected to have low average lead concentrations due to the depths of excavation going below the zone of typical aerially deposited lead influence. Typically, any measurable influence from aerially deposited lead is gone below a depth of 3 feet. However, due to the large area to be affected by Project groundwork, Caltrans would implement PF-HAZ-7, Preliminary Site Investigations, which is an investigation that involves the collection and testing of deeper soils and

groundwater sampling to determine the presence of hazardous materials in deeper soils and groundwater. If the site investigation determines the presence of contaminated groundwater, Caltrans would implement during the construction work AMM-HAZ-1, Dewatering Treatment and Disposal, which would securely contain in a safe and secure manner groundwater that would be sampled and analyzed prior to treatment and disposal. In addition, PF-HAZ-4, Discovery of Unanticipated Asbestos and Hazardous Substances, and PF-HAZ-5, Hazardous Waste Management, would further minimize the potential impact on health and the environment from hazardous substances.

Asbestos-containing Materials

Asbestos could also be present in the aggregate material within the concrete of the existing Novato Creek and Simonds Slough Bridges and the Atherton Avenue Undercrossing. The USEPA's National Emission Standards for Hazardous Air Pollutants requires that bridges' concrete be screened for asbestos content before they are demolished. PF-HAZ-3, Asbestos and Lead-based Paint Surveys, would be implemented, which requires the completion of a survey to screen for asbestos prior to demolition. Disturbance of unexpected asbestos during demolition work would pose a risk to workers and the environment. Caltrans would also implement PF-HAZ-4, Discovery of Unanticipated Asbestos and Hazardous Substances, and PF-HAZ-5, Hazardous Waste Management, which would minimize potential effects from hazardous materials to the environment and workers by ensuring proper protocols are followed should unanticipated asbestos be discovered during construction and that all hazardous wastes are managed accordingly.

Other Hazardous Materials

During construction, wooden posts, guardrails and yellow thermoplastic and yellow painted traffic stripes would be removed. The treated wood waste would be disposed of at a California disposal site operating under an appropriate permit. PF-HAZ-9, Treated Wood Waste, would be implemented, which requires the handling, storing, transporting, and disposing of treated wood waste to be in compliance with Caltrans Standard Specifications 14-11.14. In addition, implementation of PF-HAZ-11, Thermoplastic Paint, and PF-HAZ-10, Hazardous Materials Incident Contingency Plan, would further minimize the potential effects of hazardous materials on the environmental and construction workers.

Operation

Operation of the Build Alternative would generate contaminants associated with vehicle tire and brake wear and non-point source pollution including vehicle fuel and oil leaks. These releases are considered minimal and would be the same as those under the existing condition.

No-Build Alternative

The No-Build Alternative would not create ground disturbance or result in the demolition of any bridges. Therefore, there would be no impact from the exposure of hazardous waste or materials to the environment or people.

2.2.5.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following AMM would minimize potential effects to the environment and human health.

AMM-HAZ-1: Dewatering Treatment and Disposal. Groundwater pumped from the subsurface would be contained on-site in safe, labeled containers, and sampled and analyzed prior to treatment and disposal. The Project would comply with applicable federal, state, and local laws, regulations, and policies to avoid exposure of construction workers and the environment to hazardous materials.

2.2.6 Air Quality

2.2.6.1 REGULATORY SETTING

The federal Clean Air Act (CAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by USEPA 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 public health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter—which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), lead, and sulfur dioxide (SO_2). In addition, state standards exist for visibility-reducing particles, sulfates, hydrogen sulfide, 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 NEPA. In addition to this environmental analysis, a parallel “Conformity” requirement under the CAA also applies.

Conformity

The conformity requirement is based on CAA Section 176I, which prohibits the United States Department of Transportation and other federal agencies from funding,

authorizing, or approving plans, programs, or projects that do not conform to a 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. USEPA regulations at 40 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 CO, NO_2, O_3, particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California), SO_2. California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO_2, and also has a nonattainment area for lead; however, lead is not currently required by the CAA 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 CAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization, FHWA, and Federal Transit Administration make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the CAA. 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 scope that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and USEPA-approved emissions models; and in particulate matter 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 particulate matter nonattainment or maintenance areas to examine localized air quality impacts.

2.2.6.2 AFFECTED ENVIRONMENT

The Project area is in the San Francisco Bay Area Air Basin. Air quality regulation in San Francisco Bay Area Air Basin is administered by the Bay Area Air Quality Management District (BAAQMD). This section summarizes the *Construction Criteria Air Pollution Emissions Analysis* (Appendix L) memorandum prepared for the Project (Caltrans 2024a).

Climate, Meteorology, and Topography

Weather and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport O_3 and O_3 precursors (reactive organic gases [ROG]) from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as a barrier that prevents O_3 from dispersing.

The Gnoss Field climatological station near Novato, California, is maintained by the National Weather Service and is the nearest station at approximately 6 miles from the western end of the Project site. The climate of the Project area is Mediterranean in character, with cool winters (average 24-hour temperature of 50ºF in January) and warm, dry summers (average 24-hour temperature of 64ºF in July). SR 37 traverses one of the Bay Area‘s largest remaining tidal marsh environments, known as the San Pablo Bay lands. As a result, San Francisco Bay and the coastal mountains have a significant influence on the climate of the Project area. Annual average rainfall is 23.6 inches (at Gnoss Field) (Caltrans 2022c).

Air Quality Attainment Status

USEPA classifies regions with respect to each criteria pollutant, depending on whether the area’s monitored air quality meets national standards. A region that is meeting the air quality standard for a given pollutant is designated as being in “attainment” for that pollutant. If the region does not meet the air quality standard, it is designated as being in “nonattainment” for that pollutant. An area that was designated as nonattainment and is later redesignated to attainment with a federally approved maintenance plan is in “maintenance” for that pollutant. Under California Ambient Air Quality Standards (CAAQS), CARB designates regions as in attainment if the state standards are met or in nonattainment if the state standards are not met. The NAAQS, CAAQS, sources and health effects of each pollutant, and the attainment status of Marin County are in Table 2.2.6-1.

Currently, the Project area is designated as marginal nonattainment for the federal 8-hour O_3 and moderate nonattainment for the federal 24-hour $PM_{2.5}$ standards. On January 9, 2013, USEPA issued a final rule to determine that the Bay Area has attained the federal 24-hour $PM_{2.5}$ standard. The Bay Area will continue to be designated as nonattainment for the federal 24-hour $PM_{2.5}$ standard until a redesignation request and a maintenance plan are submitted to USEPA, and USEPA approves the proposed redesignation (BAAQMD 2017b). For all other pollutants, the Project area is in attainment or unclassified for NAAQS.

The Project area is in nonattainment for the state 1-hour and 8-hour O_3 standards, the state 24-hour and annual PM_{10} standards, and the state annual $PM_{2.5}$ standard. For all other pollutants, the Project area is in attainment or unclassified for CAAQS.

The CAA requires each state to develop and maintain a SIP for each nonattainment criteria pollutant. Air quality planning documents for pollutants for which the Project area is classified as a federal nonattainment or maintenance area are developed by BAAQMD and CARB and approved by USEPA. The most recent air quality plan, the Bay Area *Final 2017 Clean Air Plan: Spare the Air, Cool the Climate,* adopted by BAAQMD in April 2017, provides an integrated, multi-pollutant control strategy to reduce emissions of O_3, particulates, air toxics, and greenhouse gases (BAAQMD 2017a).

For conformity purposes, 40 CFR 93.123(c)(5) states that: “CO, PM_{10}, and $PM_{2.5}$ hot-spot analyses are not required to consider construction-related activities which cause temporary increases in emissions.” Temporary increases are defined as those which occur only during the construction phase and last 5 years or less at any individual site.

Table 2.2.6-1. State and Federal Air Quality Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
Ozone (O_3)	1 hour	0.09 ppm	Not Applicable	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude O_3 is almost entirely formed from ROGs or VOCs and NO_X in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	Not Applicable
Ozone (O_3)	8 hours	0.07 ppm	0.070 ppm (Fourth highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude O_3 is almost entirely formed from ROGs or VOCs and NO_X in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	Marginal Nonattainment
Carbon Monoxide (CO)[c], [d]	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O_3. It is colorless and odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scales.	Attainment	Attainment
Carbon Monoxide (CO)[c], [d]	8 hours	9 ppm	9 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O_3. It is colorless and odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scales.	Attainment	Attainment
Carbon Monoxide (CO)[c], [d]	8 hours (Lake Tahoe)	6 ppm	Not Applicable	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O_3. It is colorless and odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scales.	Not Applicable	Not Applicable
Respirable Particulate Matter (PM_{10})[e]	24 hours	50 µg/m^3	150 µg/m^3 (expected number of days above standard less than or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Attainment
Respirable Particulate Matter (PM_{10})[e]	Annual	20 µg/m^3	Not Applicable	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic and other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Not Applicable
Fine Particulate Matter ($PM_{2.5}$)[e], [f]	24 hours	Not applicable	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter-a toxic air contaminant-is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion, including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO_X, SO_X, ammonia, and ROG.	Not Applicable	Moderate Nonattainment

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
Fine Particulate Matter ($PM_{2.5}$)[e], [f]	Annual	12 µg/m^3	12.0 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter, a toxic air contaminant, is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion, including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NO_X, SO_X, ammonia, and ROG.	Nonattainment	Unclassified
NO_2	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of storm water. Part of the "NO_x" group of O_3 precursors.	Motor vehicles and other mobile or portable engines, especially diesel, refineries, and industrial operations.	Attainment	Attainment
NO_2	Annual	0.03 ppm	0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain and nitrate contamination of storm water. Part of the "NO_x" group of O_3 precursors.	Motor vehicles and other mobile or portable engines, especially diesel, refineries, and industrial operations.	Attainment	Attainment
SO_2 [g]	1 hour	0.25 ppm	0.075 ppm (^{9}9th percentile more than 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, and steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment
SO_2 [g]	3 hours	Not applicable	0.5 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, and steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Not Applicable	Attainment
SO_2 [g]	24 hours	0.04 ppm	0.14 ppm (for certain areas)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, and steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment
SO_2 [g]	Annual	Not applicable	0.030 ppm (for certain areas)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, and steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Not Applicable	Attainment
Sulfates	24 hours	25 µg/m^3	Not Applicable	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	Not Applicable
Hydrogen Sulfide	1 hour	0.03 ppm	Not Applicable	Colorless, flammable, and poisonous. Respiratory irritant. Neurological damage and premature death. Headache and nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources, like volcanic areas and hot springs.	Unclassified	Not Applicable
Vinyl Chloride [h]	24 hours	0.01 ppm	Not Applicable	Neurological effects, liver damage, and cancer. Also considered a toxic air contaminant.	Industrial processes.	Unclassified	Not Applicable

Pollutant	Averaging Time	State Standard[a]	Federal Standard[b]	Principal Health and Atmospheric Effects	Typical Sources	State Attainment Status	Federal Attainment Status
Visibility-reducing Particles [i]	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	Not Applicable	Reduces visibility. Produces haze. NOTE: not directly related to the regional haze program under the CAA, which is primarily oriented toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Unclassified	Not Applicable

Notes:

[a] California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1- and 24-hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility-reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] Federal standards (other than O_3, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact USEPA for further clarification and current national policies.

[c] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm. Transportation conformity applies in newly designated nonattainment areas for the 2015 national 8-hour O_3 primary and secondary standards on and after August 4, 2019 (refer to Transportation Conformity Guidance for 2015 Ozone NAAQS Nonattainment Areas).

[d] Transportation conformity requirements for CO no longer apply after June 1, 2018, for the following California Carbon Monoxide Maintenance Areas (USEPA 2018).

[e] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[f] The 65 µg/m^3 $PM_{2.5}$ (24-hour) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. The 15 µg/m^3 annual $PM_{2.5}$ standard was not revoked when the 12 µg/m^3 standard was promulgated in 2012. Therefore, for areas designated nonattainment or nonattainment/maintenance for the 1997 and or 2006 $PM_{2.5}$ NAAQS, conformity requirements still apply until the NAAQS are fully revoked.

[g] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 9th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[h] CARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both CARB and USEPA have identified lead and various organic compounds that are precursors to O_3 and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified previously for these pollutants or the general categories of pollutants to which they belong.

[i] In 1989, CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: USEPA 2023a; CARB 2023a; CARB 2023b.

µg/m^3 = microgram(s) per cubic meter

NO_x = nitrous oxides

ppb = part(s) per billion

ppm = part(s) per million

SO_X = sulfur oxides

VOC = volatile organic compound

Existing Air Quality

Air quality monitoring stations are located throughout the nation and are maintained by local air districts and state air quality regulating agencies. The San Rafael Air Quality Monitoring Station located at 534 4th Street monitors five criteria pollutants (O_3, CO, PM_{10}, $PM_{2.5}$, and NO_2). The Project region is in attainment for SO_2, and ambient levels of SO_2 have historically been so low that SO_2 is no longer monitored. Table 2.2.6-2 lists air quality trends identified for data collected between 2017 and 2021.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) located in proximity to localized sources of toxics and CO are of particular concern. Land uses that are considered to draw sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive land uses located directly adjacent to the Project area include residential land uses approximately 400 feet from the Project limits.

Table 2.2.6-2. Air Quality Concentrations for the Past 5 Years Measured at San Rafael

Pollutant	Averaging Time	Standard	2017	2018	2019	2020	2021
O_3	Maximum 1-hour concentration (ppm)		0.088	0.072	0.096	0.086	0.082
O_3	Days exceeded: State	0.09 ppm	[a]	[a]	[a]	[a]	[a]
O_3	Maximum 8-hour concentration (ppm)		0.063	0.053	0.08	0.064	0.066
O_3	Days exceeded: State	0.070 ppm	[a]	0	[a]	0	0
O_3	Days exceeded: Federal	0.070 ppm	[a]	0	1	0	0
PM_{10}	Maximum 24-hour concentration (µg/m^3)		91.5	160	32	115	29
PM_{10}	Days exceeded: State	50 µg/m^3	[a]	12.2	0	6	0
PM_{10}	Days exceeded: Federal	150 µg/m^3	[a]	6.1	0	0	0
PM_{10}	Maximum annual concentration		16.2	18.9	13.9	16.6	14.7
PM_{10}	Exceeded? State	20 µg/m^3	0	0	0	0	0
$PM_{2.5}$	Maximum 24-hour concentration (µg/m^3)		74.7	167.6	19.5	155.5	29.1
$PM_{2.5}$	Days exceeded: Federal	35 µg/m^3	8.1	13	0	9	0
$PM_{2.5}$	Maximum annual concentration (µg/m^3)		7	8.7	6.4	11.1	9.7

Pollutant	Averaging Time	Standard	2017	2018	2019	2020	2021
$PM_{2.5}$	Exceeded: State	12 µg/m^3	[a]	[a]	[a]	[a]	[a]
$PM_{2.5}$	Exceeded: Federal	12.0 µg/m^3	0	0	0	0	0
NO_2	Maximum 1-hour concentration (ppb)		53	55	50	42	38
NO_2	Days exceeded: State	0.18 ppm	0	0	0	0	0
NO_2	Exceeded: Federal	100 ppb	0	0	0	0	0
NO_2	Maximum annual concentration (ppb)		9.6	9.1	8.08	7.56	6.22
NO_2	Exceeded: Annual State	0.030 ppm	0	0	0	0	0
NO_2	Exceeded: Annual Federal	53 ppb	0	0	0	0	0
CO	Maximum 1-hour concentration (ppm)		2.6	2	1.4	2.1	1.2
CO	Days exceeded: State	20 ppm	0	0	0	0	0
CO	Days exceeded: Federal	35 ppm	0	0	0	0	0
CO	Maximum 8-hour concentration (ppm)		1.6	1.6	0.9	1.6	0.8
CO	Exceeded: Annual State	9 ppm	0	0	0	0	0
CO	Exceeded: Annual Federal	9 ppm	0	0	0	0	0

Source: CARB 2023c

[a] = insufficient data available to determine the value

2.2.6.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

Project construction activities would generate emissions of criteria air pollutants and precursors that could potentially affect regional air quality. Replacement of the Novato Creek Bridge is anticipated to begin in May 2027 and end in June 2029, for a maximum duration of 26 months. Construction of Phase 2 would last 56 months and would be completed by 2050. Because construction of the Project is expected to last less than 5 cumulative years, temporary emissions of CO, PM_{10}, and $PM_{2.5}$ are not expected to cause, contribute to, or worsen any federal air quality violations, and an evaluation of these emissions is not required for a project-level conformity determination.

The Project construction activities are typically short-term or temporary in duration; however, criteria air pollutant emissions from Project construction were estimated for information purposes. Construction emissions were quantified using the Sacramento Metropolitan Air Quality Management District's Roadway Construction Emissions Model (RCEM Version 9.0). As shown in Table 2.2.6-3, the Project's average daily

emissions would be below the BAAQMD's recommended thresholds for ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$. Because the average daily emissions of criteria pollutants and precursors from equipment and vehicle exhaust would be below the recommended thresholds, construction of the proposed Project would not be expected to cause or contribute to, or worsen, any state air quality violations. Emission reduction and dust control measures would be implemented as discussed under PF-AQ-1 through PF-AQ-6 (refer to Appendix D) to reduce construction emissions (PF-AQ-1, Dust Control, PF-AQ-2, Construction Equipment Controls, PF-AQ-3, Hauling and Grading Material, PF-AQ-4, Caltrans Standard Specifications for Air Quality, PF-AQ-5, Asbestos, PF-AQ-6, Idling).

Table 2.2.6-3. Construction Criteria Air Pollutant Emissions

Construction Phase	Construction Emissions	ROG	NO_x	Exhaust PM_{10}	Fugitive PM_{10}	Exhaust $PM_{2.5}$	Fugitive $PM_{2.5}$
Phase 1	Total Emissions (tons)	1.45	15.01	0.60	9.36	0.51	1.95
Phase 1	Average Daily Emissions (pounds/day)	5.06	52.47	2.08	32.73	1.80	6.81
Phase 2	Total Emissions (tons)	3.63	18.71	0.65	17.22	0.54	3.58
Phase 2	Average Daily Emissions (pounds/day)	6.15	31.74	1.10	29.23	0.92	6.08
Phase 2	BAAQMD Thresholds	54	54	82	BMP	54	BMP

Operation

The Project is part of a conforming TIP and RTP and is exempt from conformity analysis per 40 CFR 93.126 (Table 2 - Projects that correct, improve, or eliminate a hazardous location or feature). Caltrans initiated the interagency consultation with the Bay Area Metropolitan Transportation Commission Air Quality Conformity Task Force to determine the Project is exempt from air quality conformity on March 23, 2023. On April 10, 2023, Air Quality Conformity Task Force confirmed that the Project (TIP ID VAR170005/FMS ID 6348.00) is exempt. The Air Quality Conformity Task Force email confirmation is provided in Appendix H. As such, an analysis to document regional and project-level conformity is not required for the Project. The proposed Project would not increase motorized vehicular capacity within the corridor. Therefore, long-term emission increases and adverse impacts from the Project are not anticipated.

No-Build Alternative

Under the No-Build Alternative, no improvements would be made to the SR 37 Project corridor. No temporary impacts would occur under the No-Build Alternative because there would be no construction activities in the Project area. Long-term air quality impacts associated with the Project would come from future increases in traffic.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

No AMMs or mitigation measures would be required to avoid and/or minimize or mitigate effects related to air quality.

2.2.7 Noise

2.2.7.1 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 the NEPA/Title 23 CFR Part 772 noise analysis; please refer to 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 FHWA involvement (and Caltrans, 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). Table 2.2.7-1 lists the NAC for use in the NEPA/23 CFR 772 analysis.

Table 2.2.7-1. Noise Abatement Criteria

Activity Category	Activity $L_{eq[h]}$ [a]	Evaluation Location	Description of Activities
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[b]	67	Exterior	Residential
C[b]	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
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 through D or F
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	--	Undeveloped lands that are not permitted (without building permits)

Notes:

[a] NAC, hourly A-weighted noise level, $L_{eq[h]}$

[b] Includes undeveloped lands permitted for this activity category.

-- = Not Applicable

$L_{eq[h]}$ = hourly equivalent sound level

Figure 2.2.7-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

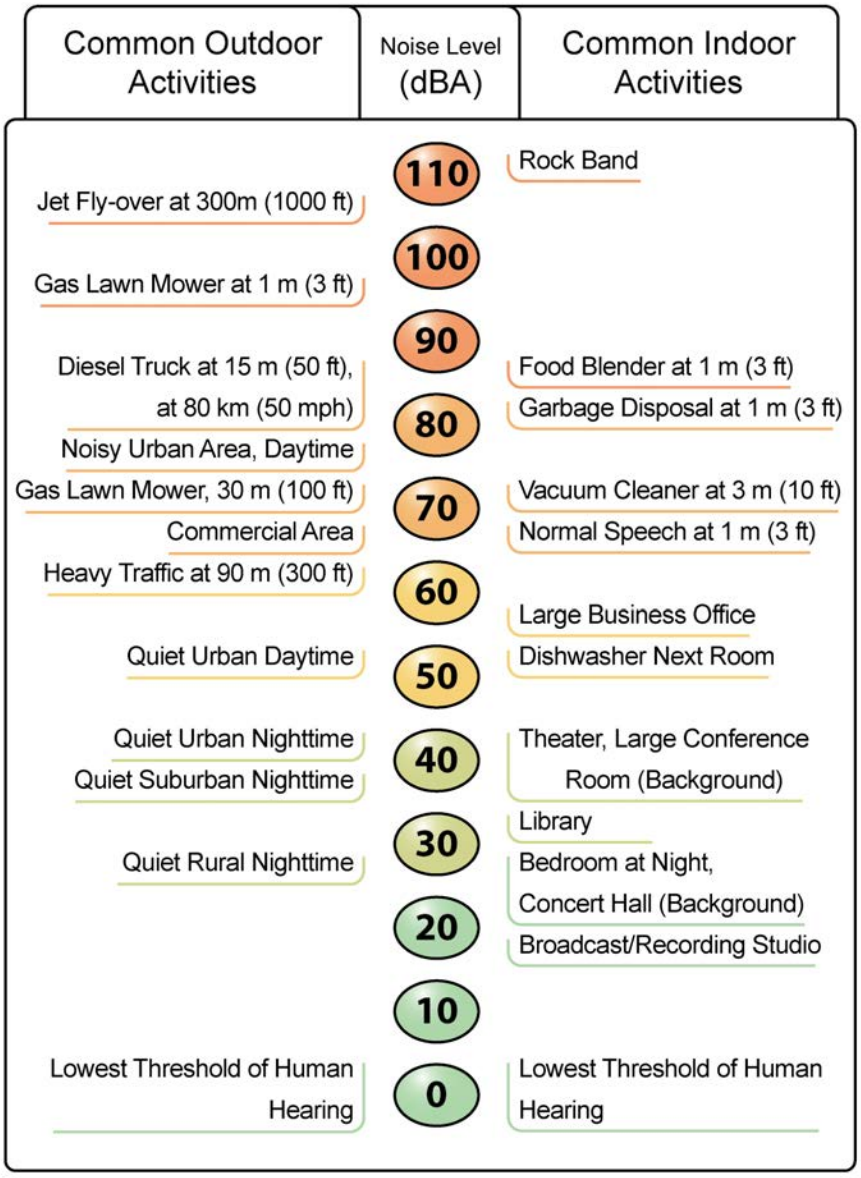


Figure 2.2.7-1. Noise Levels of Common Activities

According to Caltrans' Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects (Protocol) (2020b), a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more) or when the future noise level with the project approaches or exceeds the NAC. A noise level is considered to approach the NAC if it is within 1 dBA of the NAC.

If it is determined that the Project would have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated

into the Project plans and specifications. This document discusses noise abatement measures that would be incorporated in the Project.

Caltrans' Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. Noise abatement must be predicted to reduce noise by at least 5 decibel (dB) at an impacted receptor to be considered feasible from an acoustical perspective. It must also be possible to design and construct the noise abatement measure for it to be considered feasible. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: (1) the noise reduction design goal of 7 dB at one or more impacted receptors; (2) the cost of noise abatement; and (3) the viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

Under 23 CFR 772.7, projects are categorized as Type I, Type II, or Type III projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, the physical alteration of an existing highway where there is either a substantial horizontal or substantial vertical alteration.

The definition of a Type I project is extended to roadway projects carried out by local jurisdictions that use federal transportation funding, such as the Project. The Project proposes to elevate approximately 2.5 miles of SR 37 on a causeway. The Project would raise the existing pavement elevation, which ranges between 3 feet to 9 feet (NAVD 88), to 35 feet (NAVD 88). Consequently, according to the latest Protocol, this is a Type I Project. This definition is extended to federal-aid roadways. Per 23 CFR 772, a noise analysis is required for this Project.

Caltrans Transportation and Construction Vibration Guidance Manual

Caltrans identifies a vibration limit of 0.5 inch per second (in/sec) peak particle velocity (PPV) as the threshold at which there is a potential risk of damage to new residential and modern commercial/industrial structures, 0.3 in/sec PPV for older residential structures, and a conservative limit of 0.25 in/sec PPV for historic and some old buildings. Refer to Table 2.2.7-2.

Table 2.2.7-2. Reaction of People and Damage to Buildings from Continuous or Frequent Intermittent Vibration Levels

Velocity Level, PPV (in/sec)	Human Reaction	Effect on Buildings
0.01	Barely perceptible	No effect
0.04	Distinctly perceptible	Vibration unlikely to cause damage of any type to any structure
0.08	Distinctly perceptible to strongly perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
0.1	Strongly perceptible	Threshold at which there is a risk of damage to fragile buildings with no risk of damage to most buildings
0.25	Strongly perceptible to severe	Threshold at which there is a risk of damage to historic and some old buildings
0.3	Strongly perceptible to severe	Threshold at which there is a risk of damage to older residential structures
0.5	Severe – vibrations considered unpleasant	Threshold at which there is a risk of damage to new residential and modern commercial/industrial structures

Source: Caltrans 2020a

Local Regulations

The City of Novato does not have specific noise ordinance requirements for transportation noise within the city limits. Section 19.22.070 (Noise and Construction Hours) of the City of Novato's Municipal Code provides allowable exterior noise levels for noise-sensitive land uses within the city (Table 2.2.7-3). The following are exceptions to the City's noise level requirements:

- Authorized construction activities, including warming-up or servicing of equipment, and any preparation for construction between 7 a.m. and 6 p.m. on weekdays and between 10 a.m. and 5 p.m. on Saturdays. No construction is allowed on Sundays or official federal national holidays, except as otherwise authorized herein by the Community Development Director.

- Authorized grading activities and equipment operations between 7 a.m. and 6 p.m. weekdays only, when City inspectors are available.

- Other construction activities as authorized in writing by the Community Development Director.

Table 2.2.7-3. Allowable Exterior Noise Levels

Type of Land Use	Allowable Exterior Levels[a] Time Interval	Allowable Exterior Levels[a] Maximum Noise Level[b]
Residential[c]	10 p.m. to 6 a.m.	45 dBA
Residential[c]	6 a.m. to 10 p.m.	60 dBA
Commercial[d]	10 p.m. to 6 a.m.	60 dBA
Commercial[d]	6 a.m. to 10 p.m.	70 dBA
Industrial or Manufacturing[d]	Any time	70 dBA

Source: City of Novato 2023

[a] Each of the *noise* limits specified in the table must be reduced by 5 dBA for impulse or simple tone *noises*. If the ambient *noise* exceeds the resulting standard, the ambient would be the standard.

[b] Maximum *noise* levels must not be exceeded for an aggregate period of more than 3 minutes within a 1-hour time period or by more than 20 dBA at any time.

[c] Residential standards apply to sensitive receptors such as schools, hospitals, libraries, group care facilities, and convalescent homes. These uses may require special mitigation.

[d] Commercial standards apply to Mixed Use Districts.

2.2.7.2 AFFECTED ENVIRONMENT

This section is based on the Noise Study Report prepared for this Project (Illingworth and Rodkin 2023).

Surrounding Land Use and Sensitive Receptors

The proposed Project area is located at the western terminus of the SR 37 corridor, between U.S. 101 and Atherton Avenue. Due to the reliability constraints of the FHWA Traffic Noise Model (TNM) Version 2.5 to accurately calculate noise levels at great distances from the roadway, Caltrans typically limits noise assessments to approximately 500 feet of the roadway source (Caltrans 2020a). Existing land uses in the Project area were categorized by activity category. A field investigation was conducted to identify land uses that could be subject to traffic and construction noise impacts from the proposed Project. The following noise-sensitive land uses were identified in the Project area:

- Activity Category B – Residential
- Activity Category C – Active Sports Area, Trail, Park
- Activity Category E – Other Developed Land
- Activity Category F – Utilities and Railroad tracks (SMART)
- Activity Category G – Undeveloped

Activity Categories F and G land uses located in the Project area are not noise-sensitive. Although all developed land uses were evaluated in the noise analysis, noise abatement is considered only for areas of frequent human use that would benefit from a lowered noise level. Accordingly, the impact analysis focused on locations with defined outdoor activity areas, such as residential backyards and parks.

A total of 27 receptor locations, shown on Figures 2.2.7-2 through 2.2.7-4, were selected to represent land uses in the Project vicinity. Short-term noise measurements were taken at 10 locations to validate the TNM developed for this Project.

Future Undeveloped Land Uses

Some of the land surrounding the Project area is developed. Lists of planned and approved projects in the City of Novato and the County of Marin were reviewed to identify undeveloped lands for which development is planned, designed, and programmed so that those proposed developments may be considered approved (or a part of the existing conditions). The review focused on projects within approximately 500 feet of the Project limits, where traffic noise levels from the roadways could dominate the noise environment. Projects located beyond this distance were excluded from further analysis.

The Ronsheimer Survivors Trust TAM Energy Storage Project (P3932) located at 495 Bel Marin Keys Boulevard in unincorporated Marin County is within 500 feet of the Project. The applicant is proposing a lithium-ion battery energy storage facility. Associated equipment would include a substation, water storage tanks, and two modular structures. Receptor R12 is within the boundaries of the Ronsheimer Survivors Trust TAM Energy Storage Project (see Figure 2.2.7-4). This receptor would not be considered noise-sensitive since it would fall within the Category F designation.

Noise Measurements and Modeling

The existing noise environment throughout the Project area varies by location, depending on site characteristics, such as proximity of receptors to SR 37, local roadways, or other significant sources of noise in the area, the relative base elevations of roadways and receptors, and the presence of any intervening structures or barriers.

Legend

- Project Area
- Modeled Receptor
- Long-Term Measurement
- Short-Term Measurement

Data Source:
Caltrans April 2023
Marin County GIS

0 200 400 600 800
Feet

Figure 2.2.7-2
Noise Measurement and Receptor Locations at Atherton Avenue
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

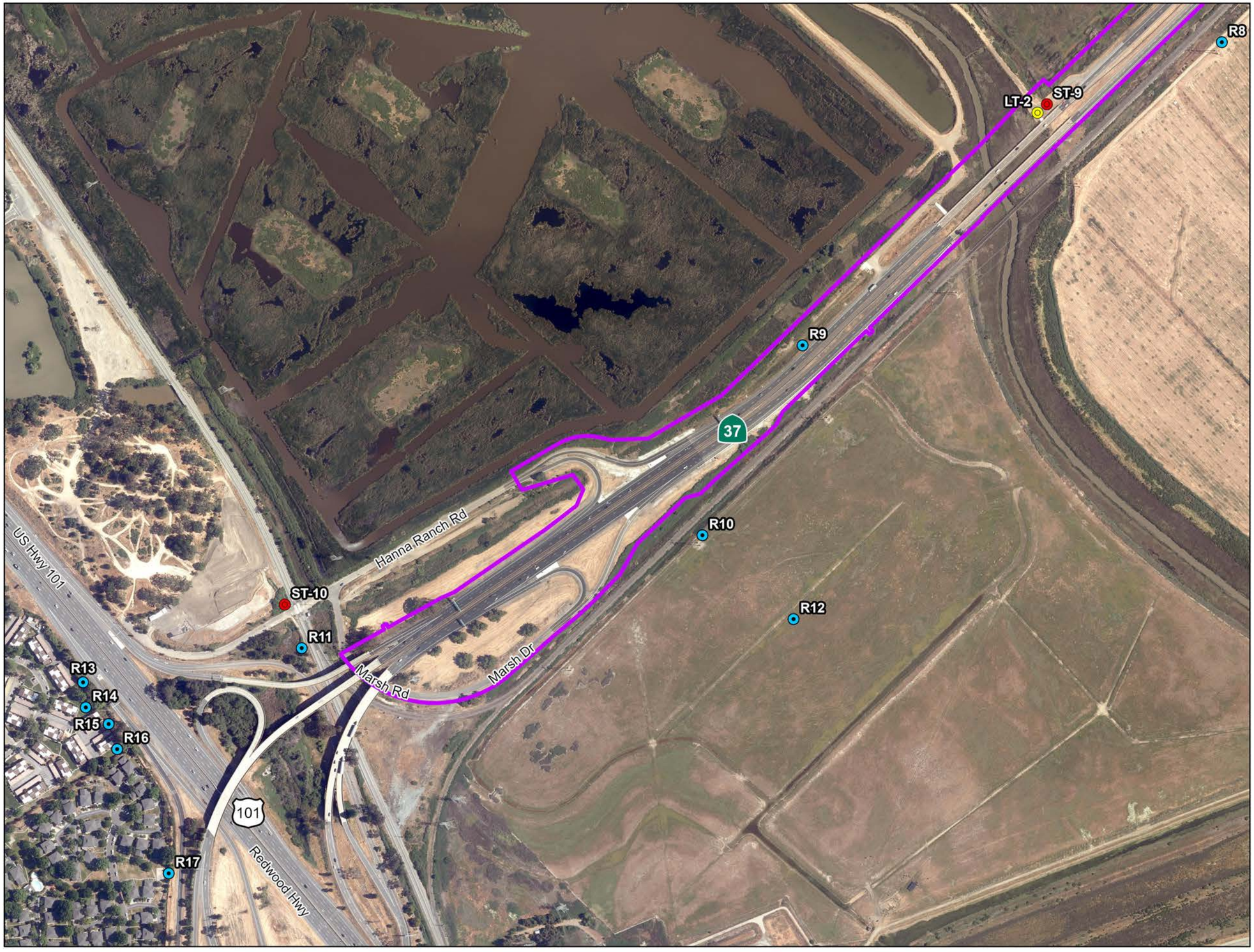
Legend

- Project Area
- Modeled Receptor
- Long-Term Measurement
- Short-Term Measurement

Data Source:
Caltrans April 2023
Marin County GIS

0 200 400 600 800
Feet

Figure 2.2.7-3
Noise Measurement and Receptor Locations between Atherton Avenue and U.S. 101
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Modeled Receptor
- Long-Term Measurement
- Short-Term Measurement

Data Source:
Caltrans April 2023
Marin County GIS

0 200 400 600 800
Feet

Figure 2.2.7-4
Noise Measurement and Receptor Locations at U.S. 101
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Noise measurements were collected in the Project area in March 2023. Two long-term noise measurements (LT-1 and LT-2) were made to quantify the diurnal trend in noise levels and establish the peak traffic noise hour. Ten short-term noise measurements (S1 through S10) were made at land uses in the Project vicinity. All short-term noise measurements were made at heights of 5 feet above ground level. Short-term noise measurement locations were used to validate the FHWA TNM. In addition, traffic counts and speed observations were made along SR 37 during the short-term noise measurements to validate the TNM. Existing traffic (2021), No-Build (2049), Build Phase 1 (2049), No-Build (2065), and Build Phase 2 (2065) peak-hour traffic volume data and posted speed limits were used as TNM model inputs for local roads and ramps, to calculate the loudest-hour traffic noise levels for Existing traffic (2021), No-Build (2049), Build Phase 1 (2049), No-Build (2065), and Build Phase 2 (2065) conditions. The loudest hour is not necessarily the hour with peak traffic volumes. Congestion results in slower speeds, which substantially reduces traffic noise levels. The loudest hour is generally characterized by free-flowing traffic at the roadway design speed. The results of the long- and short-term field measurements are summarized in Tables 2.2.7-4 and 2.2.7-5.

Table 2.2.7-4. Summary of Long-term Noise Measurements

Receptor ID	Location	Date	Loudest Hour(s)	Loudest Hour $L_{eq[h]}$, dBA
LT-1	Along SMART tracks at the eastern end of the alignment	3/2/2023	7:00 a.m.	71
LT-1	Along SMART tracks at the eastern end of the alignment	3/3/2023	6:00 a.m.	71
LT-2	Service road to Marin County Flood Control and Water Conservation District	3/2/2023	4:00 p.m.	71
LT-2	Service road to Marin County Flood Control and Water Conservation District	3/3/2023	5:00 p.m.	70

Table 2.2.7-5. Summary of Short-term Noise Measurements

Receptor ID	Location	Activity Category	Land Use	Date	Start Time (10-minute L_{eq}, dBA)
ST-1	50 Green Point Lane	B	Residential	3/2/2023	11:20 a.m. (51) 11:30 a.m. (52)
ST-2	A Self Storage – 101 Renaissance Road	F	Warehousing	3/2/2023	10:50 a.m. (57) 11:00 a.m. (57)
ST-3	Stone Tree Golf Club – 9 Stone Tree Lane	C	Active Sports Area	3/2/2023	10:10 a.m. (54) 10:20 a.m. (54)
ST-4	Black Point Park N Ride	E	Other Developed Lands	3/2/2023	10:50 a.m. (65) 11:00 a.m. (64)
ST-5	31 Glen Road	B	Residential	3/2/2023	11:20 a.m. (53) 11:30 a.m. (58)
ST-6	Stone Tree Golf Club (12th Hole) – 9 Stone Tree Lane	C	Active Sports Area	3/2/2023	10:00 a.m. (54) 10:10 a.m. (54)
ST-7	276 Montego Key	B	Residential	3/2/2023	12:30 p.m. (35) 12:40 p.m. (36)
ST-8	Montego Park – 113 Montego Key	C	Park	3/2/2023	12:20 p.m. (41) 12:30 p.m. (41)
ST-9	Service road to Marin County Flood Control and Water Conservation District	F	Utilities	3/2/2023	11:50 a.m. (66) 12:00 p.m. (67)
ST-10	5400 Hanna Ranch Road	E	Office	3/2/2023	11:50 a.m. (55) 12:00 p.m. (54)

Note:

L_{eq} = equivalent continuous sound level

Existing Noise Levels

Existing (2021) evening peak-hour traffic volumes provided by Caltrans were used to determine the Existing (2021) worst-hour noise levels because the long-term noise levels measurements show the noise levels during the evening peak hour are higher than morning peak hour noise levels. For the noise analysis, it was assumed that each mixed-flow lane has a maximum capacity of 1,800 vehicles at the design speed of the highway. The results of the existing traffic noise modeling are shown in Table 2.2.7-6. Currently, all of the modeled receptors are below the NAC.

Table 2.2.7-6. Existing Noise Levels

Receptor ID	Type of Land Use	Number of Dwelling Units	Noise Abatement Category	Existing Noise Level (dBA L_{eq})
ST-1	Residential	4	B (67)	56
ST-2	Warehousing	1	F	61
ST-3	Active Sports Area	1	C (67)	56
ST-4	Other Developed Lands	1	E (72)	67
ST-5	Residential	2	B (67)	53
ST-6	Active Sports Area	1	C (67)	60
ST-7	Residential	43	B (67)	40
ST-8	Park	1	C (67)	42
ST-9	Utilities	1	F	68
ST-10	Office	1	E (72)	60
R1	Residential	2	B (67)	40
R2	Residential	2	B (67)	46
R3	Residential	3	B (67)	57
R4	Undeveloped	1	G	68
R5	Undeveloped	1	G	65
R6	Undeveloped	1	G	63
R7	Undeveloped	1	G	66
R8	Undeveloped	1	G	64
R9	Undeveloped	1	G	66
R10	Undeveloped	1	G	61
R11	Trail	1	C (67)	61
R12	Utility	1	F	51
R13	Residential	4	B (67)	64
R14	Residential	4	B (67)	59
R15	Residential	4	B (67)	64
R16	Residential	4	B (67)	64
R17	Park	1	C (67)	64

Source: Illingworth and Rodkin 2023

2.2.7.3 Environmental Consequences

The proposed Project is considered a Type I project because the Project would change the vertical alignment of the Project corridor by raising the existing pavement elevation (which ranges between 3 feet to 9 feet) to 35 feet. Additionally, the Project is eligible for federal funding. Therefore, the Project requires noise abatement to be considered for impacted receptors. Compliance with 23 CFR 772 provides compliance with the noise impact assessment requirements of NEPA.

Build Alternative

Construction

Project construction for Phase 1 is anticipated to occur over a period of 26 months, with an anticipated start date of May 2027 and completion date of June 2029. Construction of Phase 2 would last 56 months and would be completed by 2050. With over 10 years separating the construction of Phases 1 and 2, exposure to construction noise from the Project would be treated as two separate projects.

Within each phase, roadway construction activities typically occur for relatively short periods of time in any specific location as construction proceeds along the Project's alignment. Construction for both Phases 1 and 2 would include grubbing/land clearing, grading/excavation/foundation/sheet pile walls, drainage/utilities/subgrade, and paving. Construction of the bridge structure would include extensive pile driving for the foundations of the structure, for both Phase 1 and Phase 2. Construction noise would primarily result from the operation of heavy construction equipment and arrival and departure of heavy-duty trucks. The types of equipment needed to complete the construction may include, but are not limited to, the following: crawler tractors, excavators, signal boards, cranes, graders, rollers, rubber-tired loaders, scrapers, backhoes, bore/drill rigs, cement and mortar mixers, air compressors, generator sets, plate compactors, pumps, rough terrain forklifts, pavers, and paving equipment.

Table 2.2.7-7 presents noise levels calculated for each major construction phase of the Project at a distance of 50 feet, based on calculations conducted in FHWA's Roadway Construction Noise Model. In some instances, maximum instantaneous noise levels are calculated to be slightly lower than hourly average noise levels. Noise generated by construction equipment drops off at a rate of 6 dB per doubling of distance.

Table 2.2.7-7. Noise Levels by Construction Phase at 50 Feet

Construction Phase	Maximum Instantaneous Noise Level (L_{max}, dBA)	Hourly Average Noise Level ($L_{eq[h]}$, dBA)
Grubbing/Land Clearing	84	82
Grading/Excavation	85	88
Drainage/Utilities/Subgrade	85	88
Paving	90	85
Impact Pile Driving	101	94
Vibratory Pile Driving	101	94

Source: Illingworth and Rodkin 2023.

L_{max} = the highest instantaneous sound level measured during a specific period.

Phase 1

As indicated in Table 2.2.7-7, most construction phases would generate average noise levels ranging from 82 to 88 dBA $L_{eq[h]}$ at 50 feet without pile driving, which would exceed ambient daytime noise levels measured at the measurement locations by 15 to 25 dBA $L_{eq[h]}$. Average noise levels with pile driving would be up to 94 dBA $L_{eq[h]}$ at 50 feet. However, most sensitive receptors along the Project corridor are set back farther from SR 37. Residences at the Bel Marin Keys would be more than 1,700 feet from the construction activities on the Novato Creek Bridge. The maximum instantaneous noise levels would range from 84 to 90 dBA L_{max} at 50 feet without pile driving, and up to 101 dBA L_{max} at 50 feet with pile driving. Taking into consideration the doubling of distance – noise attenuates by 6 dBA – the average noise level without pile driving that would be experienced at the nearest residential land use located more than 1,700 feet from the Novato Creek Bridge would be less than 60 dBA $L_{eq[h]}$, which is below the 86 dBA L_{max} required by the Caltrans Specification. At the residential land uses, located over 1,700 feet east of the Novato Creek Bridge, pile-driving noise would be less than 71 dBA L_{max}, which is below the 86 dBA L_{max} required by the Caltrans Specification. Therefore, construction noise levels would not exceed the quantitative noise limits established by Caltrans.

Phase 2

As indicated in Table 2.2.7-7, most construction phases would generate average noise levels ranging from 82 to 88 dBA $L_{eq[h]}$ at 50 feet without pile driving, which would exceed ambient daytime noise levels measured at the measurement locations by 15 to 25 dBA $L_{eq[h]}$. Average noise levels with pile driving would be up to 94 dBA $L_{eq[h]}$ at 50 feet. However, most sensitive receptors along the Project corridor are set back further from SR 37. Construction near the eastern end of the corridor would be within 400 feet of westbound SR 37 (residences) and within 200 feet of eastbound SR 37 (golf course), while other sensitive receptors (residences at the Bel Marin Keys) would be more than 1,700 feet from the SR 37 alignment. Maximum instantaneous noise levels would range from 84 to 90 dBA L_{max} at 50 feet without pile driving, and up to 101 dBA L_{max} at 50 feet with pile driving. Taking into consideration the doubling of distance – noise attenuates by 6 dBA – the average noise level without pile driving that would be experienced at the nearest noise-sensitive land use (golf course) 200 feet from the eastbound SR 37 would be 82 dBA $L_{eq[h]}$, which is below the 86 dBA L_{max} required by the Caltrans Specification. At the golf course, construction noise levels with pile-driving noise would be 89 dBA L_{max}, which is above the 86 dBA L_{max} required by the Caltrans Specification. However, with the implementation of AMM-NOI-1, Pile Driving, PF-NOI-1, Caltrans Standard Specifications for Noise, and PF-NOI-2, Construction Equipment Operations, the pile driving would be constrained to daytime hours and would occur as far practicable from the golf course, reducing all construction noise levels to less than 86 dBA.

Therefore, with the exception of pile driving and possible nighttime construction involving heavy equipment, construction noise levels would not exceed the quantitative noise limits established by Caltrans.

Construction Vibration Analysis

Construction activities with the greatest potential of generating perceptible vibration levels would include the removal of pavement and soil, the dropping of heavy objects, and the movement of heavy tracked equipment. Table 2.2.7-8 presents typical vibration levels that could be expected from representative construction equipment at a reference distance of 25 feet and calculated vibration levels at distances representative of the setbacks from the Project to the nearest structures. Vibration levels are highest close to the source, and then attenuate with increasing distance depending on soil conditions. Distances to exceedances of the vibration limits for various structure types are shown in Table 2.2.7-9.

Table 2.2.7-8. Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)	Representative of Setbacks of Nearest Structures (in/sec PPV) 260 feet	Representative of Setbacks of Nearest Structures (in/sec PPV) 330 feet
Pile Driver (Impact) Upper Range	1.158	0.088	0.068
Pile Driver (Impact) Typical	0.644	0.049	0.038
Pile Driver (Sonic) Upper Range	0.734	0.056	0.043
Pile Driver (Sonic) Typical	0.17	0.013	0.010
Clam-shovel Drop	0.202	0.015	0.012
Hydromill (Slurry Wall) in Soil	0.022	0.001	0.0005
Hydromill (Slurry Wall) in Rock	0.047	0.001	0.001
Vibratory Roller	0.210	0.016	0.012
Hoe Ram	0.089	0.007	0.005
Large Bulldozer	0.089	0.007	0.005
Caisson Drilling	0.089	0.007	0.005
Loaded Trucks	0.076	0.006	0.004
Jackhammer	0.035	0.003	0.002
Small Bulldozer	0.003	0.0002	0.0002

Source: Illingworth and Rodkin 2023

Table 2.2.7-9. Distance to Exceedance of Vibration Limit by Structure Type

Structure Type	Threshold (in/sec) PPV	Distance to Exceedance of Threshold, feet[a] Pile Driving (feet)	Distance to Exceedance of Threshold, feet[a] Heavy Construction (feet)
Historic Buildings	0.25	100	22
Older Residences	0.3	85	18
New Residential and Commercial/Industrial Buildings	0.5	55	12

[a]These levels were calculated assuming normal propagation conditions, using a standard equation of *PPVeqmt-PPVref * (25/D)* $^{1.1}$, from Caltrans 2013a.

Based on a review of the Marin County historic resource inventories/mapping and as summarized in Section 2.1.9, Cultural Resources, there are no historic structures located within 100 feet of the Project limits. The nearest building to the construction activities in both phases would be over 200 feet from pile-driving activities and heavy construction equipment. Vibration levels would be less than 0.12 in/sec PPV at all existing structures. The 0.3 and 0.5 in/sec PPV are not expected to be exceeded at any existing structure, even during pile driving. Therefore, vibration levels due to Project construction activities would not affect historic buildings, older residences, or newer residential or commercial or industrial buildings.

Operation

Traffic noise modeling results and predicted traffic noise impacts for existing, No-Build and design year conditions are shown in Table 2.2.7-10 for Build Phase 1 and Table 2.2.7-11 for Build Phase 2. The comparison to existing conditions is included in the tables is to identify traffic noise impacts, as defined under 23 CFR 772. The comparison between Build and No-Build conditions indicates the direct effect of the Project.

Phase 1

As shown in Table 2.2.7-10, the loudest-hour noise levels at Category B land uses for Build Phase 1 would range from 40 to 64 dBA $L_{eq[h]}$ under Existing conditions, from 40 to 64 dBA $L_{eq[h]}$ under 2049 No-Build conditions, from 40 to 64 dBA $L_{eq[h]}$ under 2049 Phase 1 Build conditions. The 2049 Phase 1 Build traffic noise levels are not predicted to approach or exceed the NAC at any Category B receptors.

The loudest-hour noise levels at Category C land uses would range from 42 to 64 dBA $L_{eq[h]}$ under Existing conditions, from 43 to 64 dBA $L_{eq[h]}$ under 2049 No-Build conditions, and from 43 to 64 dBA $L_{eq[h]}$ under 2049 Phase 1 Build conditions. The

2049 Phase 1 Build traffic noise levels are not predicted to approach or exceed the NAC at any Category C receptors.

The loudest-hour noise levels at Category E land uses would range from 60 to 67 dBA $L_{eq[h]}$ under Existing conditions, from 61 to 67 $L_{eq[h]}$ under 2049 No-Build conditions, and from 61 to 67 dBA $L_{eq[h]}$ under 2049 Phase 1 Build conditions. Phase 1 Build traffic noise levels are not predicted to approach or exceed the NAC at any Category E receptors.

Caltrans' Protocol defines a noise increase as substantial when the predicted noise levels with Project implementation exceed existing noise levels by 12 dBA or more.

Noise levels would increase by up to 2 dBA over Existing conditions under 2049 No-Build conditions. When compared to Existing conditions, changes in noise levels under 2049 Phase 1 Build conditions would range from 0 to +2 dBA. When compared to No-Build conditions, changes in noise levels under 2049 Phase 1 Build conditions would range from 0 to +1 dBA. Noise levels are not predicted to approach or exceed the NAC at any receptors. The noise level increases that would result from the Project are not considered substantial because they would not be at or above the Caltrans 12-dBA threshold.

Phase 2

As shown in Table 2.2.7-11, the loudest-hour noise levels at Category B land uses for Build Phase 2 would range from 40 to 64 dBA $L_{eq[h]}$ under Existing conditions, from 40 to 65 dBA $L_{eq[h]}$ under 2065 No-Build conditions, from 40 to 65 dBA $L_{eq[h]}$ under 2065 Phase 2 Build conditions. The 2065 Phase 2 Build traffic noise levels are not predicted to approach or exceed the NAC at any Category B receptors.

The loudest-hour noise levels at Category C land uses would range from 42 to 64 dBA $L_{eq[h]}$ under Existing conditions, from 43 to 64 dBA $L_{eq[h]}$ under 2065 No-Build conditions, and from 43 to 64 dBA $L_{eq[h]}$ under 2065 Phase 2 Build conditions. The 2065 Phase 2 Build traffic noise levels are not predicted to approach or exceed the NAC at any Category C receptors.

The loudest-hour noise levels at Category E land uses would range from 60 to 67 dBA $L_{eq[h]}$ under Existing conditions, from 61 to 67 $L_{eq[h]}$ under 2065 No-Build conditions, and from 61 to 67 dBA $L_{eq[h]}$ under 2065 Phase 2 Build conditions. Phase 2 Build traffic noise levels are not predicted to approach or exceed the NAC at any Category E receptors.

Table 2.2.7-10. Predicted Future Noise Levels for Phase 1 (2049)

Receptor ID	Land Use	Location	Existing Noise Level, $L_{eq[h]}$, dBA[a],[c]	Design Year Noise Level Without Project, $L_{eq[h]}$, dBA[a],[c]	Design Year Noise Level With Project, $L_{eq[h]}$, dBA[a],[c]	Design Year Noise Level Without Project Minus Existing Noise Level, $L_{eq[h]}$, dBA	Design Year Noise Level With Project Minus Existing Level, $L_{eq[h]}$, dBA	Design Year Noise Level With Project Minus Design Year Noise Level Without Project, $L_{eq[h]}$, dBA	Noise Abatement Category	Impact Type[b]
ST-1	Residential	50 Green Point Lane	56	57	57	1	1	0	B (67)	None
ST-2	Warehousing	A Self Storage – 101 Renaissance Road	61	62	62	1	1	0	F	None
ST-3	Active Sports Area	Stone Tree Golf Club – 9 Stone Tree Lane	56	56	56	0	0	0	C (67)	None
ST-4	Other Developed Lands	Black Point Park N Ride	67	67	67	0	0	0	E (72)	None
ST-5	Residential	31 Glen Road	53	54	54	1	1	0	B (67)	None
ST-6	Active Sports Area	Stone Tree Golf Club (12th Hole) –9 Stone Tree Lane	60	60	60	0	0	0	C (67)	None
ST-7	Residential	276 Montego Key	40	40	40	0	0	0	B (67)	None
ST-8	Park	Montego Park – 113 Montego Key	42	43	43	1	1	0	C (67)	None
ST-9	Utilities	Service Road to Marin County Flood Control and Water Conservation District	68	68	68	0	0	0	F	None
ST-10	Office	5400 Hanna Ranch Road	60	61	61	1	1	0	E (72)	None
R1	Residential	70 Glen Road	40	40	40	0	0	0	B (67)	None
R2	Residential	61 Glen Road	46	46	46	0	0	0	B (67)	None
R3	Residential	90 Atherton Avenue	57	58	58	1	1	0	B (67)	None
R4	Undeveloped	SR 37 Westbound	68	69	69	1	1	0	G	None
R5	Undeveloped	SR 37 Eastbound	65	65	65	0	0	0	G	None
R6	Undeveloped	SR 37 Eastbound	63	64	64	1	1	0	G	None
R7	Undeveloped	SR 37 Westbound	66	67	67	1	1	0	G	None
R8	Undeveloped	SR 37 Eastbound	64	65	66	1	2	1	G	None
R9	Undeveloped	SR 37 Westbound	66	67	68	1	2	1	G	None
R10	Undeveloped	SR 37 Eastbound	61	63	63	2	2	0	G	None
R11	Trail	Bay Trail	61	62	62	1	1	0	C (67)	None
R12	Utility	495 Bel Marin Keys Boulevard	51	51	52	0	1	1	F	None
R13	Residential	710 Samoa Lane	64	64	64	0	0	0	B (67)	None
R14	Residential	616 Fairhaven Way	59	59	59	0	0	0	B (67)	None
R15	Residential	635 Fairhaven Way	64	64	64	0	0	0	B (67)	None
R16	Residential	630 Fairhaven Way	64	64	64	0	0	0	B (67)	None
R17	Park	44 Inyo Circle	64	64	64	0	0	0	C (67)	None

[a] The planned 2-foot median barrier and the two 2-foot outside barriers were not included in modeling to present the worst-case noise levels.
[b] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC, None = Increase is less than 12 dB, and noise levels do not approach or exceed the NAC.
[c] As stated in the Caltrans Technical Noise Supplement (TeNS) to the Traffic Noise Analysis Protocol (2013a), modeling results are rounded to the nearest decibel before comparisons are made.

Table 2.2.7-11. Predicted Future Noise Levels for Phase 2 (2065)

Receptor ID	Land Use	Location	Existing Noise Level, $L_{eq[h]}$, dBA[a],[c]	Design Year Noise Level Without Project, $L_{eq[h]}$, dBA[a],[c]	Design Year Noise Level With Project, $L_{eq[h]}$, dBA[a],[c]	Design Year Noise Level Without Project Minus Existing Noise Level, $L_{eq[h]}$, dBA	Design Year Noise Level With Project Minus Existing Level, $L_{eq[h]}$, dBA	Design Year Noise Level With Project Minus Design Year Noise Level Without Project, $L_{eq[h]}$, dBA	Noise Abatement Category	Impact Type[b]
ST-1	Residential	50 Green Point Lane	56	57	58	1	2	1	B (67)	None
ST-2	Warehousing	A Self Storage – 101 Renaissance Road	61	62	63	1	2	1	F	None
ST-3	Active Sports Area	Stone Tree Golf Club – 9 Stone Tree Lane	56	56	57	0	1	1	C (67)	None
ST-4	Other Developed Lands	Black Point Park N Ride	67	67	67	0	0	0	E (72)	None
ST-5	Residential	31 Glen Road	53	54	54	1	1	0	B (67)	None
ST-6	Active Sports Area	Stone Tree Golf Club (12th Hole) – 9 Stone Tree Lane	60	61	64	1	4	3	C (67)	None
ST-7	Residential	276 Montego Key	40	40	40	0	0	0	B (67)	None
ST-8	Park	Montego Park – 113 Montego Key	42	43	43	1	1	0	C (67)	None
ST-9	Utilities	Service Road to Marin County Flood Control and Water Conservation District	68	69	69	1	1	0	F	None
ST-10	Office	5400 Hanna Ranch Road	60	61	61	1	1	0	E (72)	None
R1	Residential	70 Glen Road	40	40	40	0	0	0	B (67)	None
R2	Residential	61 Glen Road	46	47	49	1	3	2	B (67)	None
R3	Residential	90 Atherton Avenue	57	58	60	1	3	2	B (67)	None
R4	Undeveloped	SR 37 Westbound	68	69	69	1	1	0	G	None
R5	Undeveloped	SR 37 Eastbound	65	65	66	0	1	1	G	None
R6	Undeveloped	SR 37 Eastbound	63	64	66	1	3	2	G	None
R7	Undeveloped	SR 37 Westbound	66	67	69	1	3	2	G	None
R8	Undeveloped	SR 37 Eastbound	64	65	66	1	2	1	G	None
R9	Undeveloped	SR 37 Westbound	66	67	67	1	1	0	G	None
R10	Undeveloped	SR 37 Eastbound	61	63	64	2	3	1	G	None
R11	Trail	Bay Trail	61	62	62	1	1	0	C (67)	None
R12	Utility	495 Bel Marin Keys Boulevard	51	52	52	1	1	0	F	None
R13	Residential	710 Samoa Lane	64	65	65	1	1	0	B (67)	None
R14	Residential	616 Fairhaven Way	59	59	60	0	1	1	B (67)	None
R15	Residential	635 Fairhaven Way	64	64	64	0	0	0	B (67)	None
R16	Residential	630 Fairhaven Way	64	64	64	0	0	0	B (67)	None
R17	Park	44 Inyo Circle	64	64	64	0	0	0	C (67)	None

[a] The planned 2-foot median barrier and the two 2-foot outside barriers were not included in modeling to present the worst-case noise levels.
[b] Impact Type: S = Substantial Increase (12 dBA or more), A/E = Approach or Exceed NAC, None = Increase is less than 12 dB, and noise levels do not approach or exceed the NAC.
[c] As stated in the TeNS (Caltrans 2013a), modeling results are rounded to the nearest decibel before comparisons are made.

Noise levels would increase by up to 2 dBA over Existing conditions under 2065 No-Build conditions. When compared to Existing conditions, changes in noise levels under 2065 Phase 2 Build conditions would range from 0 to +4 dBA. When compared to No-Build conditions, changes in noise levels under 2065 Phase 2 Build conditions would range from 0 to +3 dBA. Therefore, noise levels are not predicted to approach or exceed the NAC at any receptors. The noise level increases that would result from the Project are not considered substantial because they would not be at or above the Caltrans 12-dBA threshold.

Noise abatement was not considered for this Project because noise impacts were not predicted in areas of frequent human use for Phase 1 or Phase 2.

No-Build Alternative

Construction

Under the No-Build Alternative, no improvements would be made to the SR 37 Project corridor. No temporary impacts would occur under the No-Build Alternative because there would be no construction activities in the Project area. Potential long-term noise effects under the No-Build Alternative would result from traffic noise. Future No-Build noise levels are shown in Tables 2.2.7-10 and 2.2.7-11. In the future No-Build conditions, noise levels at all 27 receptor locations would remain below the respective NAC.

2.2.7.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following AMMs would minimize the potential for temporary noise impacts.

AMM-NOI-1: Pile Driving. The Project contractor would limit pile-driving activities to weekdays between the hours of 7 a.m. and 6 p.m. and between 10 a.m. and 5 p.m. on Saturdays for construction activities within the TCEs. No pile driving would occur Sundays or official federal national holidays, unless authorized by the Community Development Director.

2.2.8 Energy

2.2.8.1 REGULATORY SETTING

NEPA (42 USC Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

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.

2.2.8.2 AFFECTED ENVIRONMENT

Energy is currently consumed within the Project area for the construction of public and private projects; operation of automobiles, trucks, and marine vessels; and operation of existing land uses.

According to the United States Energy Information Administration (2023), the transportation sector in California consumed more energy than any other sector (residential, commercial, and industrial), representing over 30 percent of the total statewide energy consumed (Table 2.2.8-1). Automobiles, airports, and public transportation were key consumers of energy within this sector, with automobiles listed as the leading contributor. This is due, in part, to the total number of automobiles in the state. Per FHWA, California leads the nation in number of motor vehicles. In addition, several of the state's major metropolitan areas (including the San Francisco Bay Area) experience long commutes and/or delays associated with traffic congestion, resulting in increased energy consumption. The United States Energy Information Administration (2022a) listed petroleum products as the dominant energy source used by the transportation sector, representing approximately 90 percent of the energy consumed by the sector. Gasoline, specifically, represented 54 percent of the total energy consumed nationwide across all sectors in 2021 (United States Energy Information Administration 2022a), and 8 percent of total energy consumed statewide (United States Energy Information Administration 2023). Based on the influence of automobiles on energy consumption, existing and proposed traffic conditions within the Project area are a key consideration when evaluating energy consumption.

Table 2.2.8-1. California Energy Consumption by End-use Sector, 2021

End-use Sector	Energy Consumption (Trillion Btu)	Percent of Total Energy Consumption
Residential	1,473	20.0
Commercial	1,397	19.0
Industrial	1,704	23.2
Transportation	2,785	37.8
Total	**7,359**	**100**

Source: United States Energy Information Administration 2023
Btu = British thermal unit(s)

An Energy Analysis Memorandum was completed in January 2024 for this Project and determined that, because the Project is not capacity-increasing and would not provide congestion relief, a qualitative energy analysis is required to analyze operation energy use, and a quantitative energy analysis is required for construction energy use (Caltrans 2024b).

The proposed Project area is located at the western terminus of the SR 37 corridor, between U.S. 101 and Atherton Avenue Undercrossing. SR 37 is a rural, two-lane conventional highway that passes through primarily agricultural areas in Marin County. The highway is heavily traveled during morning and afternoon commute hours and is used by both commuters and tourists.

2.2.8.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Construction

The procedure for analyzing direct energy consumption from construction activities is to estimate fuel consumption projections in gallons. Construction of the proposed Project would require the use of off-road construction equipment, water trucks, and on-road vehicles for soil hauling and worker commuting. To assess gasoline and diesel consumed by construction equipment and vehicles, the Road Construction Emissions Model (RCEM), version 9.0.0, provided by the Sacramento Metropolitan Air Quality Management District, was used to quantify carbon dioxide emissions and vehicle miles traveled for workers' vehicles. USEPA greenhouse gas equivalencies formulas were used to convert greenhouse gas and vehicle miles traveled to fuel volumes. Energy usage in terms of fuel consumption is shown in Table 2.2.8-2 for the total fuel consumption in gallons. It was assumed that diesel would be used by construction vehicles and equipment, and gasoline would be used during worker's commute.

Using average fuel energy factors of 120,214 Btu per gallon of gasoline and 137,381 Btu per gallon of diesel fuel (United States Energy Information Administration 2022b), the energy used for construction is shown in Table 2.2.8-2.

Table 2.2.8-2. Construction Equipment/Vehicles Fuel Consumption

Build Alternative	Fuel Consumption (in gallons) Diesel	Fuel Consumption (in gallons) Gasoline[a]	Energy Consumption (MMBtu)
Phase 1	390,783.53	17,829.58	55,829.60
Phase 2	984,447.57	48,277.95	141,048.08
Total	1,375,231.10	66,107.53	**196,877.67**

[a] Gasoline was adjusted to account for the Final Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule
MMBtu = million British thermal unit(s)
Source: United States Energy Information Administration 2022b.

As shown in Table 2.2.8-2, the Project total of construction-related diesel and gasoline consumption would be approximately 196,877.64 MMBtu. Compared to energy consumption without the Project construction, the Project would not have a

substantial increase to local energy consumption in the Project area. As previously discussed, the total energy consumed in California in 2020 was 6,923 trillion Btu. The construction energy consumed by the Project would be approximately 0.003 percent of the total California consumption. Therefore, energy consumption from construction activities would be temporary and negligible as it would last for a short period of time. In addition, the implementation of PF-AQ-2, Construction Equipment Controls, and PF-AQ-6, Idling, would further reduce energy consumption during construction.

Operation

Local energy demand for transportation projects typically is dominated by vehicle fuel usage. Energy consumption is mostly based on the annual vehicle miles traveled, though it is also affected by congestion-related inefficiencies. The proposed Project is not expected to increase capacity on SR 37. Therefore, it would have no effect on long-term energy use.

No-Build Alternative

Under the No-Build Alternative, the indirect effects on energy consumption discussed previously for the build alternatives during construction and operation would not occur. The No-Build Alternative would not increase capacity on SR 37. There would be no impact.

2.2.8.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No avoidance, minimization, or mitigation measures would be required to reduce effects related to energy.

2.3 Biological Resources

2.3.1 Natural Communities

This section of the document discusses natural communities of concern and focuses on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are habitat areas used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Project implementation may impact natural resources under the jurisdiction of USACE (San Francisco District Office), National Marine Fisheries Service (NMFS), United States Fish and Wildlife Service (USFWS), RWQCB (San Francisco Bay Office), California Department of Fish and Wildlife (CDFW) (Bay-Delta Region Office), and BCDC. Regulatory requirements and laws that apply to the Project include CWA Sections 401 and 404; Rivers and Harbors Act Section 10; Federal Endangered Species Act (FESA); California Fish and Game Code (CFGC) Sections 1600 through 1616, specifically regarding alteration of creeks and riparian habitat; Porter-Cologne Water Quality Control Act; California Endangered Species Act (CESA); and McAteer-Petris Act.

Areas that have been designated as critical habitat under FESA are discussed in Section 2.3.5, Threatened and Endangered Species. Wetlands and other waters are discussed in Section 2.3.2.

2.3.1.1 Affected Environment

A Natural Environment Study was prepared to evaluate the effects of the Project on biological resources, including sensitive plants and wildlife species and is the basis of this section (Caltrans 2023g).

The 188.2-acre Project BSA and Project area are depicted on Figure 2.3-1. The BSA encompasses all areas and features that may be temporarily or permanently impacted by the proposed Project, as well as any surrounding areas that may be indirectly impacted or where important biological resources occur.

The BSA includes the limits of proposed Project work (considering the proposed Project limits of the Build Alternative) plus a 200-foot buffer around the Project limits. Where the Caltrans ROW extends outside of the 200-foot buffer, the BSA was extended to include the entire ROW. For an assessment of potential habitat suitability for the California Ridgway's rail (*Rallus obsoletus obsoletus*) and California black rail (*Laterallus jamaicensis coturniculus*), the BSA was expanded 700 feet from Project limits at Novato Creek and Simonds Slough. The 700-foot buffer was intended for rail habitat evaluations only and is not depicted on Figure 2.3-1.

The BSA was surveyed on multiple occasions from October 2021 through August 2022 to evaluate habitat and identify and quantify natural resources associated with the Project. Field surveys were conducted to map general habitat types and determine general wildlife use; survey trees; assess potential wildlife movement and habitat connectivity; assess habitat suitability for special-status plants and animals; conduct focused habitat assessments for roosting bats, California red-legged frog (*Rana draytonii*), California Ridgway's rail, California black rail, and salt marsh harvest mouse (*Reithrodontomys raviventris*); conduct protocol-level surveys for special-status plants; and delineate regulated habitats.

The Project would be constructed in two phases, with Phase 2 being constructed after completion of Phase 1. Although this document assesses impacts for Phase 1 and 2 based on current site conditions, these conditions may change before Phase 2 is initiated, and Caltrans would need to re-evaluate the Project's impacts to obtain necessary regulatory permits for Phase 2.

The BSA is located north of San Pablo Bay, on a low-lying highway that is surrounded by tidal and non-tidal marshes and comprises an approximate 2.5-mile segment of SR 37, beginning near the intersection of U.S. 101 and continuing eastward to where it terminates immediately east of Atherton Avenue (Figure 2.3-1). The BSA is in the northeastern section of the Novato USGS 7.5-minute topographic quadrangle in Marin County.

Two primary drainage features flow through the BSA. At the westernmost end of the Project limits, Novato Creek, a perennial stream originating in the highlands above Novato, flows beneath SR 37 from north to south before emptying into San Pablo Bay. Simonds Slough originates in the uplands north of SR 37 and is located east of Novato Creek; it crosses under SR 37 via a double-box culvert (but designated by Caltrans as a bridge) and has no current tidal action due to obstruction from a levee road to the south that separates Simonds Slough from Novato Creek.

The Project area is located primarily on paved surfaces and the adjoining roadway shoulders along SR 37. Habitat types within the BSA are shown on Figure 2.3-2. The Phase 1 Project limits encompass 45.3 acres, and the Phase 2 Project limits encompass 69.9 acres.

Habitat Types

Habitats may be of special concern if they meet one or more of the following criteria:

(1) federal, state, and/or local laws regarding impacts to those habitats are in place;

(2) they are limited in their distribution; and

(3) they support the habitat requirements of special-status plants or animals occurring on site.

These habitats and communities include riparian habitats, waters of the U.S. and state, coastal wetlands, designated critical habitat, and essential fish habitat (EFH).

Habitat types within the BSA were classified based on conditions observed during the 2021 and 2022 surveys. These surveys identified 18 vegetation alliances or associations within 12 general habitat types found within the BSA (Table 2.3-1). The distributions of the 12 habitat types, plus the developed/major road land use type, within the impact area of Phase 1 are depicted on Figure 2.3-3. Habitat types currently present within the impact area of Phase 2 are depicted on Figure 2.3-4; however, because Phase 2 construction would start after Phase 1 is completed, some Phase 2 work areas would have been converted from natural habitats to developed land uses (e.g., new road surfaces) by Phase 1 activities, and it is possible that other habitat changes may occur prior to implementation of Phase 2. A list of plant species observed within the BSA during surveys is included as Appendix I.

The BSA is predominantly comprised of a paved roadway and surrounding road shoulder dominated by California annual and perennial grasslands and non-native Himalayan blackberry (*Rubus armeniacus*). Developed areas make up 49.93 acres (27 percent) of the BSA and 35.39 acres (51 percent) of the Project area. Most habitat that is not hardscaped is highly disturbed and regularly mowed or cultivated, with the exception of Novato Creek, Simonds Slough, and their associated wetlands.

Grasslands are dominated by non-native annual grasses, including wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), and filaree (*Erodium* spp.). Native shrub habitats are dominated by coyote brush (*Baccharis pilularis*), and non-native shrub habitats are dominated by Himalayan blackberry, fennel (*Foeniculum vulgare*), and poison hemlock (*Conium maculatum*). Wooded communities occur sparingly and include deciduous hardwood dominated by blue oak (*Quercus douglasii*), evergreen hardwood dominated by coast live oak (*Quercus agrifolia*), riparian woodland with arroyo willow (*Salix lasiolepis*), and non-native forest supporting a variety of non-native trees and shrubs.

Table 2.3-1. Vegetation and Habitat Types in the Biological Study Area[a]

General Habitat Type	Classification (if applicable)	Total Acres in BSA	Total Acres in Project Footprint
Herbaceous	Californian annual and perennial grassland mapping unit Alkaline grassland	70.68	23.54
Native Shrub	*Baccharis pilularis* alliance	9.38	0.50
Deciduous Hardwood	*Quercus douglasii* alliance	0.15	0.00
Evergreen Hardwood	*Quercus agrifolia* alliance	0.79	0.00
Riparian Woodland	*Salix lasiolepis* woodland	0.14	0.00
Non-native Forest	Ornamental woodland	4.01	1.38
Non-native Shrub	*Rubus armeniacus* seminatural association *Conium maculatum - Foeniculum vulgare* alliance	13.15	2.50
Open Water	Novato Creek, Simonds Slough, or other freshwater areas lacking vegetation	4.15	0.19
Tidal Salt Marsh	*Sarcocornia pacifica* (*Salicornia depressa*) alliance *Distichlis spicata* alliance	4.44	1.73
Diked Brackish Marsh	*Bolboschoenus maritimus* alliance	11.41	0.35
Freshwater Marsh	Arid west freshwater marsh group	18.60	4.29
Seasonal Wetland	Seasonal wetland	0.44	0.04
	Total	**137.34**	**34.52**

[a] Habitat types and acreages are based on conditions observed during surveys conducted for the Project in 2021 and 2022 and are applicable for Phase 1 impact assessment. Caltrans would re-evaluate the type and extent of habitat types in the BSA prior to Phase 2 construction.

Terrestrial habitats support reptiles such as the western fence lizard (*Sceloporus occidentalis*) and gopher snake (*Pituophis catenifer*). Small mammals such as California ground squirrel (*Otospermophilus beecheyi*) and Botta's pocket gopher (*Thomomys bottae*) are common residents of grasslands and other open habitats, and burrows of these species were observed within the BSA. Deer mouse (*Peromyscus maniculatus*), California vole (*Microtus californicus*), and black-tailed deer (*Odocoileus hemionus columbianus*) are present; and large predatory mammals such as coyote (*Canis latrans*) hunt within the BSA.

Legend

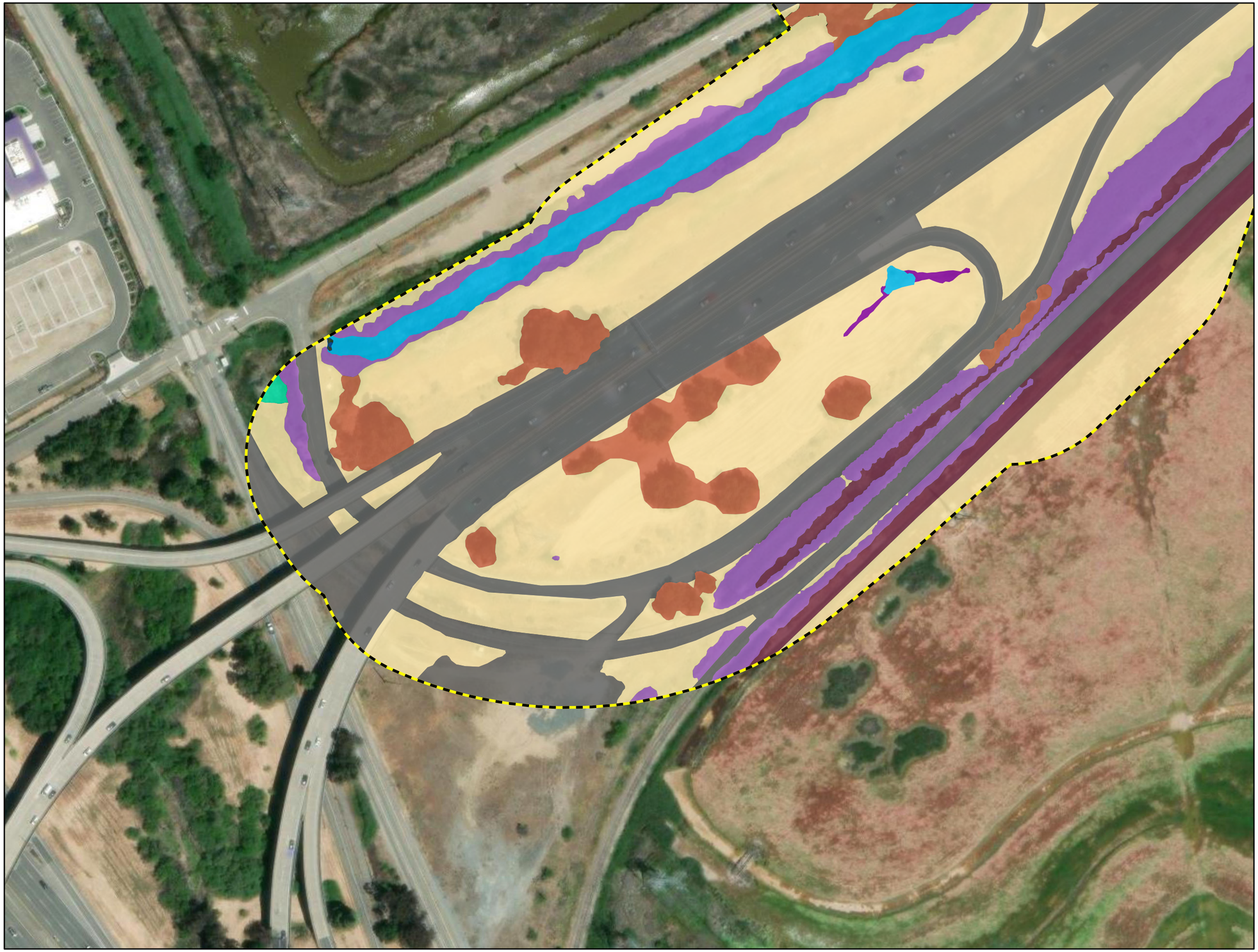
- Biological Study Area
- Project Footprint

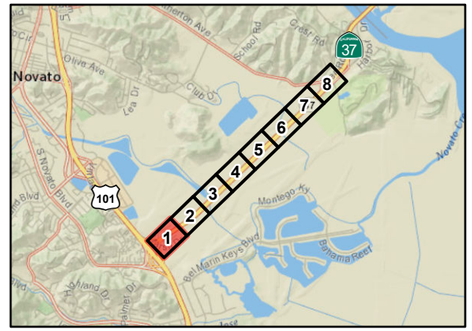
Data Source:
Caltrans 7/19/2022

0 1,000 2,000
Feet

Caltrans

Figure 2.3-1
Project Footprint and BSA
Build Alternative
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

Biological Study Area

Habitats

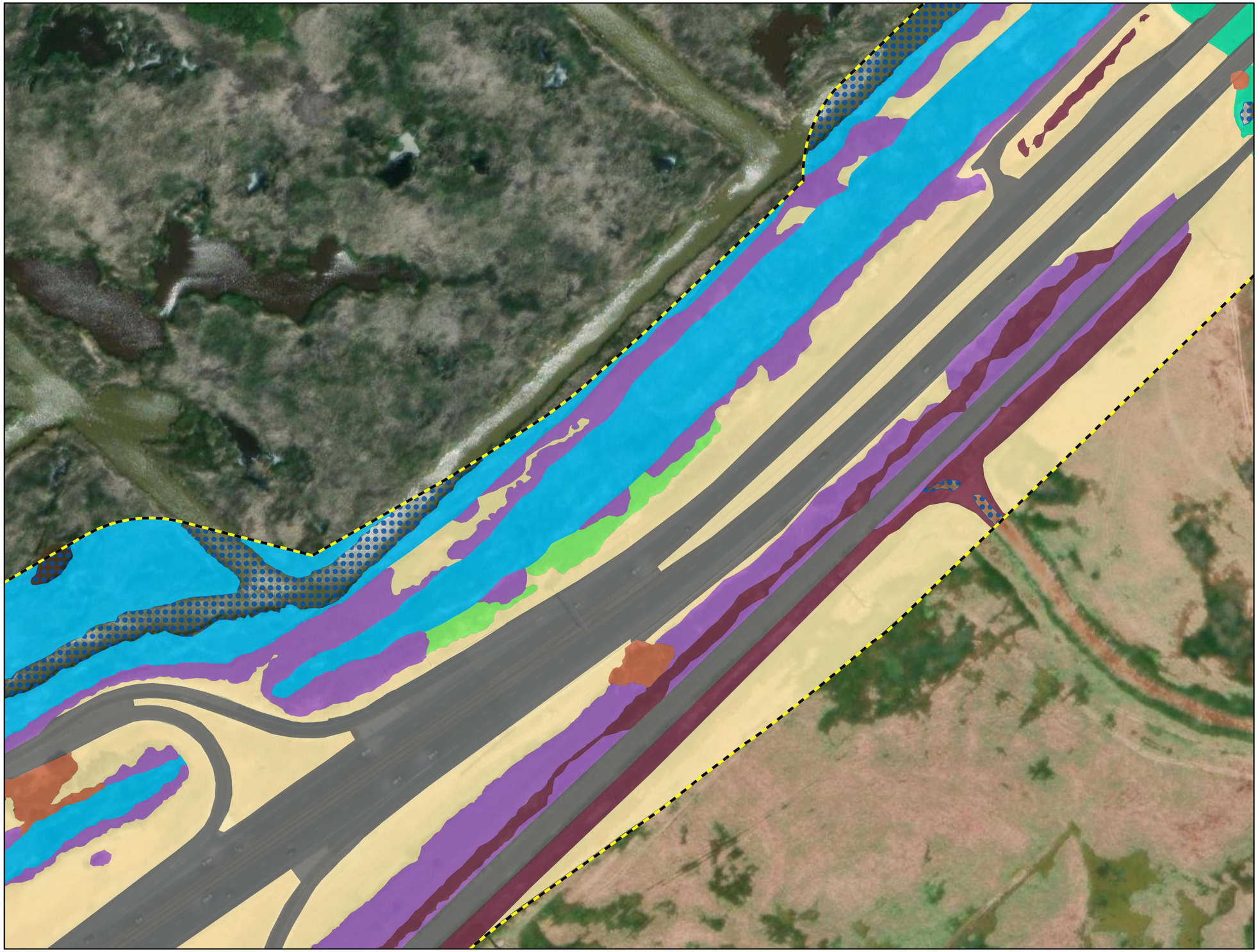
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

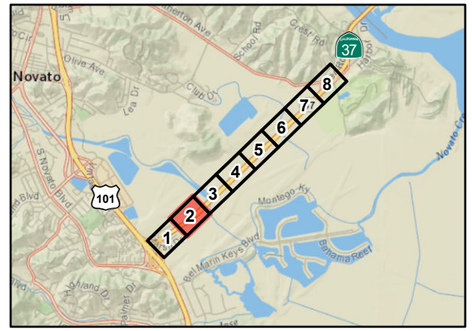
Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Caltrans

Figure 2.3-2
Habitats within the BSA
Map 1 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

Biological Study Area

Habitats

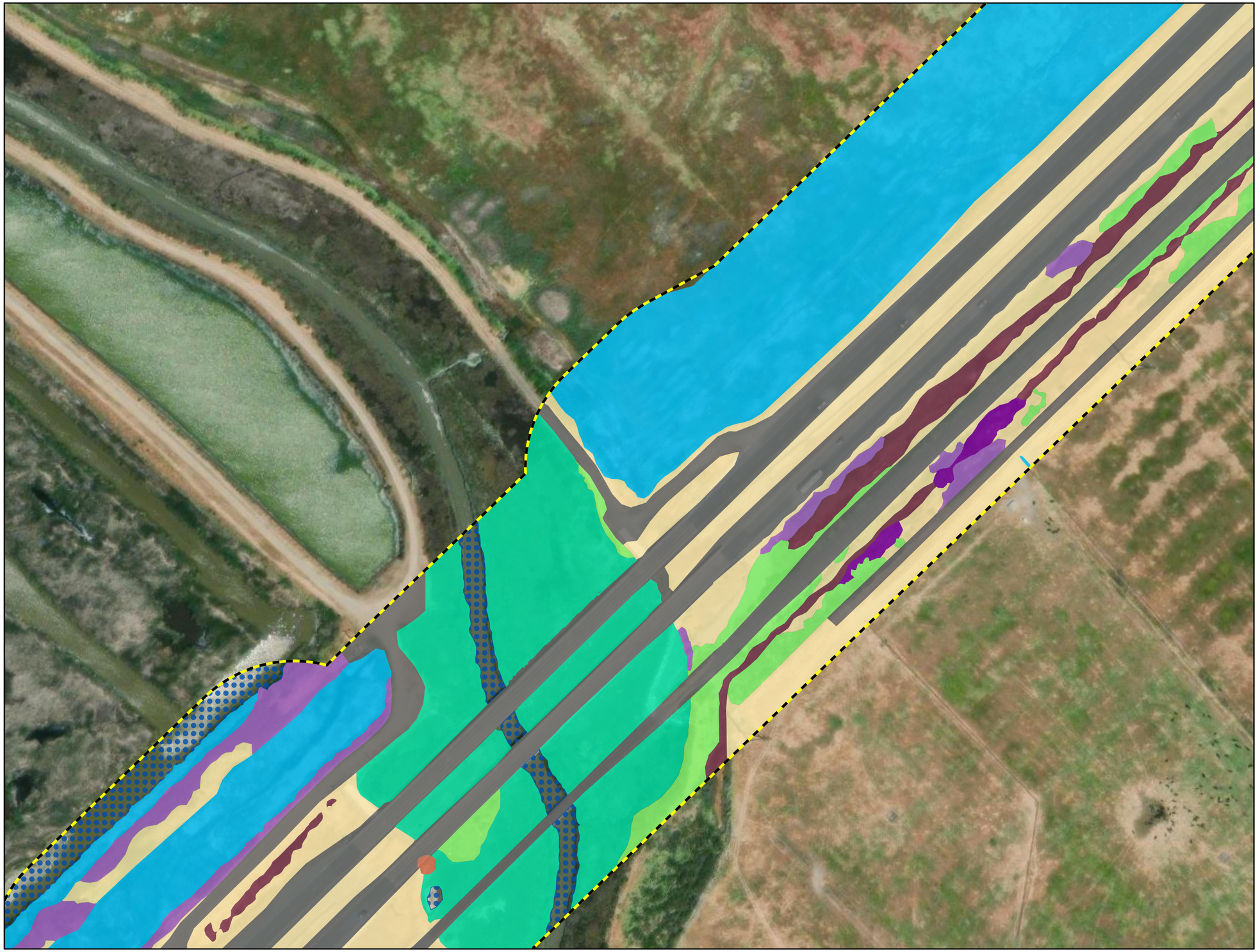
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Tidal Salt Marsh

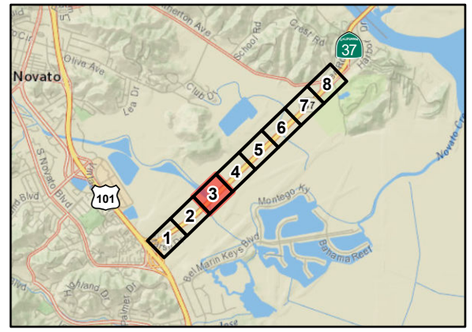
Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Caltrans

Figure 2.3-2
Habitats within the BSA
Map 2 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

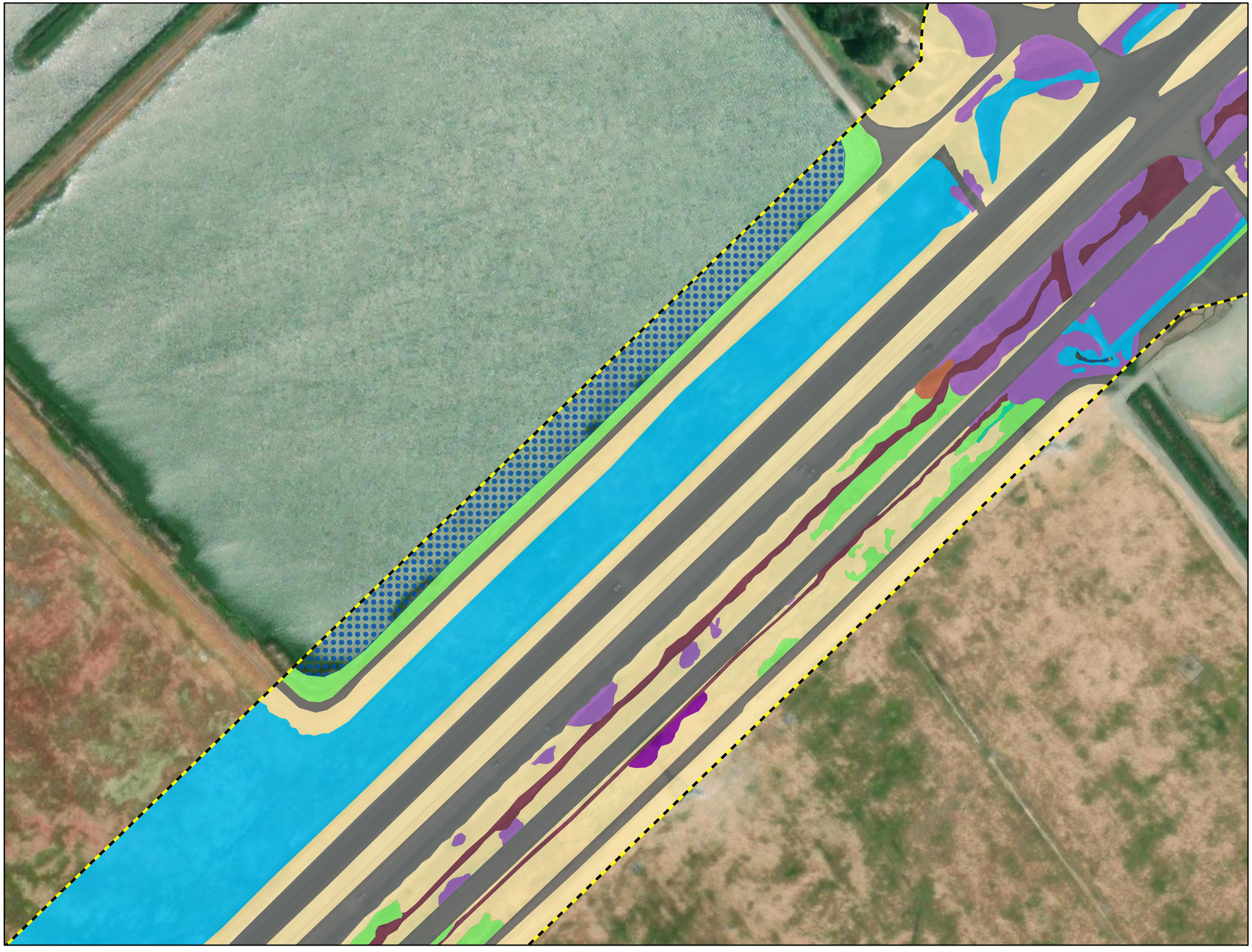
Habitats

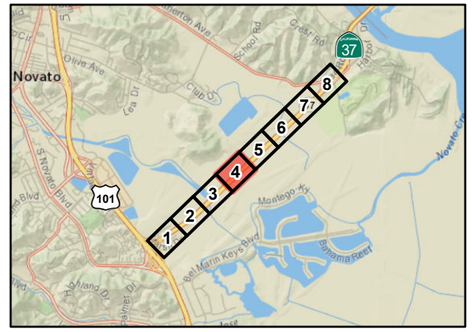
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-2
Habitats within the BSA
Map 3 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Habitats

- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-2
Habitats within the BSA
Map 4 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California

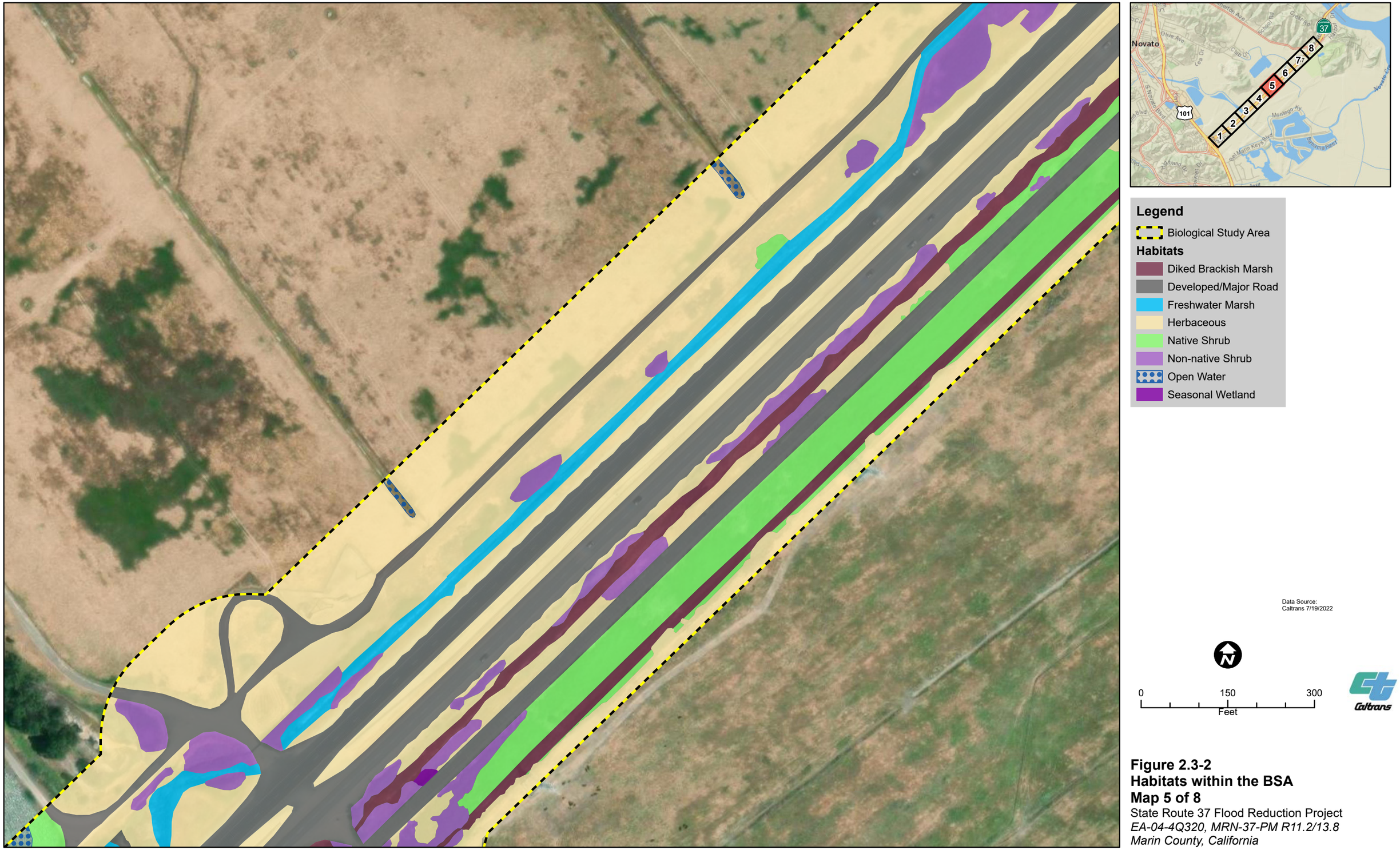
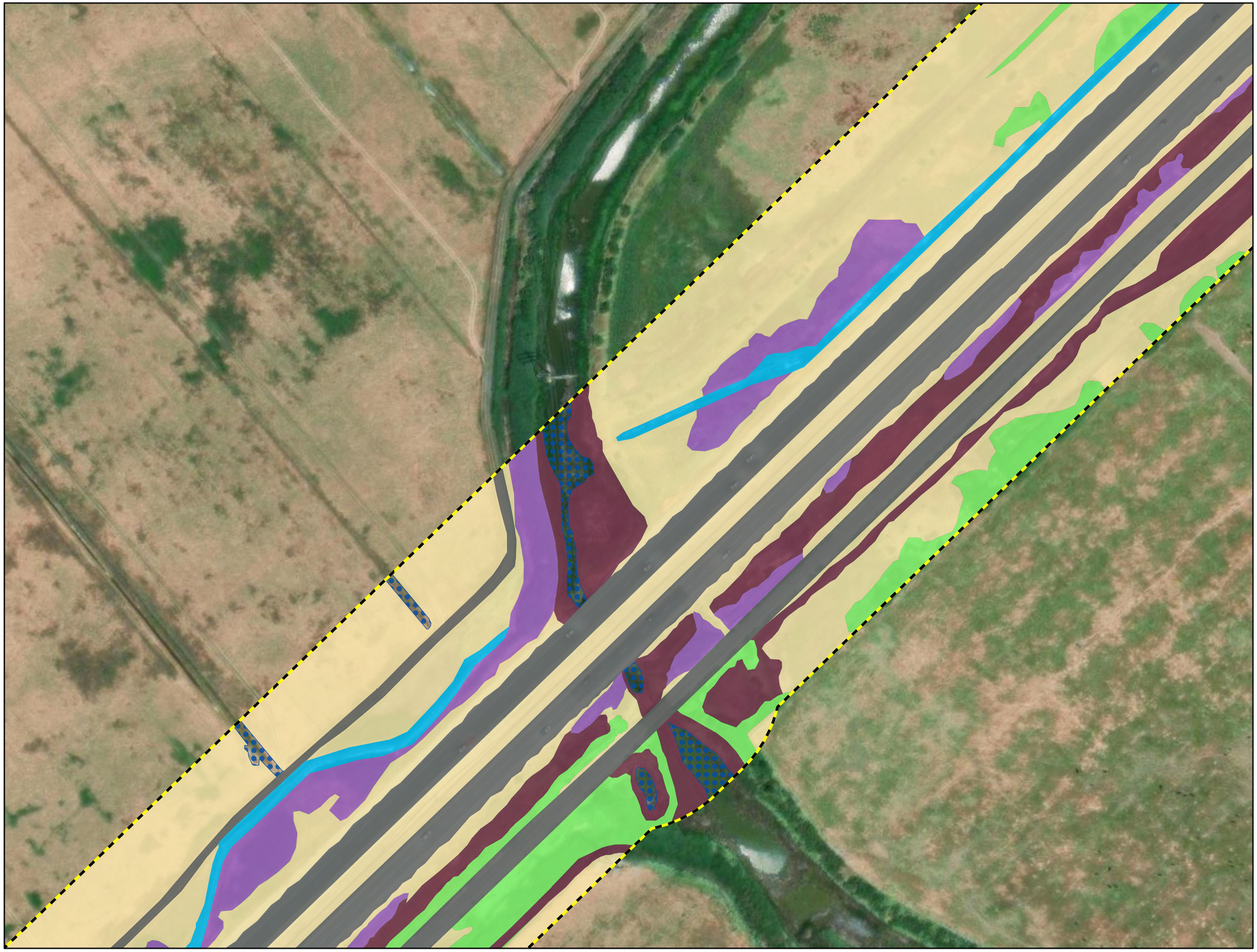
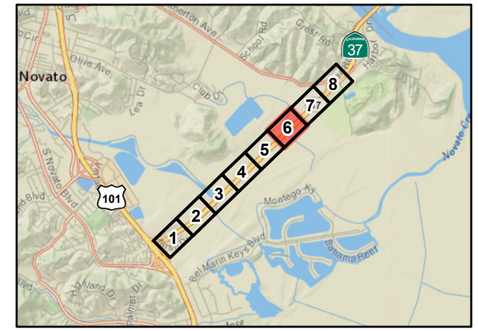


Figure 2.3-2
Habitats within the BSA
Map 5 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

Biological Study Area

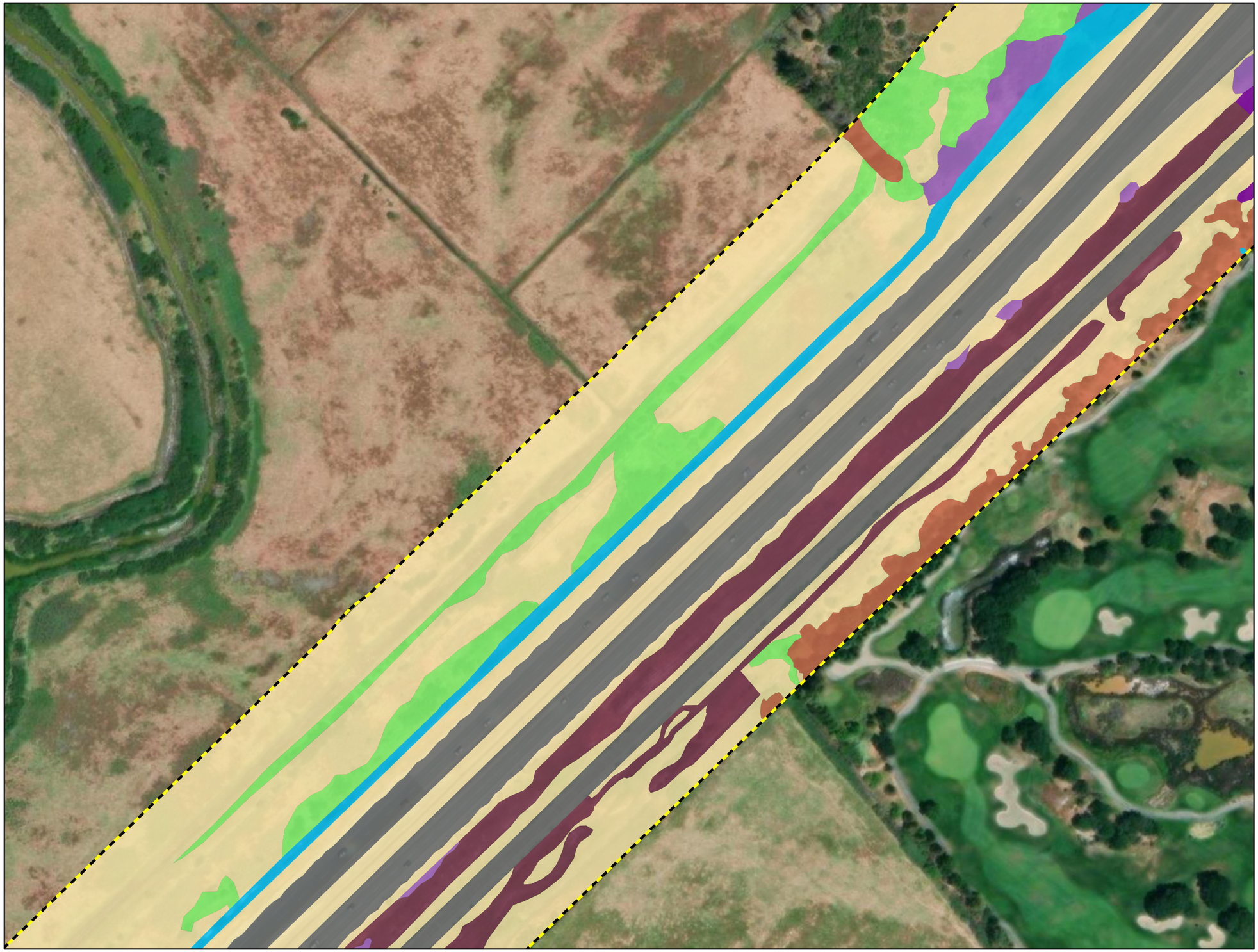
Habitats

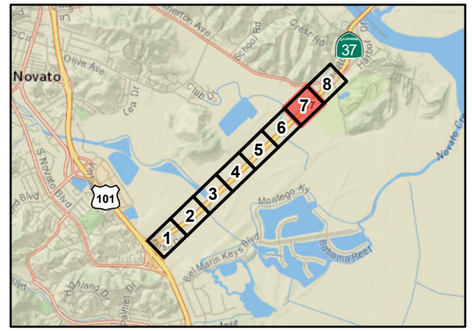
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Open Water

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-2
Habitats within the BSA
Map 6 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

Biological Study Area

Habitats

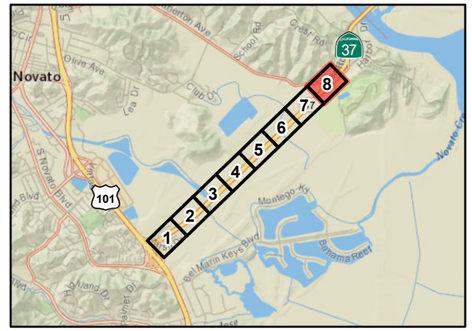
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Seasonal Wetland

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Caltrans

Figure 2.3-2
Habitats within the BSA
Map 7 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California



Legend

- Biological Study Area

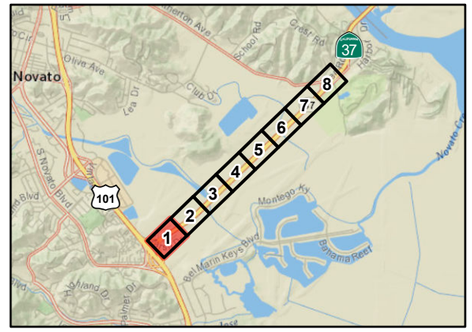
Habitats

- Diked Brackish Marsh
- Deciduous Hardwood
- Developed/Major Road
- Evergreen Hardwood
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Riparian Woodland
- Seasonal Wetland

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-2
Habitats within the BSA
Map 8 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California



Legend

- Biological Study Area

Impacts (Phase 1)

- Temporary Impact

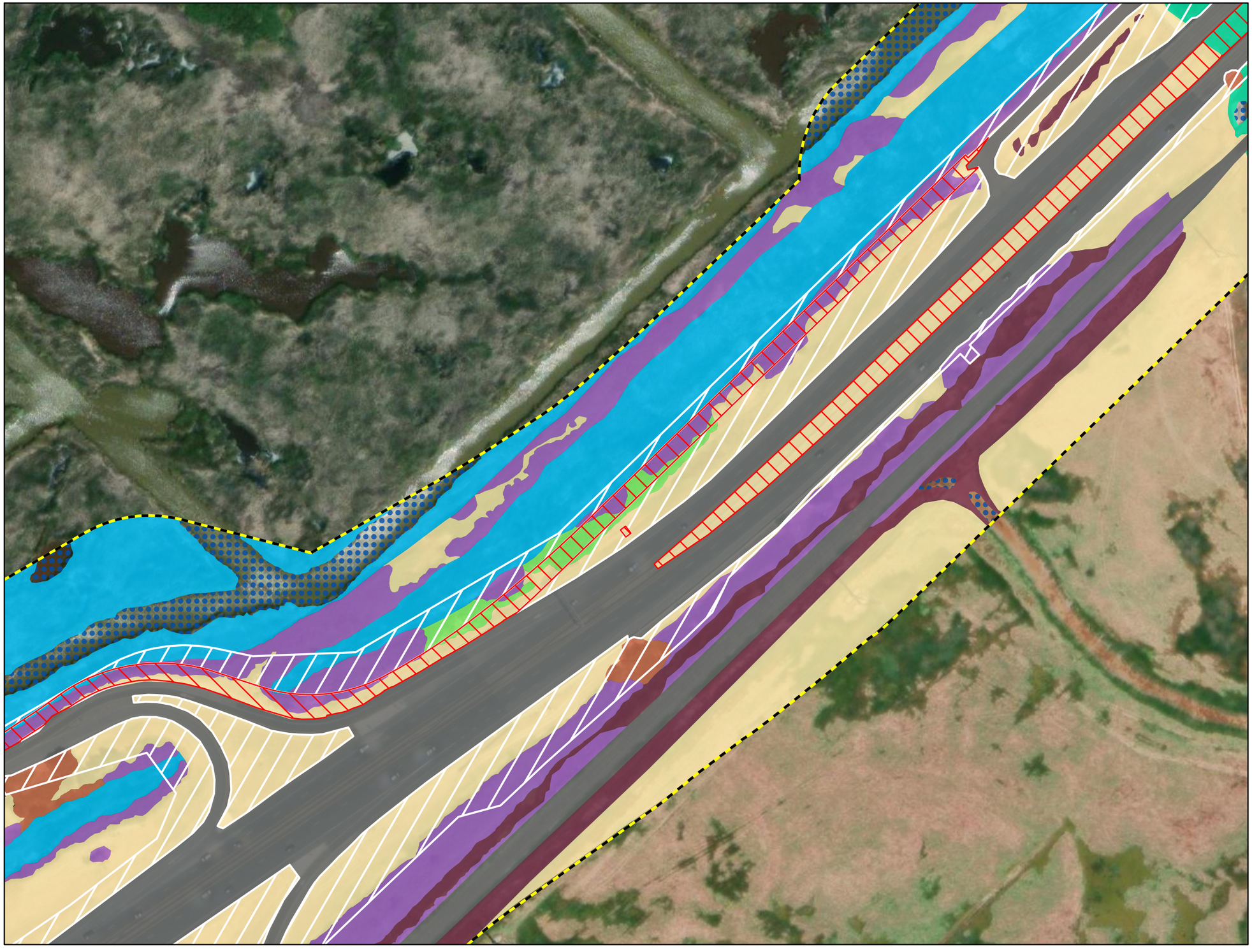
Habitats

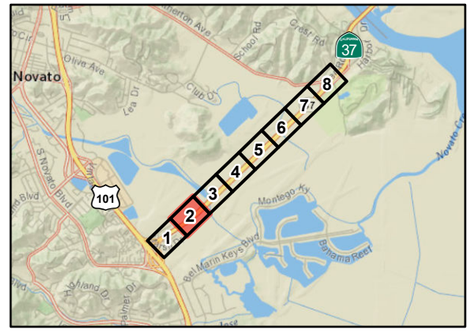
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 1 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 1)

- Permanent Impact
- Temporary Impact

Habitats

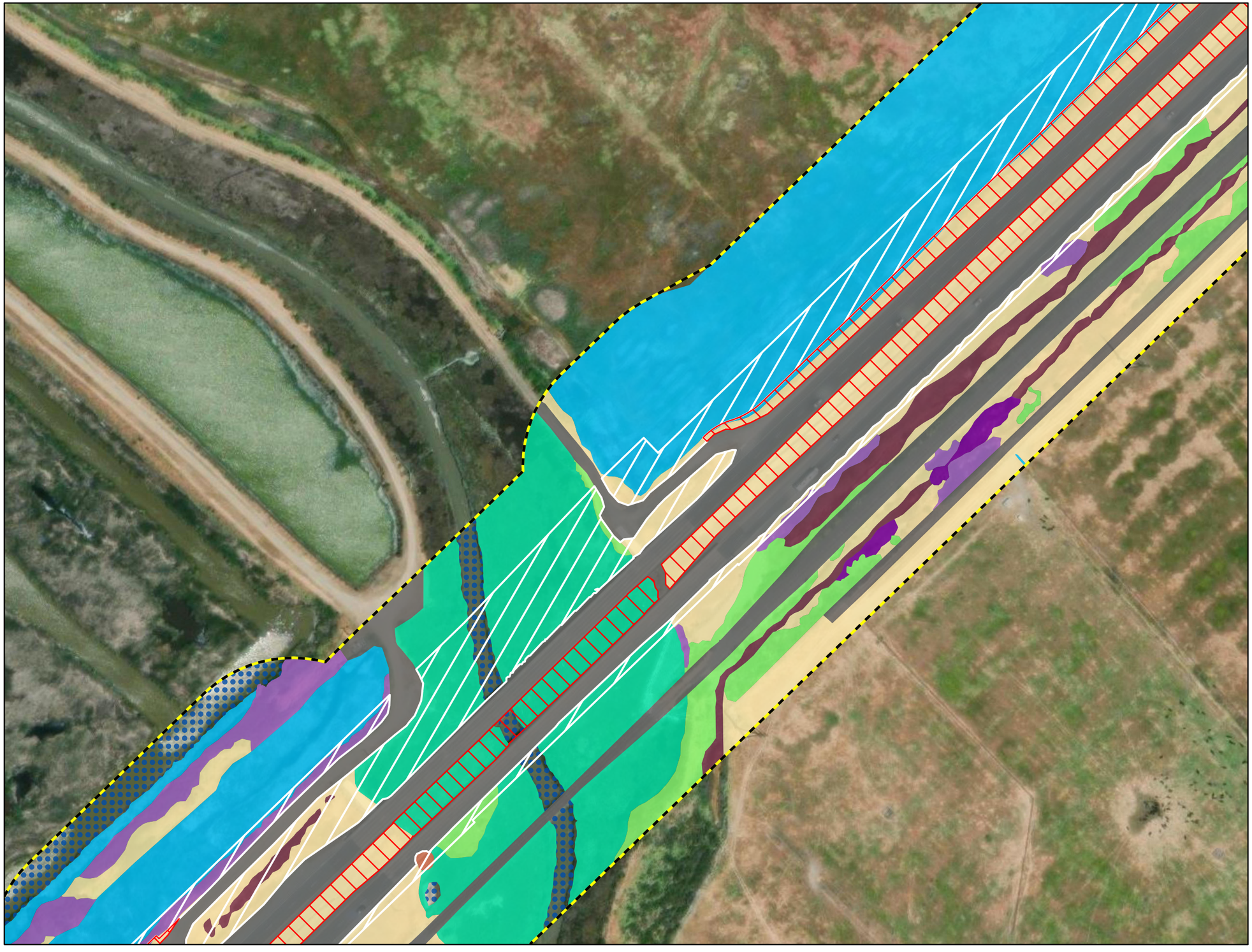
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Tidal Salt Marsh

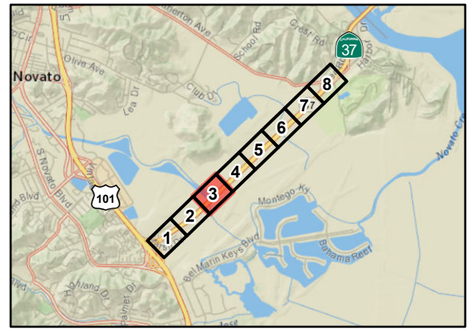
Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Caltrans

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 2 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 1)

- Permanent Impact
- Temporary Impact

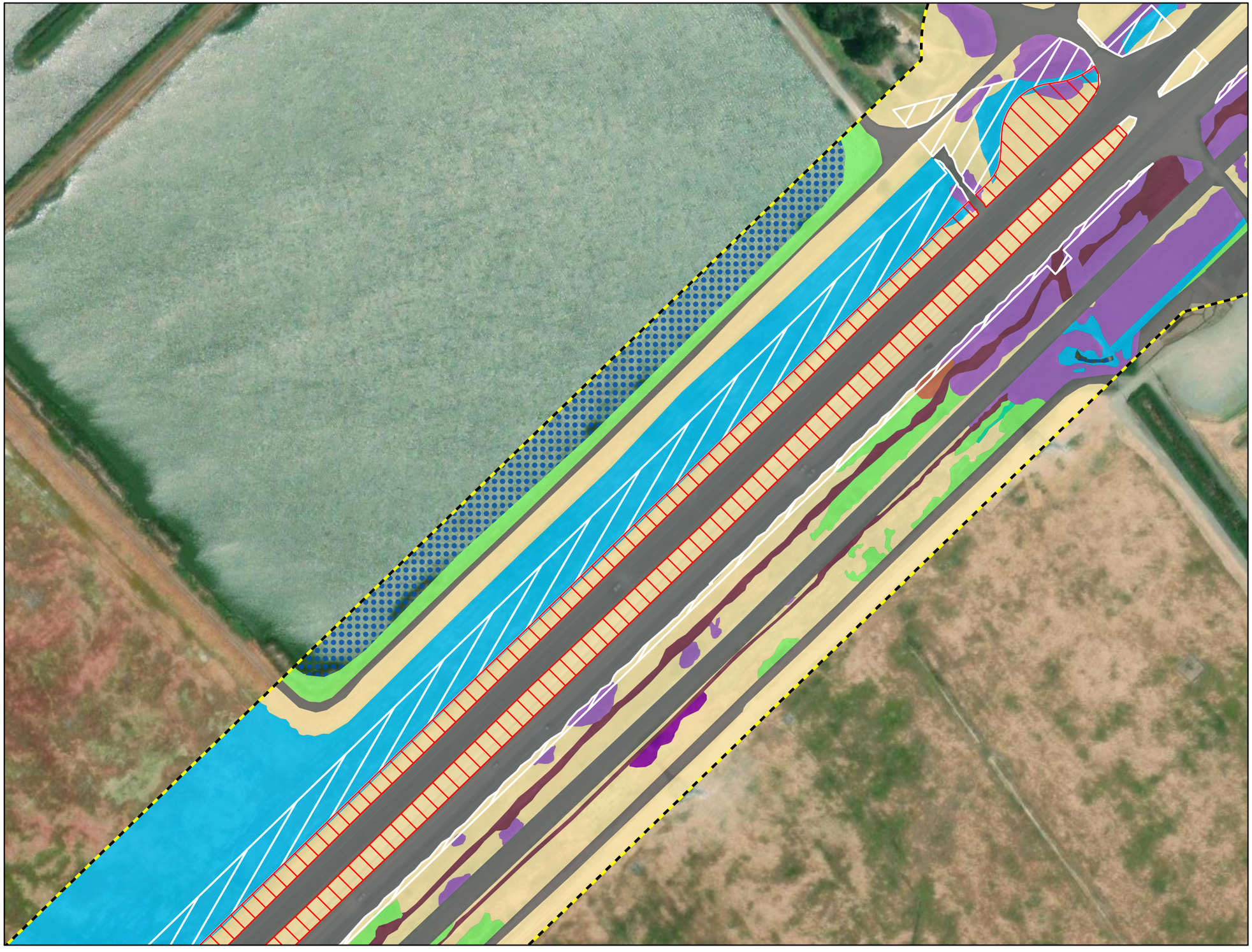
Habitats

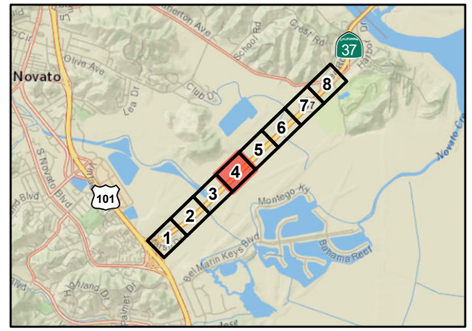
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 3 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 1)

- Permanent Impact
- Temporary Impact

Habitats

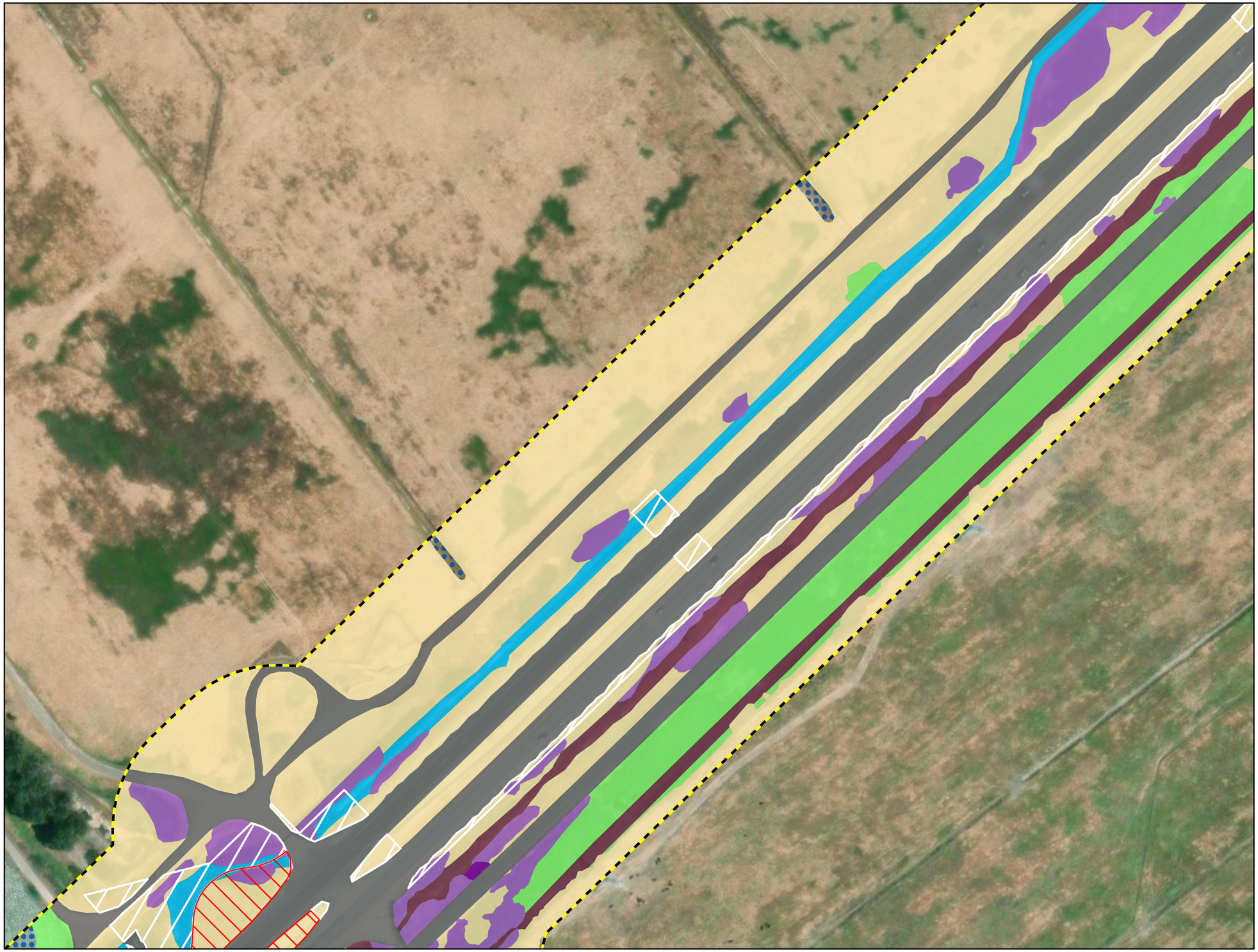
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

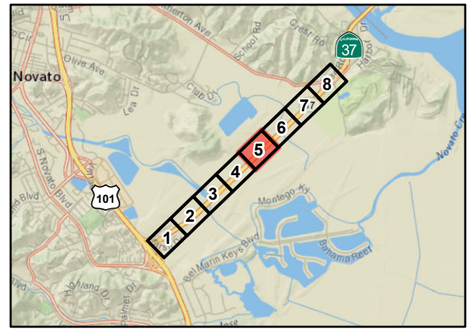
Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Caltrans

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 4 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 1)

- Permanent Impact
- Temporary Impact

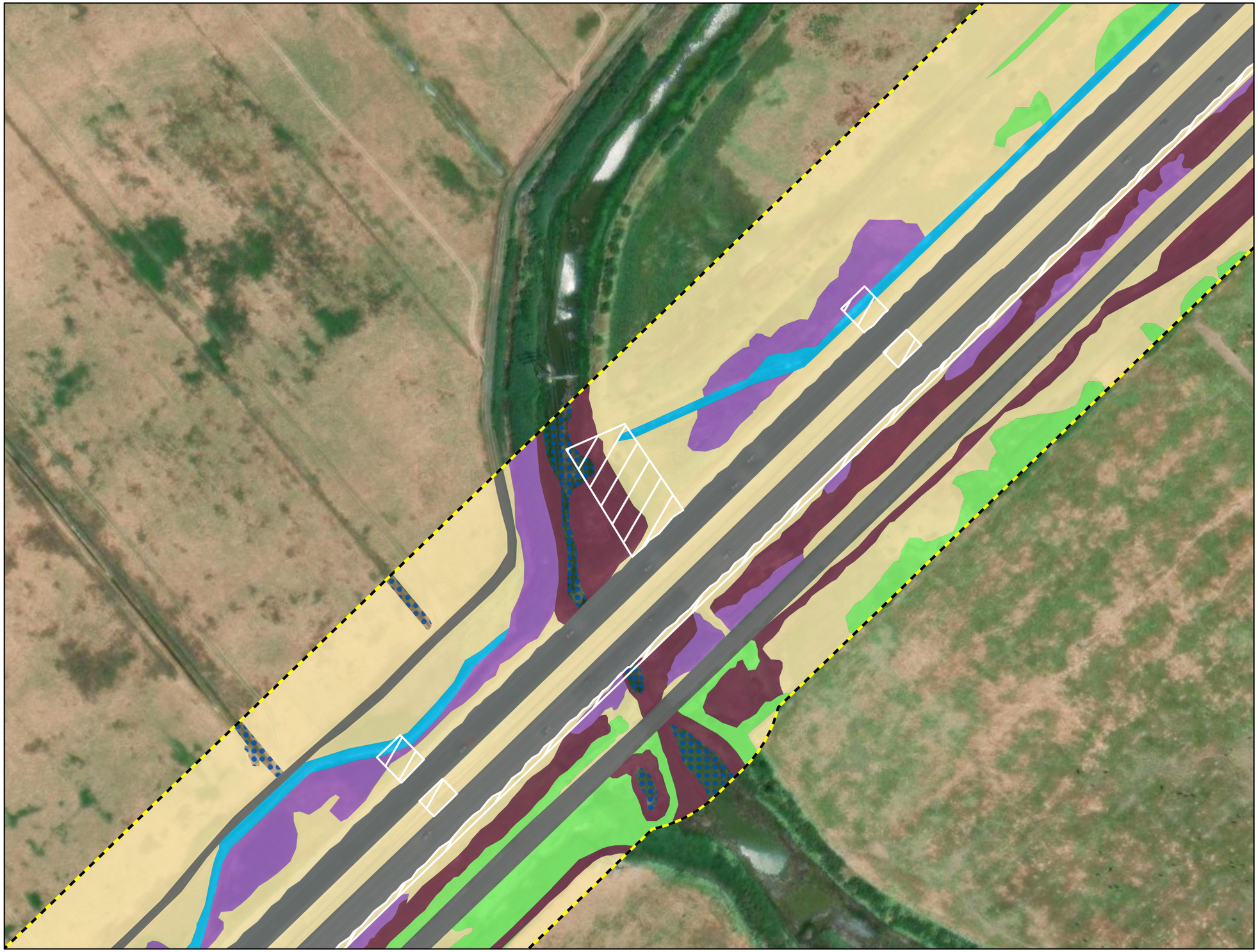
Habitats

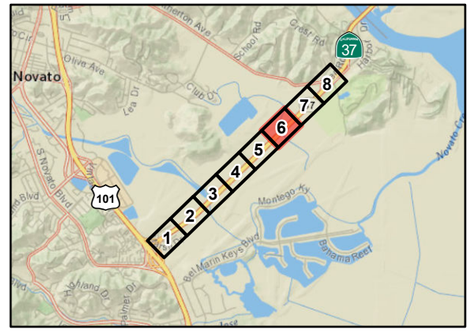
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Open Water
- Seasonal Wetland

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 5 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 1)

- Temporary Impact

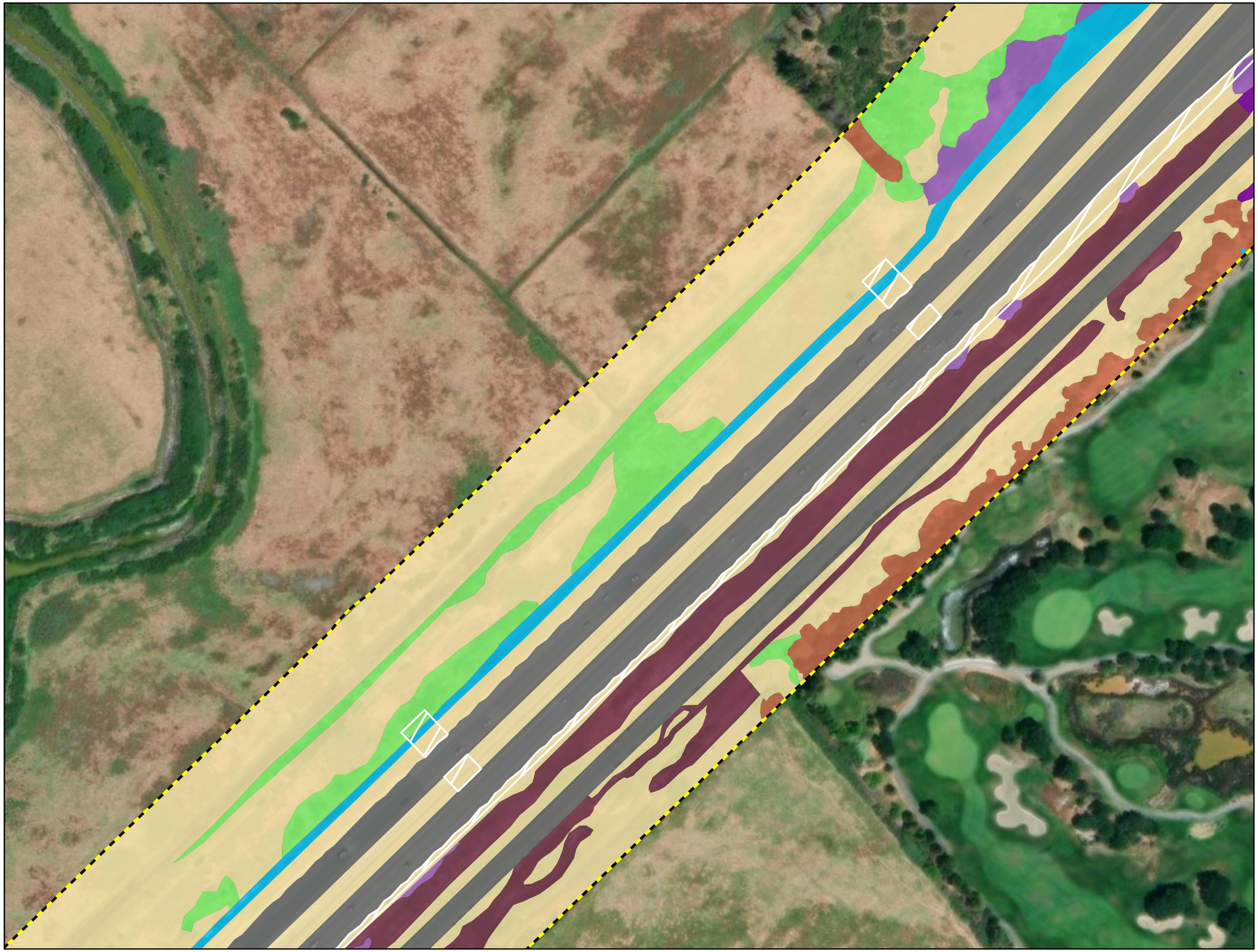
Habitats

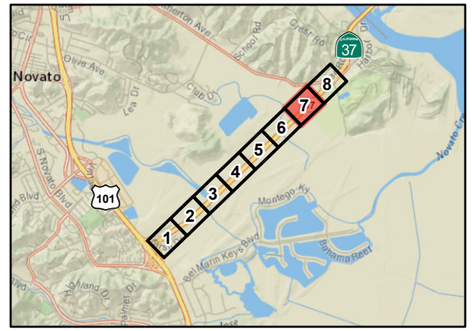
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Open Water

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 6 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 1)

- Temporary Impact

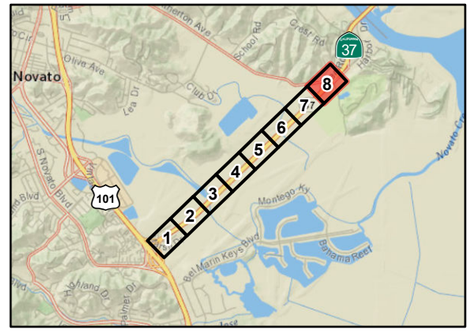
Habitats

- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Seasonal Wetland

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 7 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California



Legend

- Biological Study Area

Impacts (Phase 1)

- Temporary Impact

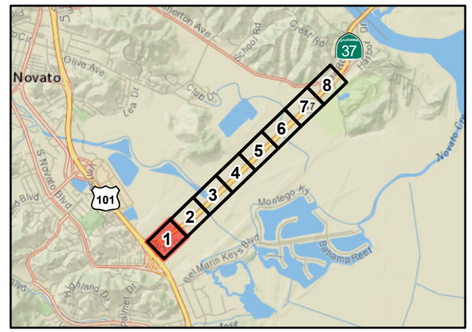
Habitats

- Diked Brackish Marsh
- Deciduous Hardwood
- Developed/Major Road
- Evergreen Hardwood
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Riparian Woodland
- Seasonal Wetland

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-3
Habitats Build Alternative Phase 1
Map 8 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California



Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

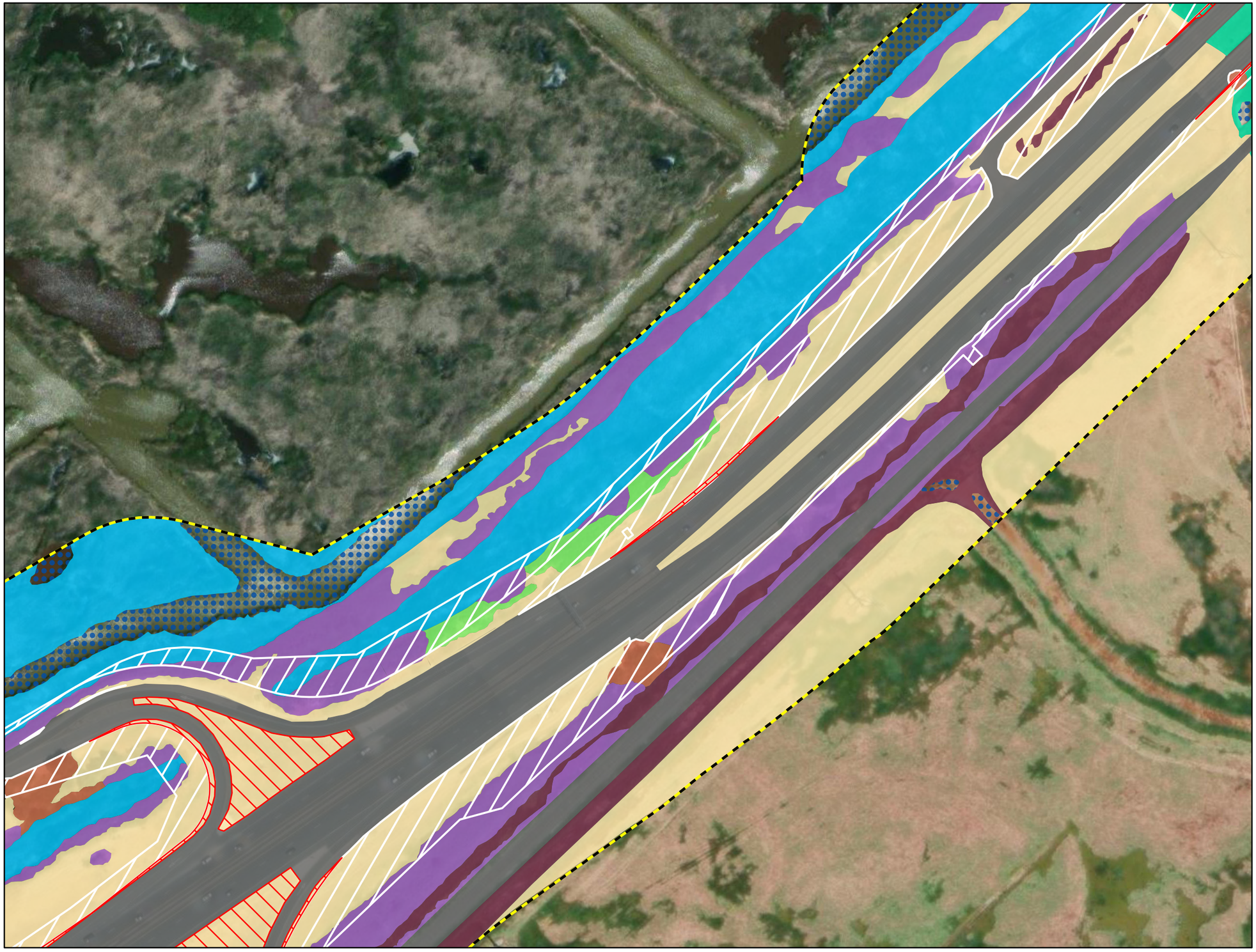
Habitats

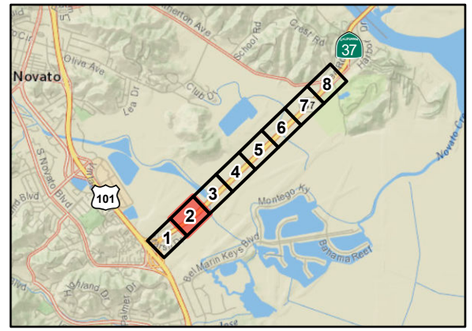
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 1 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

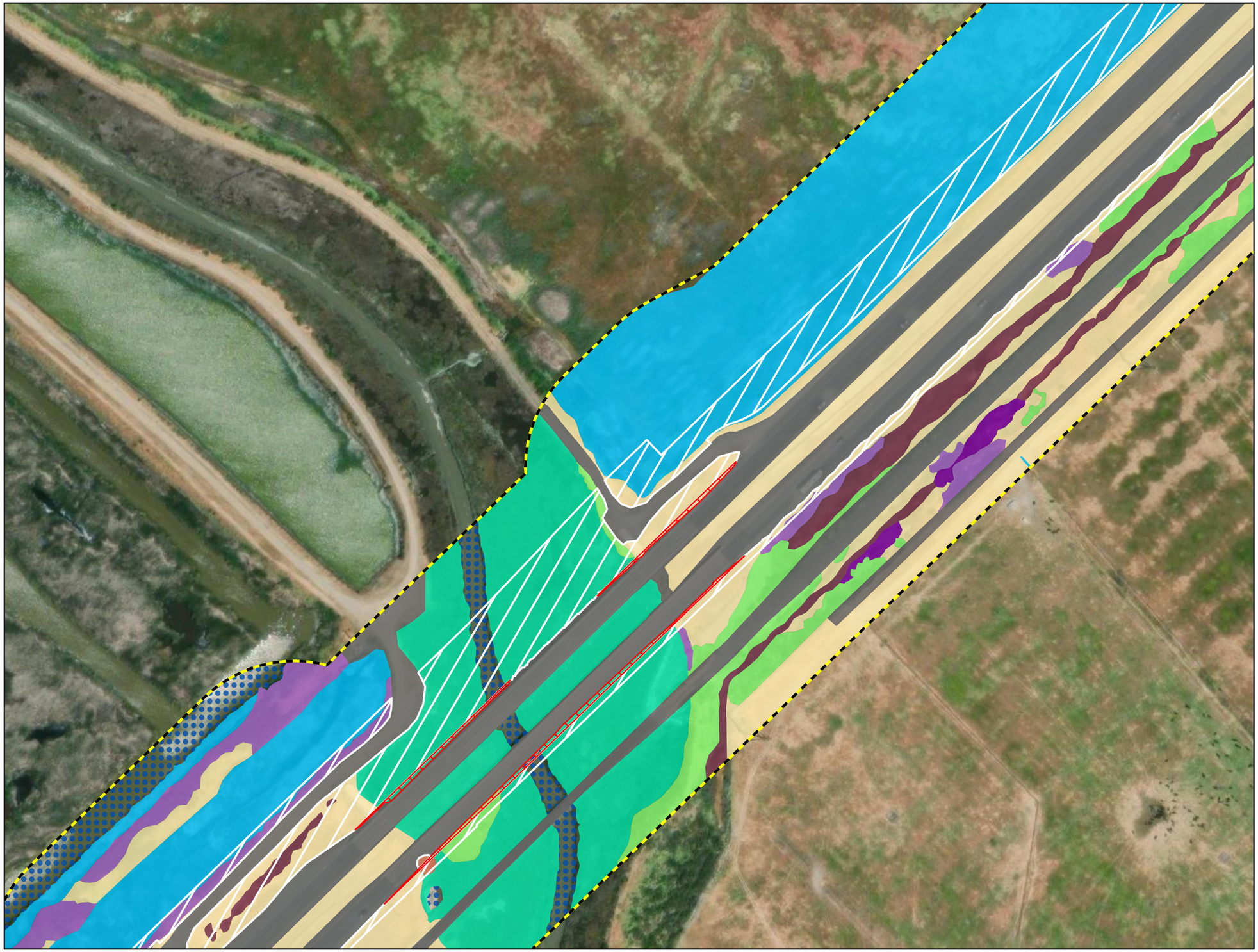
Habitats

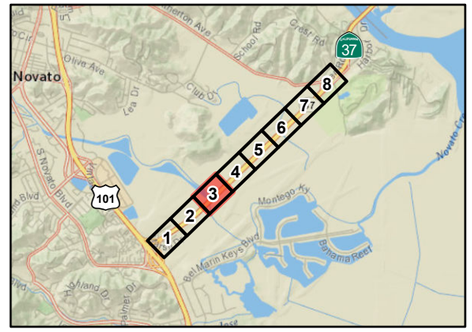
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 2 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

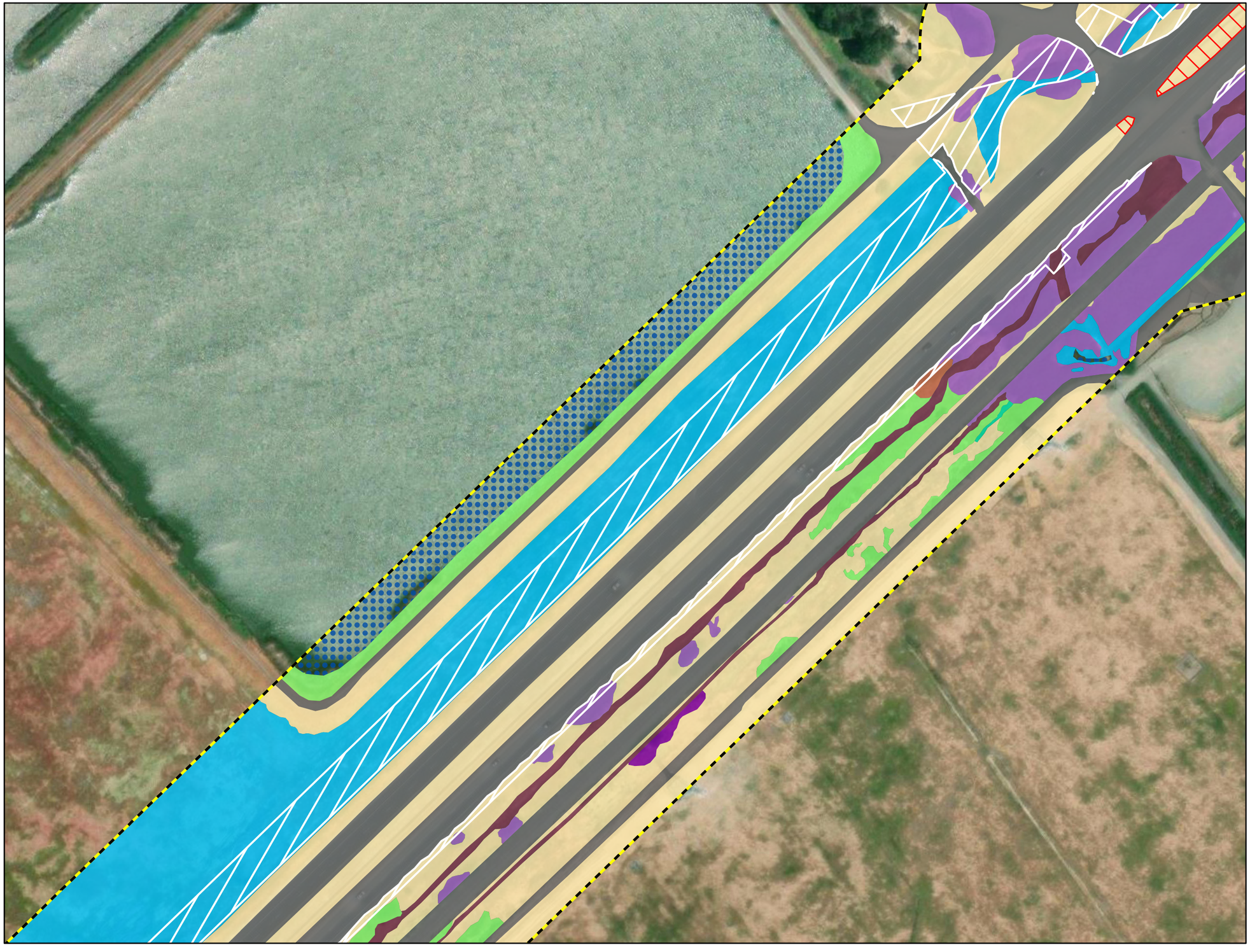
Habitats

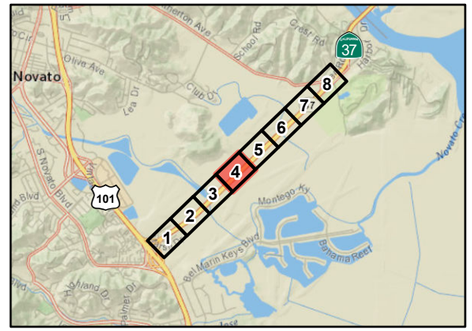
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 3 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

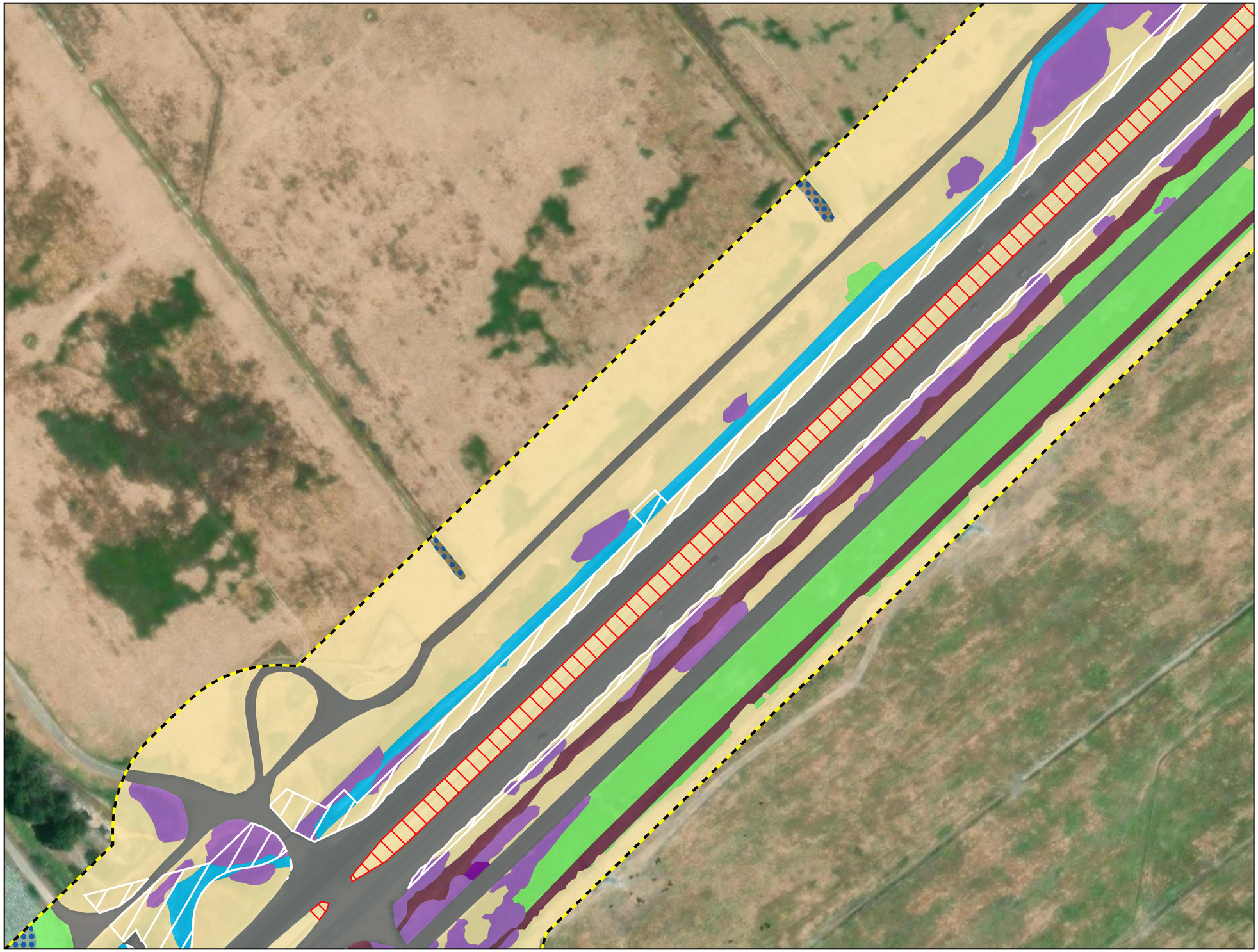
Habitats

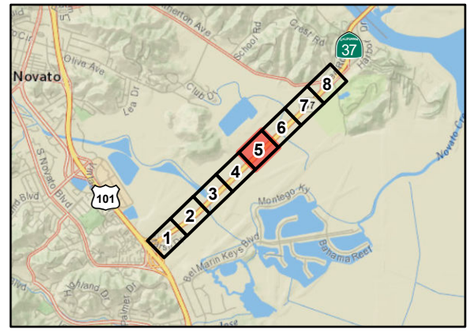
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Open Water
- Seasonal Wetland
- Tidal Salt Marsh

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 4 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

Habitats

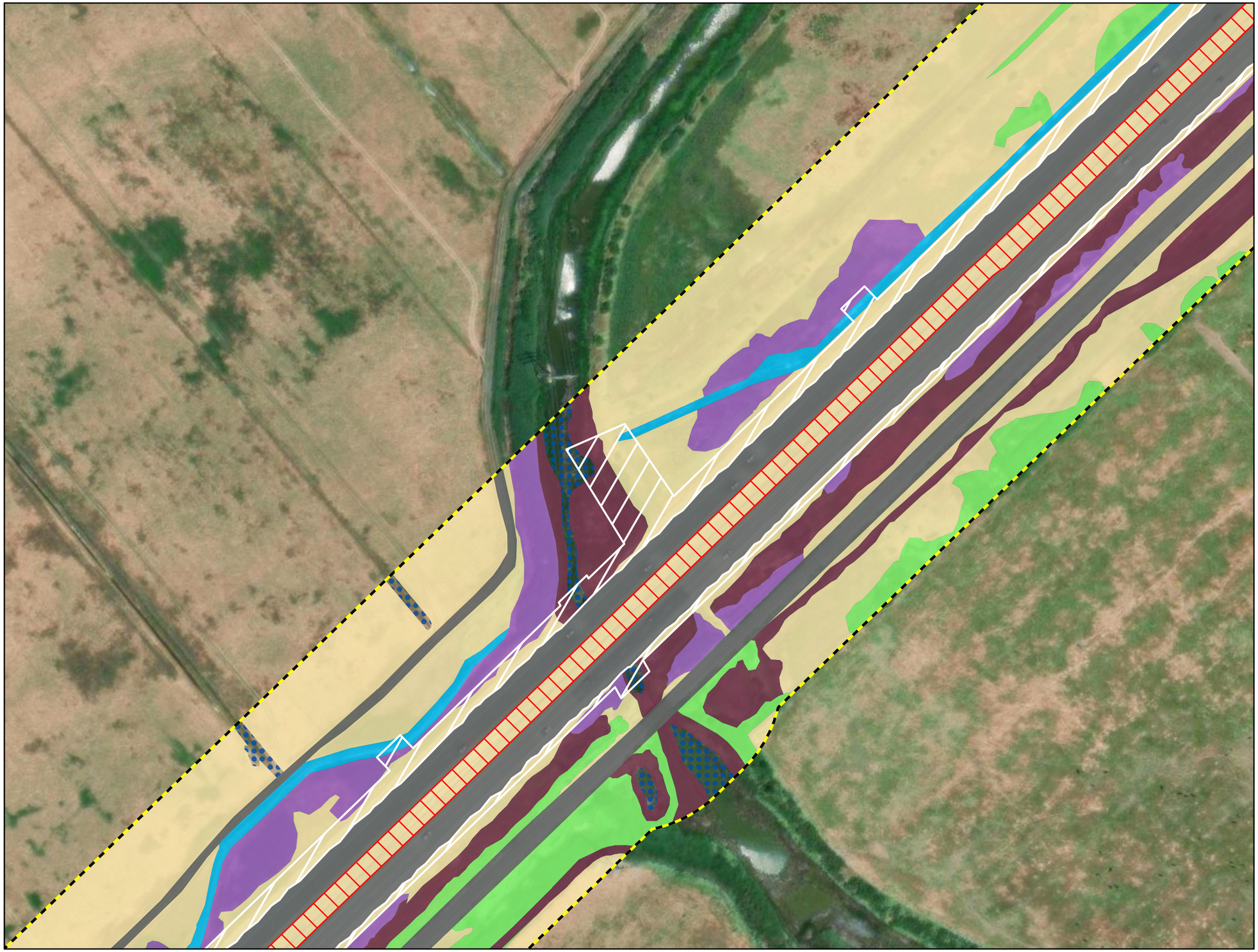
- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Open Water
- Seasonal Wetland

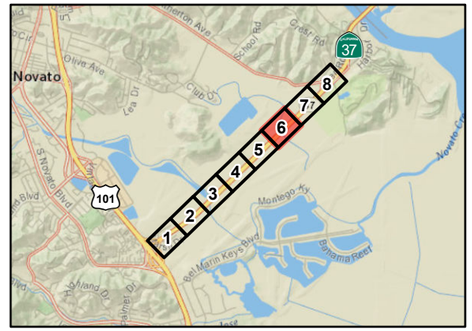
Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Caltrans

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 5 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California





Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

Habitats

- Diked Brackish Marsh
- Developed/Major Road
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Open Water

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 6 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California

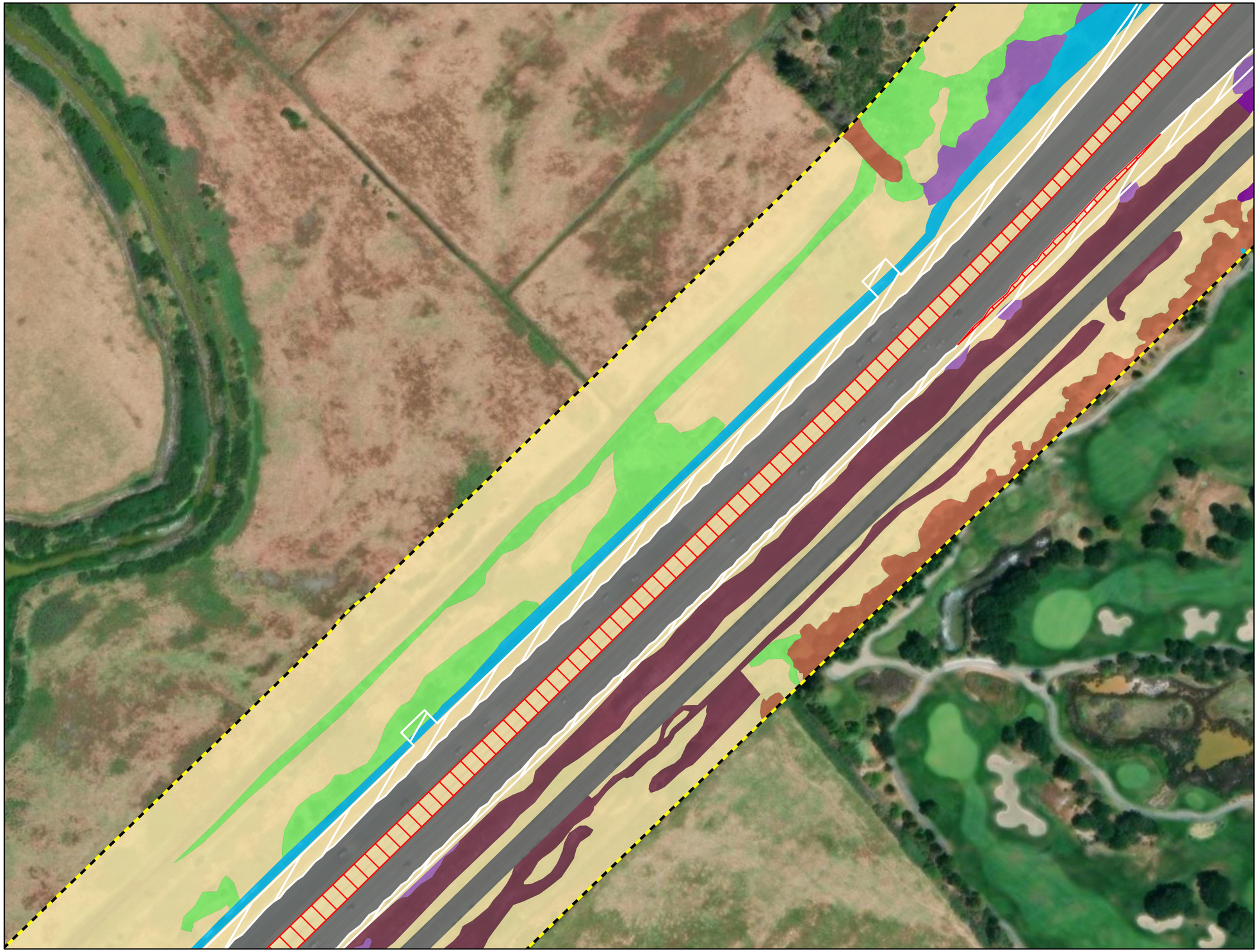
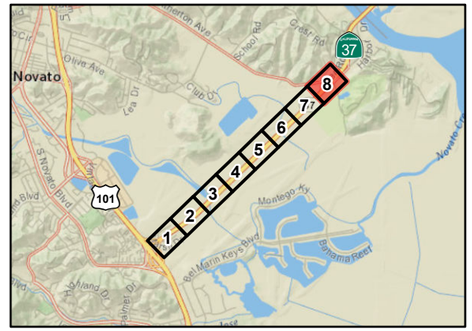


Figure 2.3-4
Habitats Build Alternative Phase 2
Map 7 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California



Legend

- Biological Study Area

Impacts (Phase 2)

- Permanent Impact
- Temporary Impact

Habitats

- Diked Brackish Marsh
- Deciduous Hardwood
- Developed/Major Road
- Evergreen Hardwood
- Freshwater Marsh
- Herbaceous
- Native Shrub
- Non-native Shrub
- Non-native Forest
- Riparian Woodland
- Seasonal Wetland

Data Source:
Caltrans 7/19/2022

0 150 300
Feet

Figure 2.3-4
Habitats Build Alternative Phase 2
Map 8 of 8
State Route 37 Flood Reduction Project
EA-04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California

Grassland bird species such as western meadowlarks (*Sturnella neglecta*) nest in herbaceous communities, and a variety of other bird species, including the western bluebird (*Sialia mexicana*), violet-green swallow (*Tachycineta thalassina*), mourning dove (*Zenaida macroura*), house finch (*Haemorhous mexicanus*), lesser goldfinch (*Spinus psaltria*), and California scrub jay (*Aphelocoma californica*), occur within the BSA. Raptors such as the red-tailed hawk (*Buteo jamaicensis*) and white-tailed kite (*Elanus leucurus*) forage for small mammals and reptiles within the BSA.

A focused assessment of bridges, culverts, and overcrossings for suitable roost sites for bats, conducted on October 20 and 29, November 7, and December 2, 2021, detected guano and urine staining beneath crevices at the Novato Creek Bridge and determined that the Novato Creek Bridge, U.S. 101/SR 37 interchange bridges, Atherton Avenue Undercrossing, and possibly the Simonds Slough Bridge could support day roosting bats. Such bats include the pallid bat (*Antrozous pallidus*), Mexican free-tailed bat (*Tadarida brasiliensis mexicana*), Yuma myotis (*Myotis yumanensis*), and Townsend's big-eared bat (*Corynorhinus townsendii*).

Aquatic habitats are present in Novato Creek and Simonds Slough, and wetlands occurring along these waterbodies and in low areas along the alignment include tidal wetlands and brackish marsh dominated by Pacific pickleweed (*Salicornia pacifica*), saltmarsh bulrush (*Bolboschoenus maritimus*), and saltgrass (*Distichlis spicata*). Freshwater marsh and seasonal wetlands also occur within the BSA.

The Novato Creek watershed is known to support 10 extant fish species, such as the California roach (*Hesperoleucus symmetricus*), Sacramento pikeminnow (*Ptychocheilus grandis*), Sacramento sucker (*Cypriniformes occidentalis*), steelhead (*Oncorhynchus mykiss*), three-spined stickleback (*Gasterosteus aculeatus*), and prickly sculpin (*Cottus asper*). Given the lack of an unimpeded hydrological connection to Novato Creek and San Pablo Bay, Simonds Slough is not tidally influenced and contains mostly fresh water. Simonds Slough supports three-spined stickleback, black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis annularis*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), California roach, and channel catfish (*Ictalurus punctatus*) (University of California Agriculture and Natural Resources 2014). None of the 18 culverts to be improved in Phase 1 nor the 2 culverts to be improved in Phase 2 are connected to Novato Creek or other streams supporting anadromous fish, and 16 of these 20 culverts are less than 24 inches in diameter.

Novato Creek, Simonds Slough, and the channels and ponds on either side of Novato Creek near the western end of the Project limits support the American coot (*Fulica americana*) and dabbling ducks such as the mallard (*Anas platyrhynchos*), gadwall (*Anas strepera*), and green-winged teal (*Anas crecca*). The marsh wren

(*Cistothorus palustris*), San Pablo song sparrow (*Melospiza melodia samuelis*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), red-winged blackbird (*Agelaius phoeniceus*), and San Francisco common yellowthroat (*Geothlypis trichas sinuosa*) breed in tidal wetlands and brackish marsh within the BSA; and the California Ridgway's rail and California black rail forage, and could possibly breed, here as well.

Habitat Connectivity

Within the Project area, Novato Creek provides a pathway for aquatic species such as fish; and numerous other species, including mammals and reptiles, move along the edges of Novato Creek as well.

The Project is within an area characterized by agricultural lands, open space areas dominated by grassland and marshland, and relatively low-density residential land uses. U.S. 101 to the west and the Petaluma River to the east provide major impediments to large-scale, regional wildlife movement in an east-west direction, parallel to the Project section of SR 37. However, the Project is within an area dominated largely by undeveloped or sparsely developed land east of U.S. 101 that extends from Petaluma south to San Rafael. This area includes extensive natural, undeveloped habitats at China Camp State Park, Hamilton Wetlands, well-forested Black Point-Green Point low-density residential area, Rush Creek Preserve, Deer Island Preserve, and extensive wetland complexes along the Petaluma River and the shore of San Francisco Bay.

Several animal species move within this area east of U.S. 101, both within their home ranges and via longer-range dispersal events. Large mammals such as bobcat (*Lynx rufus*), black-tailed deer, and coyote may make long-distance movements, whereas small mammals, reptiles, and amphibians have more limited dispersal capabilities. Unimpeded wildlife movement across the landscape is important for maintaining good gene flow among populations of animals and overall ecological resiliency.

There is no evidence that large-scale, regionally important movement by large numbers of terrestrial animals occurs across the Project segment of SR 37. CDFW's Areas of Conservation Emphasis online tool (CDFW 2023b) maps the western portion of the Project area, from U.S. 101 to an area east of Novato Creek, as having "limited connectivity opportunity" and the eastern portion of the Project area as supporting "connections with implementation flexibility," suggesting a low to moderate connectivity value for the Project area as a whole. No high-priority connectivity corridors are mapped by CDFW (2023b), and no critical habitat linkages are mapped in the Project area by the Conservation Lands Network (2023). The

California Roadkill Observation System (2023), which archives roadkill data submitted by volunteers, notes only two records of roadkilled animals, both river otters (*Lontra canadensis*), in the Project area. There is no evidence of regular black-tailed deer migration across the Project site.

Several roads and some developed areas impede the north-south movement through this area. SR 37, for example, impedes animal movement across the Project limits due to traffic disturbance, traffic-related mortality, and lack of vegetative cover on the road surface, which likely deters some animals from attempting crossings over the road's surface. However, many animals likely can disperse over the road, because the three-beam median structure along most of the BSA allows large animals to jump over and small animals to crawl under the structure. In addition, animals can cross under SR 37 beneath the elevated on and off-ramps at U.S. 101, the Atherton Avenue Undercrossing, through the Simonds Slough Bridge, and beneath the Novato Creek Bridge.

Essential Fish Habitat

The Project is located within the Novato USGS 7.5-minute topographic quadrangle, which has designated EFH for Chinook (*Oncorhynchus tshawytscha*) and coho (*Oncorhynchus kisutch*) salmon, groundfish, and coastal pelagic species (NMFS 2023). EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (NMFS 2007). Chinook salmon, coho salmon, groundfish, and coastal pelagic species have potentially suitable habitat within the BSA.

While the Central California Coast coho salmon Evolutionarily Significant Unit (ESU) is considered to be extirpated from the San Francisco and San Pablo Bays and would not be adversely impacted by the proposed Project, EFH for this species includes all currently or historically occupied waters, including San Francisco and San Pablo Bays. The Project impacts on Chinook and coho salmon, groundfish, and coastal pelagic species covered under provisions of the Magnuson-Steven Fishery Conservation and Management Act (Public Law 94-265) were fully evaluated and are presented in Section 2.3.1.2.

Freshwater EFH for Chinook and coho salmon consists of four major components:

(1) spawning and incubation,
(2) juvenile rearing,
(3) juvenile migration corridors, and
(4) adult migration corridors and holding habitat.

Simonds Slough is inaccessible to anadromous fish due to a complete downstream barrier; thus, although EFH is present, fish cannot access the slough channel.

Within the Project limits, juvenile rearing, juvenile migration corridors, and adult migration corridors and holding habitat are present within Novato Creek and Simonds Slough. Juvenile rearing habitat is of low quality because of the lack of adequate overhanging vegetation necessary to maintain water temperatures suitable for rearing. Suitable spawning and incubation habitat is not present within the Project area at Novato Creek and Simonds Slough. Migration corridors for juvenile and adults are present within Novato Creek and Simonds Slough; however, as mentioned previously, Simonds Slough is presently inaccessible to anadromous fish.

There is no saltwater intrusion or designation of Novato Creek and Simonds Slough within the Project area as a Habitat of Particular Concern. Therefore, groundfish EFH is not present in the Project area.

The definition of EFH for coastal pelagic species finfish is based on a thermal range bordered by the geographic area where coastal pelagic species occur at any life stage, where coastal pelagic species have occurred historically during periods of similar environmental conditions, or where environmental conditions do not preclude colonization by them.

Coastal pelagic species EFH includes four finfish (Pacific sardine [*Sardinops sagax*], Pacific [chub] mackerel [*Scomber japonicus*], northern anchovy [*Engraulis mordax*], and jack mackerel [*Trachurus symmetricus*]), the invertebrate, market squid (*Doryteuthis opalescens*), and all euphausiid (krill) species that occur within the West Coast exclusive economic zone. Some of these species occur in San Pablo Bay.

Novato Creek, south of SR 37 within the BSA, contains EFH for coastal pelagic species since it contains estuarine waters, temperatures that range between 10 degrees Celsius (°C) and 26°C, and is within the geographic boundary of EFH. Simonds Slough also contains EFH for coastal pelagic species; however, Simonds Slough is inaccessible to anadromous fish because of a complete downstream barrier; thus, although EFH is present, fish cannot access the slough channel.

Tree Cover

Tree surveys were completed on August 22, 2022. The location of each tree with a diameter at breast height of 4 inches or greater was collected with a global positioning system unit and recorded in Geographic Information System. All tree stems with a diameter at breast height of 4 inches or greater were measured and recorded, including the stems of multi-stemmed trees, and the species of the tree was recorded.

A total of 57 trees were identified within the BSA and consisted almost exclusively of non-native trees aside from one arroyo willow (*Salix lasiolepis*). The SR 37 corridor is predominately lined with she-oak (*Casuarina equisetifolia*), acacia (*Acacia dealbata*), European olive (*Olea europaea*), and one arroyo willow. Eucalyptus (*Eucalyptus globulus*) stands are present north of SR 37 between the state route and Hanna Ranch Road.

A total of 57 trees were mapped within the BSA. The type and quantity of each tree within the BSA included the following:

- Acacia: 8 trees
- She-oak: 35 trees
- Eucalyptus: 11 trees
- European olive: 2 trees
- Arroyo willow*:* 1 tree

The locations of the trees within the BSA, with overlaid permanent and temporary impacts of both phases, can be found in the tree survey mapbook (Figure 2.3-5).

2.3.1.2 ENVIRONMENTAL CONSEQUENCES

Build Alternative

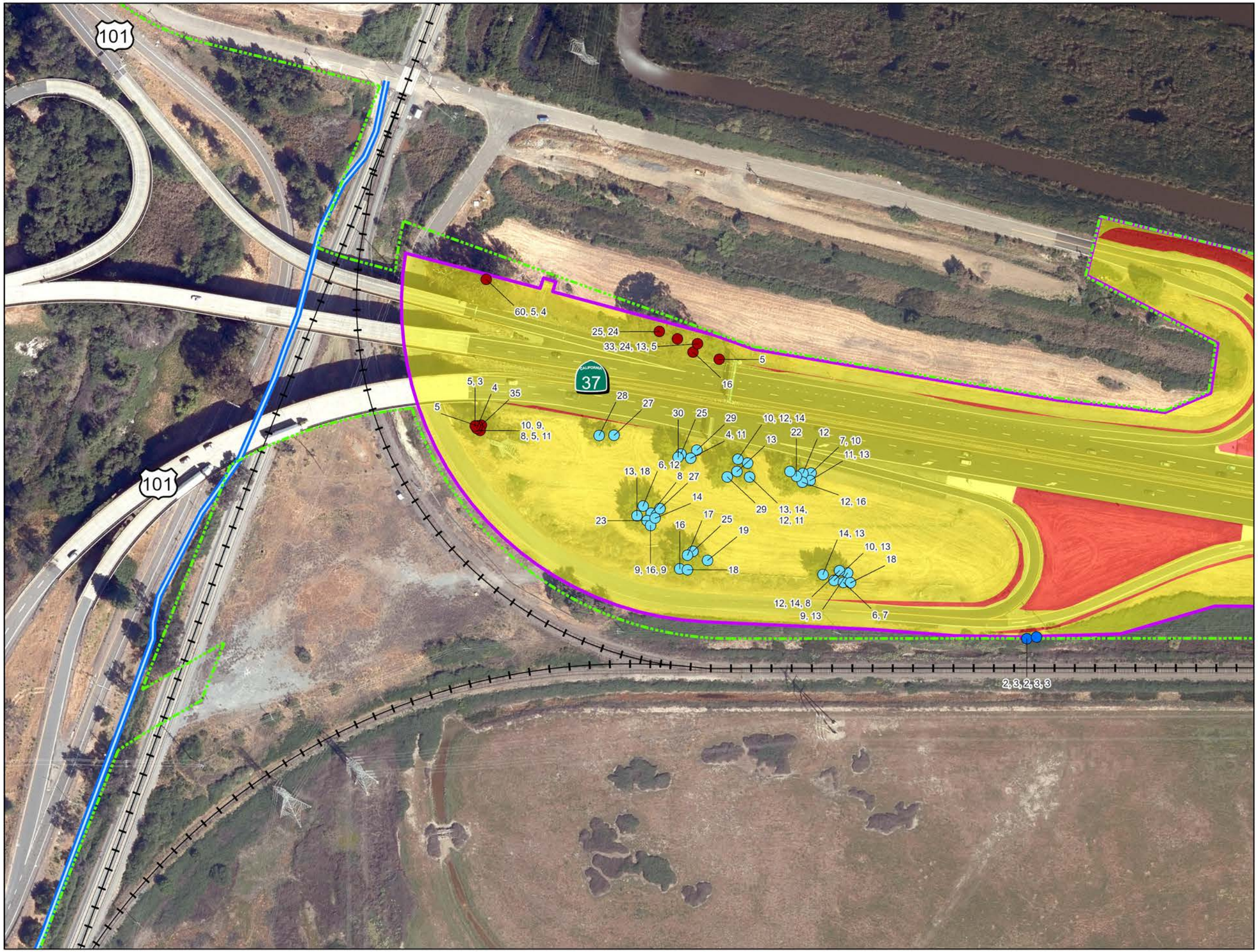
Phase 1 Construction

Under Phase 1 of the Build Alternative, direct temporary and permanent impacts would occur where vegetation clearing would be required as part of construction for staging areas, construction access roads, temporary bridge access areas, temporary construction easement areas, and construction of the new Novato Creek Bridge. Vegetation removal, including clearing and grubbing, would be completed with hand tools where possible and with chainsaws, grinders, and excavators for vegetation that cannot be removed by hand. Habitat that can be avoided during construction would be flagged and delineated with high-visibility fencing to delineate ESAs as appropriate.

Impacts to habitats are presented in Table 2.3-2 and Figure 2.3-3 and Figure 2.3-4. Permanent impacts are those that would result in the conversion of natural habitat types to developed habitats; whereas temporary impacts would occur in areas where natural habitat types would be restored following completion of construction, or where currently developed habitats would remain as developed land uses following construction. Because Phase 2 construction would start after Phase 1 is completed, some areas may be restored to natural habitats after Phase 1 (and are therefore considered temporarily impacted) but then permanently impacted during Phase 2.

The proposed Project would not permanently or substantially adversely affect EFH for Chinook and coho salmon, groundfish, or coastal pelagic species during Phase 1 for the following reasons: replacement of the Novato Creek Bridge would not permanently or adversely affect the quality of habitat within Novato Creek; construction activities would not negatively affect migratory corridors or migration of salmonids; and the water quality, water temperature, forage base, and depth of Novato Creek would not adversely change in the long run. Construction of the new Novato Creek Bridge would occur from a temporary construction trestle that would be removed once construction is completed. The new Novato Creek Bridge would free-span the Novato Creek channel and, therefore, positively affect migratory corridors.

Phase 1 would have no permanent impacts on trees. During construction, up to 55 trees would be pruned or trimmed. Temporary impacts to trees would be minimized with the installation of ESAs. During Phase 1 construction, the noise and activity of construction personnel and equipment would reduce wildlife movement across SR 37 within the Project area, and beneath SR 37 at the Novato Creek Bridge. However, such effects would occur only during construction; and following the completion of Phase 1, the longer span of the Novato Creek Bridge would facilitate improved wildlife movement under the bridge, relative to existing conditions. Raising and lengthening the Novato Creek Bridge would reduce sound impacts on wildlife in adjacent habitats, and raising the bridge would increase the amount of light reaching wetlands beneath the bridge, improving habitat that would further enhance connectivity. Therefore, impacts of Phase 1 construction on natural communities would be less than significant. Aside from wetlands and other waters, discussed in Section 2.3.2, no other natural communities of conservation concern, as defined by CDFW, would be impacted by Phase 1 construction.



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Trees in BSA

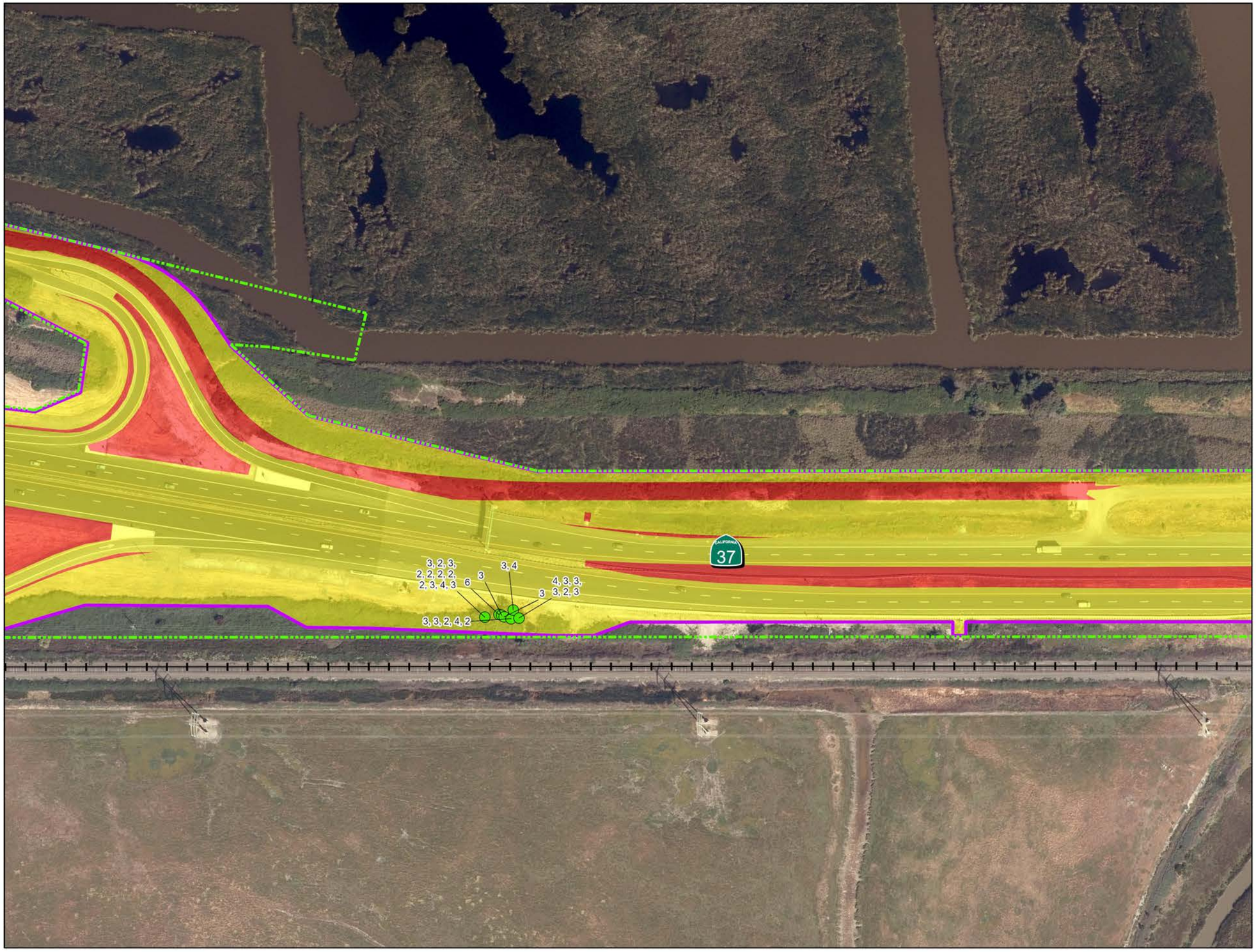
- She-oak *(Casuarina equisetifolia)* (35)
- Eucalyptus *(Eucalyptus globulus)* (11)
- European olive *(Olea europaea)* (2)

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 1 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Trees in BSA

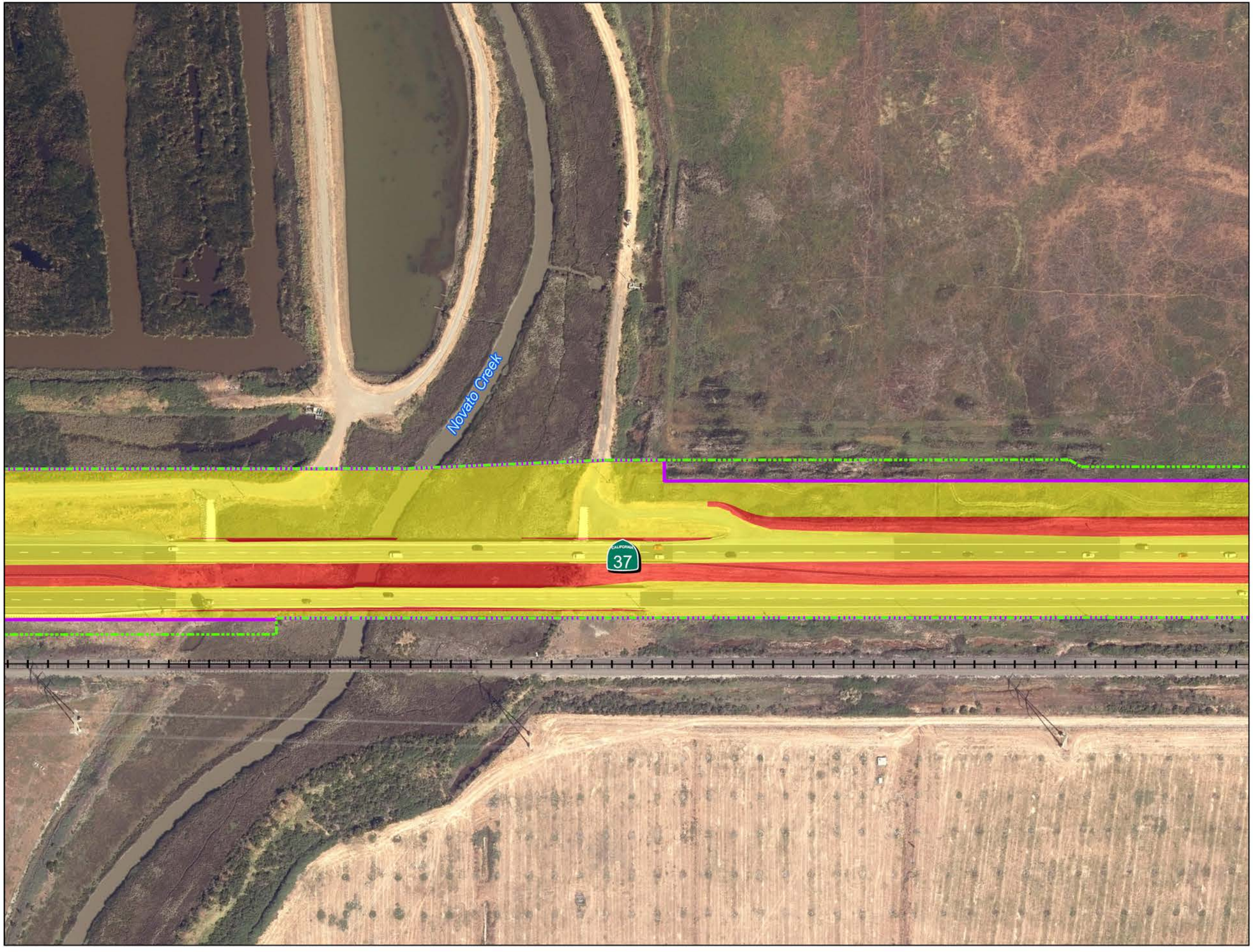
- Acacia *(Acacia dealbata)* (7)

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 2 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

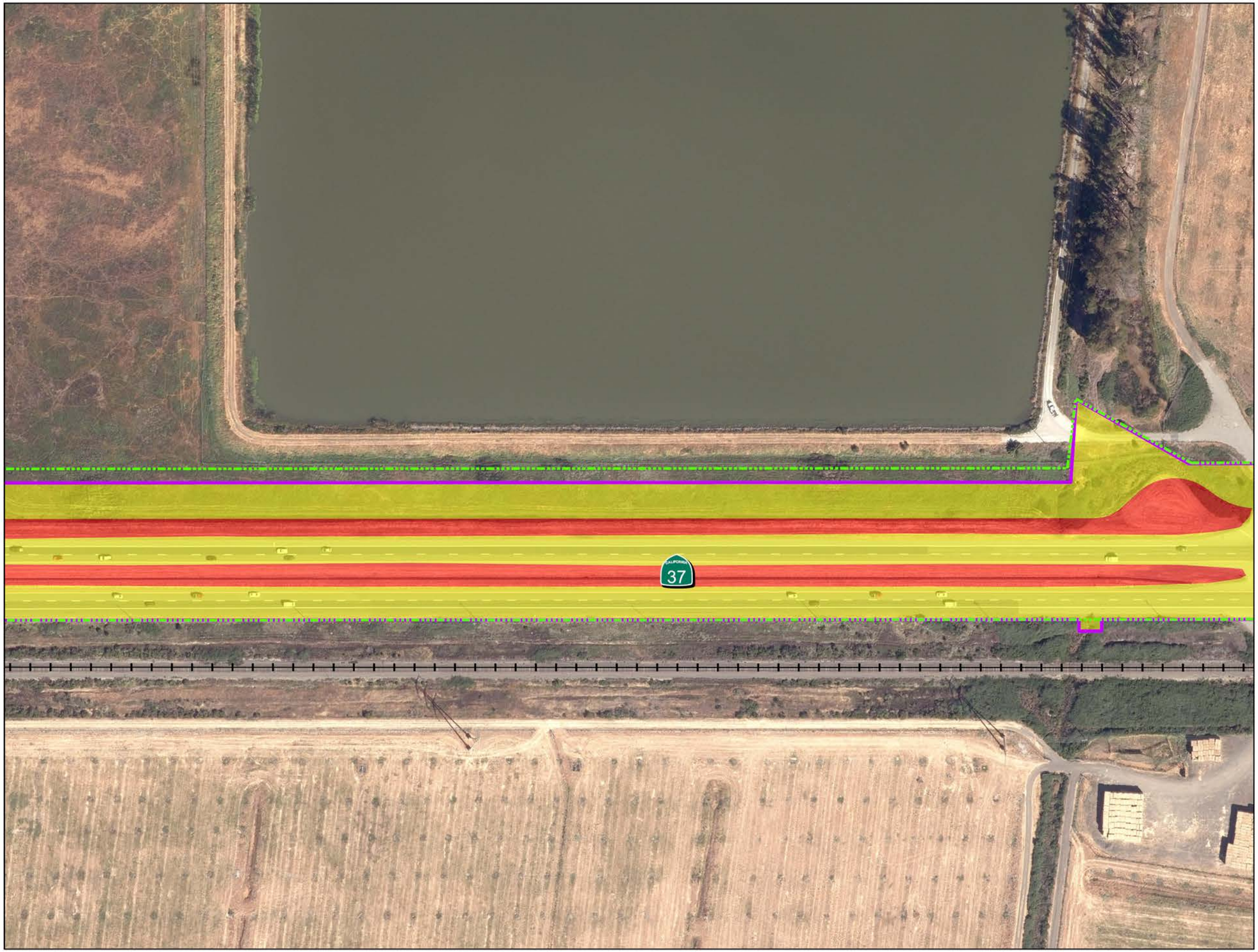
- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 3 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

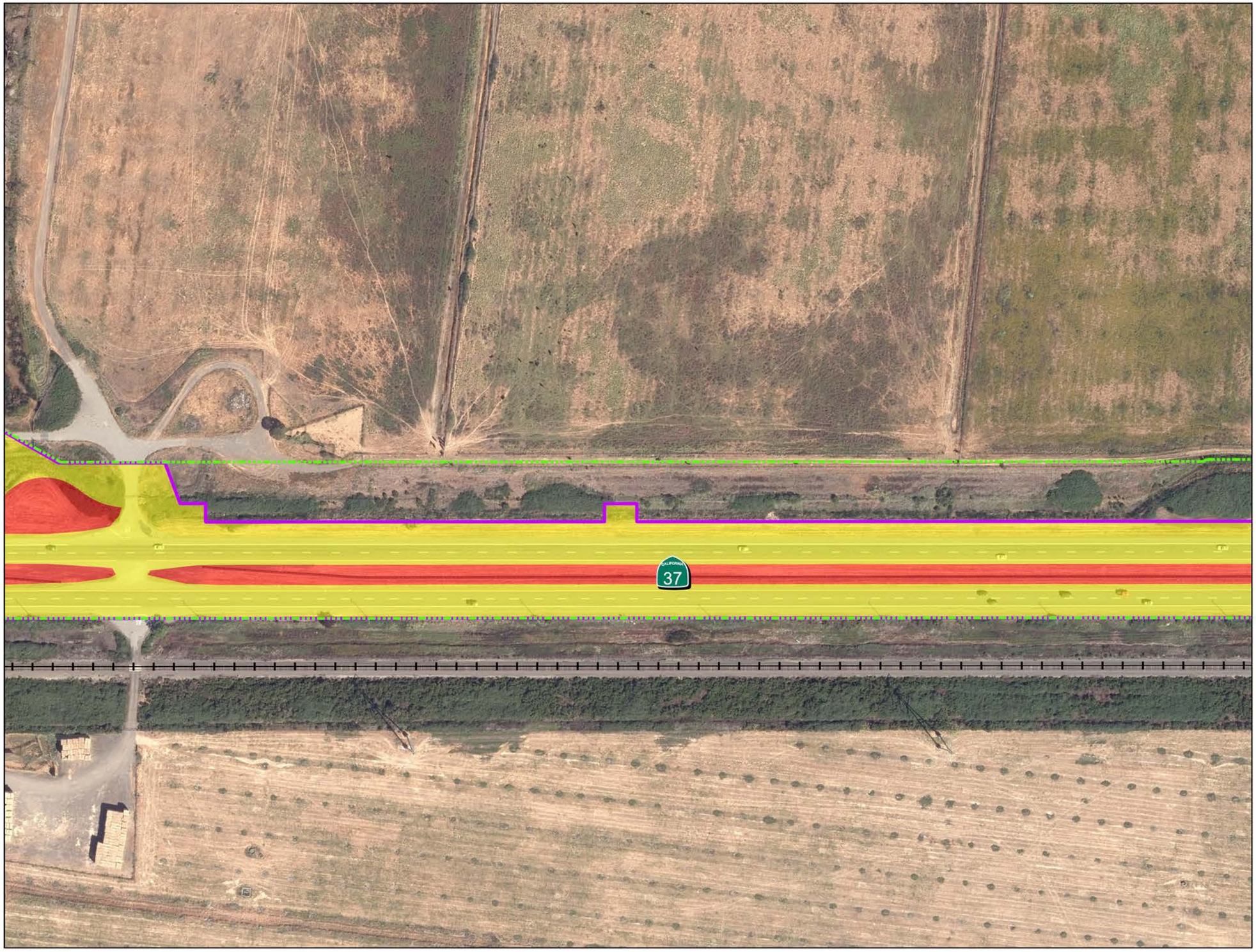
- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 4 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

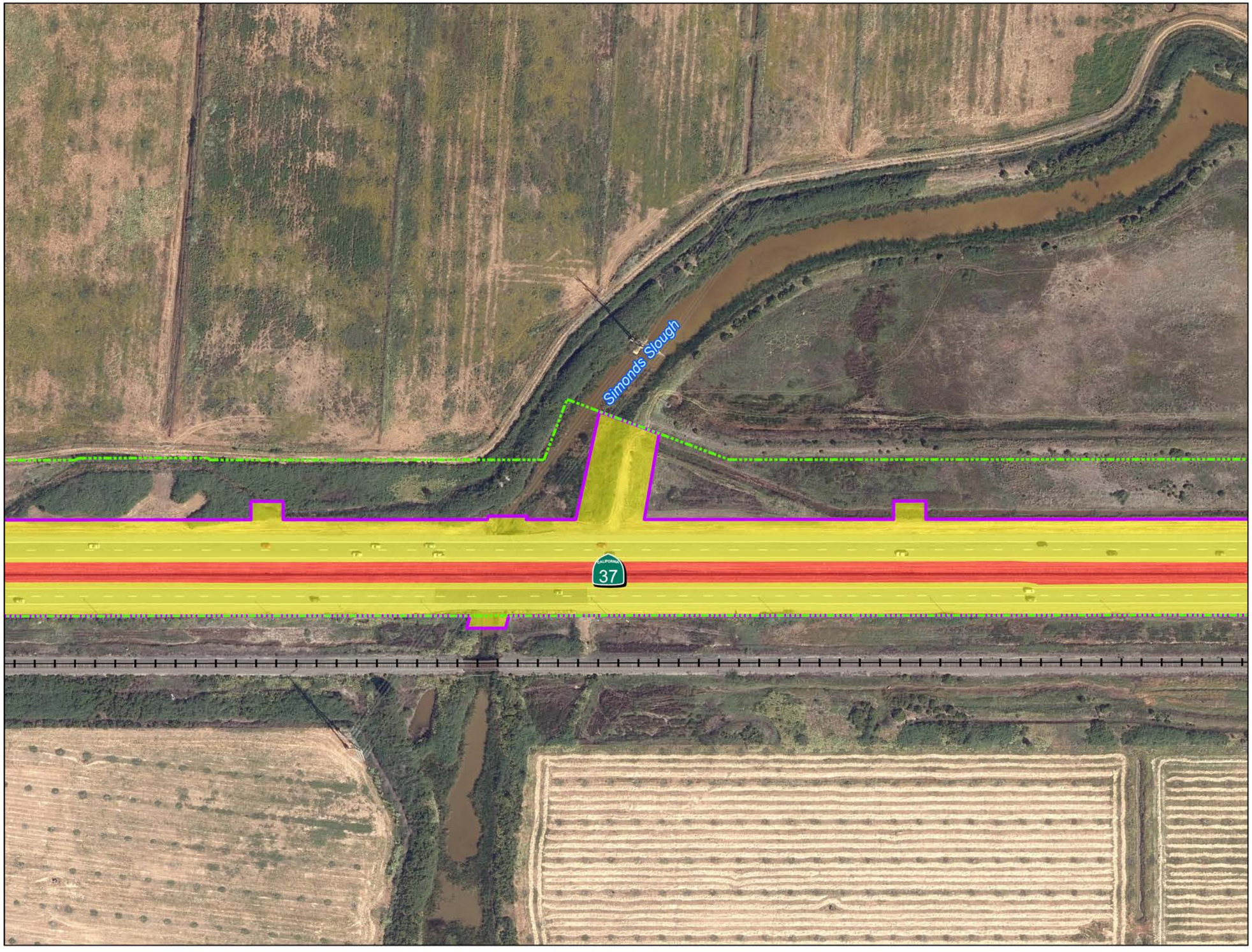
- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 5 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 6 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

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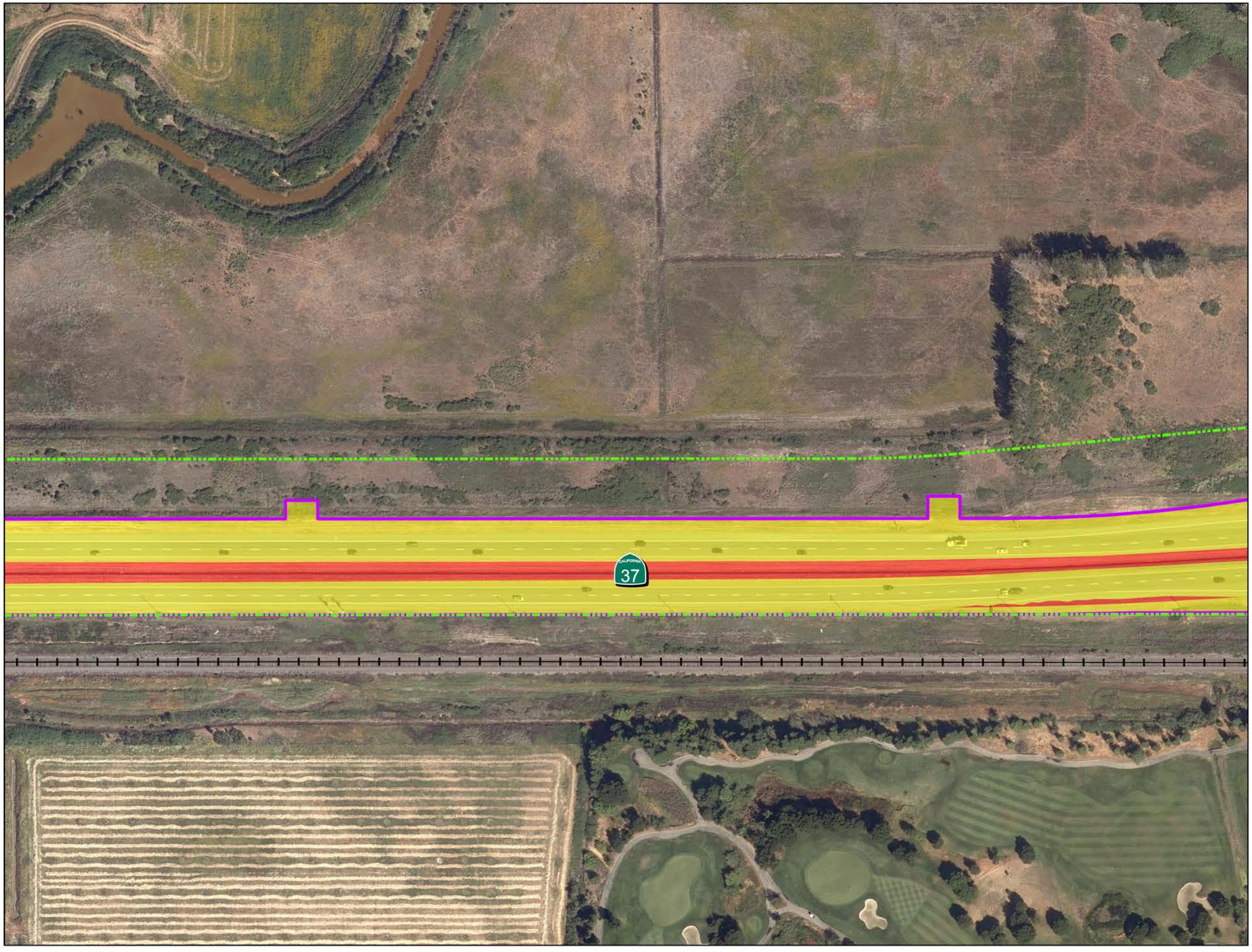


Legend

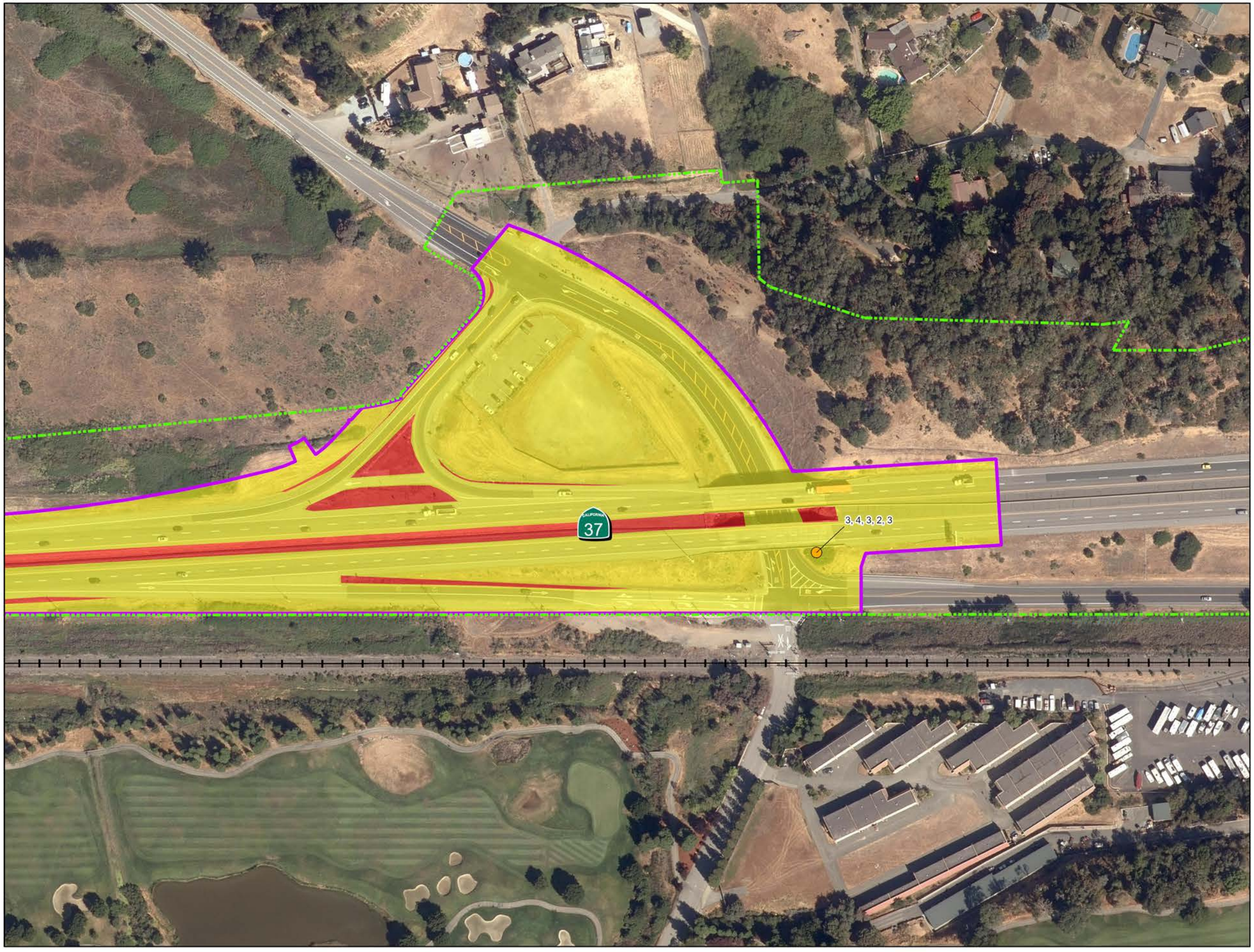
- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 7 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California



Legend

- Project Area
- Caltrans Right of Way
- SMART Rail
- Bay Trail
- Permanent Impacts
- Temporary Impacts

Trees in BSA

- Arroyo willow *(Salix lasiolepis)* (1)

Note:
Numbers in map correspond to tree DBH

Data Source:
Caltrans
4Q320_ALT_01_PH1/2_ea00_2023APR.dgn
Marin County GIS

0 50 100 150 200
Feet

Figure 2.3-5
Potential Tree Impacts
Phase 1 and Phase 2
Map 8 of 8
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

The following Project features, as provided in Appendix D, would further reduce impacts to natural communities:

- PF-BIO-1: Documentation at Project Site
- PF-BIO-2: Work According to Documents
- PF-BIO-3: Worker Environmental Awareness Training
- PF-BIO-4: Mark Environmentally Sensitive Areas
- PF-BIO-5: Wildlife Exclusion Fencing
- PF-BIO-6: Nesting Bird Surveys and Buffers
- PF-BIO-7: Construction Site Management Practices
- PF-BIO-8: Erosion Control Matting
- PF-BIO-9: Restore Disturbed Areas
- PF-BIO-10: Vegetation and Tree Removal
- PF-BIO-11: Landscaping and Revegetation Plan
- PF-BIO-12: Prevent Inadvertent Entrapment of Animals
- PF-BIO-13: Night Lighting
- PF-BIO-14: Agency-approved Biologist
- PF-BIO-15: Construction Noise
- PF-BIO-16: Stop-work Authority
- PF-BIO-18: Wildlife Species Relocation
- PF-BIO-19: In-channel Work Period
- PF-BIO-20: Work Period in Dry Weather Only
- PF-BIO-21: Wetland Protection
- PF-BIO-22: Invasive Weed Control
- PF-BIO-23: Vibratory Pile Driving
- PF-BIO-24: Invasive Aquatic Species Control
- PF-WQ-1: Stormwater Pollution Prevention Plan
- PFWQ-2: Implementation of Construction Site Best Management Practices

Phase 2 Construction

Under Phase 2 of the Build Alternative, direct temporary and permanent impacts would occur in the same manner as described for Phase 1 Construction. Areas that were considered permanently impacted by Phase 1 would become part of the developed/major road habitat, so that under Phase 2 those areas would not support natural/vegetated habitats. Also, because Phase 2 construction would start after Phase 1 is completed, habitat conditions within Phase 2 work areas may change somewhat, relative to current conditions. Habitat areas that can be avoided during construction would be flagged and delineated with ESA fencing as appropriate. Permanent and temporary impacts to habitats are presented in Table 2.3-2.

The proposed Project would not permanently or substantially adversely affect EFH for Chinook and coho salmon, groundfish, and coastal pelagics during Phase 2 for the following reasons: removal of the Simonds Slough Bridge would not permanently adversely affect the quality of habitat within Simonds Slough; construction activities would not negatively affect migratory corridors or migration of salmonids; and the water quality, water temperature, forage base, and depth of Simonds Slough would not adversely change in the long run.

Phase 2 would have no permanent impacts on trees, based on current conditions; however, Caltrans would re-evaluate biological conditions, including tree locations and impacts, during the design phase of Phase 2. During Phase 2 construction, the noise and activity of construction personnel and equipment would reduce wildlife movement across SR 37 within the Project area, and beneath SR 37 at the Novato Creek Bridge and through the Simonds Slough Bridge. However, such effects would occur only during construction. With implementation of the Project features listed previously and summarized in Appendix D, impacts of Phase 2 construction on natural communities would be less than significant. Aside from wetlands and other waters, discussed in Section 2.3.2, no other natural communities of conservation concern, as defined by CDFW, would be impacted by Phase 2 construction.

Operation

There would be no direct impacts on vegetation or natural communities from operation of the Build Alternative.

The replacement of the Simonds Slough Bridge (double-box culvert) would result in an unrestricted and open channel and, therefore, enhance EFH and result in positive impact on the migratory corridor. Following the completion of Phase 2, the causeway would make wildlife movement across this segment of SR 37 easier. Therefore, the Project would have a net benefit on wildlife movement across this segment of SR 37.

No-Build Alternative

Construction and Operation

The No-Build Alternative would have no effect on vegetation or natural communities within the BSA because the Novato Creek Bridge would not be replaced, and the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue would not be built.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization and/or mitigation measures are necessary to reduce impacts on natural communities.

Table 2.3-2. Build Alternative Phase 1 and Phase 2 Impacts on Vegetation and Habitats[a]

General Habitat Type	Classification (if applicable)	Phase 1 Impacts (acres) Permanent	Phase 1 Impacts (acres) Temporary	Phase 2 Impacts (acres) Permanent	Phase 2 Impacts (acres) Temporary
Herbaceous[b]	California annual and perennial grassland mapping unit	4.83	11.22	5.98	13.19
Native Shrub	*Baccharis pilularis* alliance	0.16	0.27	0.02	0.32
Deciduous Hardwood	*Quercus douglasii* alliance	0.00	0.00	0.00	0.00
Evergreen Hardwood	*Quercus agrifolia* alliance	0.00	0.00	0.00	0.00
Riparian Woodland	*Salix lasiolepis* woodland	0.00	0.00	0.00	0.00
Non-native Forest	Ornamental woodland	0.00	1.38	0.01	1.37
Non-native Shrub	*Rubus armeniacus* seminatural association *Conium maculatum - Foeniculum vulgare* alliance	0.59	1.79	0.00	1.91
Open Water	Novato Creek, Simonds Slough, or other freshwater areas lacking vegetation	0.03	0.13	0.01	0.15
Tidal Salt Marsh	*Sarcocornia pacifica* (*Salicornia depressa*) alliance *Distichlis spicata* alliance	0.46	1.25	0.07	1.20
Diked Brackish Marsh	*Bolboschoenus maritimus* alliance	0.00	0.27	0.00	0.35
Freshwater Marsh	Arid west freshwater marsh group	0.24	3.95	0.00	4.04
Seasonal Wetland	Seasonal wetland	0.00	0.04	0.00	0.04
	Total	**6.31**	**20.30**	**6.09**	**22.57**

[a] Habitat types and acreages are based on conditions observed during surveys conducted for the Project in 2021 and 2022 and are applicable for Phase 1 impact assessment. Caltrans would re-evaluate the type and extent of habitat types in the BSA prior to Phase 2 construction.

[b] For herbaceous habitat, 0.25 acre of temporary Phase 1 impacts, 2.93 acres of permanent Phase 1 impacts, and 4.33 acres of permanent Phase 2 impacts consist of herbaceous vegetation in the SR 37 median, which provides negligible habitat value.

2.3.2 Wetlands and Other Waters

2.3.2.1 REGULATORY SETTING

Wetlands and other waters are protected under numerous laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the CWA (33 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 nontidal water bodies extend to the ordinary high water mark, in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the ordinary high water mark 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 administered by USACE with oversight by USEPA.

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 USEPA's Section 404(b)(1) Guidelines (40 CFR Part 230) and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines were developed by USEPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative that would have less adverse effects. The Section 404 (b)(1) Guidelines state that USACE may not issue a permit if there is a "least environmentally damaging practicable alternative"

(LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

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

At the state level, wetlands and waters are regulated primarily by SWRCB, RWQCBs, and CDFW. In certain circumstances, BCDC may also be involved. CFGC Sections 1600 through 1607 require any agency that proposes a project that would 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 impact fish or wildlife resources, a Lake or Streambed Alteration Agreement would 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 USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from CDFW.

RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Water Quality Control Act are permitted by Waste Discharge Requirements and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, RWQCBs also issue water quality certifications for activities that may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Section 2.2.2, Water Quality and Stormwater Runoff, includes more details.

2.3.2.2 AFFECTED ENVIRONMENT

A delineation of regulated habitats, including wetlands and other waters of the U.S. regulated by USACE under Section 404 of the CWA, wetlands and other waters of the state regulated by the RWQCB, and streams regulated by CDFW, was performed within the BSA on January 10, 11, 13, 18, and 20, 2022. The BSA is within a low-lying area crossed by Novato Creek and Simonds Slough, with high groundwater elevations. As a result, wetlands and other waters are present in several areas within the BSA. Habitat types within the BSA that are considered waters of the U.S. are diked brackish marsh, freshwater marsh, open water,

seasonal wetland, and tidal salt marsh. These same habitat types are also considered waters of the state, and the RWQCB may also claim as jurisdictional those ruderal herbaceous areas within the banks of Novato Creek and Simonds Slough, as well as riparian woodland. Similarly, CDFW's regulation of streams and riparian habitat would extend to the open water, tidal salt marsh, and diked brackish marsh along Novato Creek and Simonds Slough, and to the ruderal herbaceous areas within the banks of these watercourses, and riparian woodland.

2.3.2.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Phase 1 Construction

As summarized in Table 2.3-2 and depicted on Figure 2.3-3, Phase 1 construction activities would result in permanent impacts to 0.24 acre of freshwater marsh from fill, including impacts as a result of fill for relocation of two local access roads, and 0.46 acre of tidal salt marsh and 0.03 acre of open water from shading. The piles for the existing Novato Creek Bridge would be removed 3 feet below the mudline. These 224 existing piles, each 16 inches in diameter, collectively represent 313 square feet (0.007 acre) of structures that would be removed from existing wetland and aquatic habitats. Phase 1 construction would result in temporary impacts to 5.64 acres of wetlands and other waters of the U.S. and waters of the state, in the form of diked brackish marsh, freshwater marsh, tidal salt marsh, and open water habitats. These impacts would result from the need for construction access into areas occupied by wetlands and other waters, replacement of existing culverts, and dewatering for construction. A temporary construction trestle measuring approximately 720 feet long and 20 feet wide would be constructed to support equipment during construction of the Novato Creek Bridge without entering the sensitive marshland. Up to 50 piles would be installed up to a maximum depth of 100 feet below the ground surface. The piles for the temporary construction trestle would be removed after the Novato Creek Bridge construction is complete. All wetlands and other waters temporarily impacted during Phase 1 would be restored to their pre-construction conditions.

Implementation of Project features (Appendix D) would minimize impacts to wetlands and other waters through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-7, Construction Site Management Practices, PF-BIO-9, Restore Disturbed Areas, PF-BIO-11, Landscaping and Revegetation Plan, PF-BIO-19, In-channel Work Period, PF-BIO-20, Work Period in Dry Weather Only, PF-BIO-21, Wetland Protection, and PF-BIO-22, Invasive Weed Control. Implementation of MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, would provide compensatory mitigation for impacts to wetlands and other waters. With implementation of these Project features

and the mitigation measure, impacts of Phase 1 construction on wetlands and other waters would be less than significant.

Phase 2 Construction

As summarized in Table 2.3-2 and depicted on Figure 2.3-4, Phase 2 construction activities would permanently impact 0.08 acre of tidal salt marsh and open water from shading, based on current conditions. Phase 2 construction would result in temporary impacts to 5.78 acres of wetlands and other waters of the U.S. and waters of the state, in the form of diked brackish marsh, freshwater marsh, tidal salt marsh, and open water habitats. These impacts would result from the need for construction access into areas occupied by wetlands and other waters.

No Phase 2 impacts on riparian woodland are expected, although this would be re-evaluated during the design phase of Phase 2. Following the completion of construction, temporarily impacted wetlands and other waters would be restored to their pre-construction conditions. However, the type and extent of jurisdictional habitats within the Project area is likely to change between the 2021 and 2022 surveys and implementation of Phase 2. Caltrans would coordinate with USACE, RWQCB, and CDFW during design of Phase 2 to determine whether any follow-up delineation or mapping of jurisdictional habitats is necessary. Impacts to wetlands and other waters would be re-evaluated during the design of Phase 2.

With implementation of Project features as described for Phase 1 construction and MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, impacts of Phase 2 construction on wetlands and other waters would be less than significant.

Operation

There would be no direct impacts on wetlands or other water communities from operation of the Build Alternative. Piles for the new bridge would result in less fill and structures within aquatic and wetland habitats in Novato Creek than are occupied by the existing bridge, thereby resulting in a net reduction in fill and structures within the creek. Nevertheless, some permanent impacts would occur because the Novato Creek Bridge would have a wider configuration and the gap between the existing spans would be closed. This would result in the shading of 0.53 acre of tidal salt marsh and 0.04 acre of open water habitats below. Shading would result in the loss of vegetation that is currently present within that gap. The Build Alternative would not further impact wetlands or other waters, and impacts of Project operation on wetlands and other waters would be less than significant.

No-Build Alternative

Construction and Operation

The No-Build Alternative would have no effect on wetlands or other waters because the Novato Creek Bridge would not be replaced and the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue would not be built. There would be no improvements to SR 37, and any wetlands or other waters present would not be impacted.

2.3.2.4 LEAST ENVIRONMENTALLY DAMAGING PRACTICABLE ALTERNATIVE

The Build Alternative represents the Least Environmentally Damaging Practicable Alternative. No other alternative that practicably achieves the Project's purpose and need would have less impact on wetlands and other waters. By virtue of the existing location of SR 37 and the abundance of wetlands and aquatic habitats adjacent to the roadway, impacts on these habitats are unavoidable. Caltrans has designed the Build Alternative to avoid and minimize impacts on wetlands and other waters to the maximum extent practicable, and all unavoidable impacts are necessary due to the need to fulfill the Project's objectives. Furthermore, the vast majority of impacts to wetlands and other waters are temporary, occurring only during the construction of the Project. Given the location of the Project relative to numerous wetland and aquatic habitats, some impact during construction is necessary, but temporary impact areas would be restored to pre-existing or better conditions to minimize permanent impacts.

For the Build Alternative Phase 1, the new Novato Creek Bridge would free-span the active Novato Creek channel, avoiding the installation of permanent fill in the channel and resulting in the net addition of aquatic habitat as well as easing upstream and downstream passage for fish and positively impacting fish habitat. Animals would also be able to more easily move across SR 37 by moving under the lengthened Novato Creek Bridge and the causeway, resulting in a positive impact in connectivity and habitat.

SR 37 in its current configuration impedes animal movement across the Project limits due to traffic disturbance, traffic-related mortality, and lack of vegetative cover on the road surface, which likely deters some animals from attempting crossings over the road's surface. Elevating SR 37 on a causeway under Phase 2 would result in a positive impact on wildlife connectivity and habitat. The replacement of the Simonds Slough Bridge (double box culvert) would result in an unrestricted and open channel and, therefore, enhance EFH and result in a positive impact on the migratory corridor.

2.3.2.5 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following mitigation measure (also listed in Appendix E) would be implemented to compensate for impacts on wetlands or waters present within the BSA:

MM-BIO-1: Compensatory Mitigation for Wetlands and Other Waters. Caltrans will compensate for the unavoidable and permanent loss and degradation of wetlands and other waters within the Project area at a restoration/enhancement to impact ratio. This ratio will be determined during the permitting process with the regulatory agencies. Every effort will be made to contribute to onsite habitat enhancements and restoration as part of the Project's design. Caltrans will offset temporary impacts to wetlands and other waters by restoring disturbed areas to pre-Project conditions, estimated to be at a 1.1:1 ratio.

Compensatory mitigation for unavoidable impacts will be obtained through a Project-specific plan that will include purchase of credits at an agency-approved wetland mitigation bank (if any such banks are available, with a service area that includes the Project area, at the time) and/or providing in-lieu funding to a nearby restoration program or restoration project that will enhance, create, or restore wetlands or other waters adversely impacted by the Project. Appropriate compensation will be determined in coordination with state and federal environmental regulatory agencies with jurisdiction.

2.3.2.6 WETLANDS ONLY PRACTICABLE ALTERNATIVE FINDING

The Executive Order for the Protection of Wetlands (EO 11990) regulates the activities of federal agencies regarding wetlands, stating that a federal agency cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that there is no practicable alternative to the construction, and the proposed Project includes all practicable measures to minimize harm.

The Build Alternative represents the Wetlands Only Practicable Alternative. No other alternative that practicably achieves the Project's purpose and need would have less impact on wetlands and other waters. By virtue of the existing location of SR 37 and the abundance of wetlands and aquatic habitats adjacent to the roadway, some impacts on these habitats would be unavoidable. However, the Project includes all practicable measures to minimize harm to wetlands. Caltrans has designed the Build Alternative to avoid and minimize impacts on wetlands and other waters to the maximum extent practicable, and all unavoidable impacts would be necessary due to the need to fulfill the Project's purpose and need. Furthermore, most impacts to wetlands and other waters would be temporary, occurring only during the construction of the Project. Given the location of the Project relative to numerous wetland and aquatic habitats, some impacts during construction would be necessary,

but temporary impact areas would be restored to pre-existing or better conditions to minimize permanent impacts. Compensatory mitigation would be provided to offset all impacts on wetlands.

For the Build Alternative Phase 1, the new Novato Creek Bridge would free-span the active Novato Creek channel, avoiding the installation of permanent fill in the channel and resulting in the net addition of aquatic habitat as well as easing upstream and downstream passage for fish and positively impacting fish habitat. Animals would also be able to more easily move across SR 37 by moving under the lengthened Novato Creek Bridge and the causeway, resulting in a positive impact in connectivity and habitat.

SR 37 in its current configuration impedes animal movement across the Project limits due to traffic disturbance, traffic-related mortality, and lack of vegetative cover on the road surface, which likely deters some animals from attempting crossings over the road's surface. Elevating SR 37 to a causeway under Phase 2 would result in a positive impact on wildlife connectivity and habitat. The replacement of the Simonds Slough Bridge (which consists of a double box culvert) would result in an unrestricted and open channel and, therefore, enhance EFH and result in a positive impact on the migratory corridor.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

2.3.3 Plant Species

2.3.3.1 Regulatory Setting

USFWS and CDFW have regulatory responsibility for protecting special-status plant species that are formally listed or proposed for listing as endangered or threatened under the FESA and/or that are listed, proposed, or candidate species under the CESA. "Special status" is a general term for species that are provided varying levels of regulatory protection because they are scarce and/or subject to population and habitat declines. 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 FESA and/or CESA. Section 2.3.5, Threatened and Endangered Species, provides detailed information about these species.

This section discusses all 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 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at CFGC Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at CFGC Sections 1900 through 1913, and CEQA, found at California Public Resources Code, Sections 21000 through 21177.

2.3.3.2 AFFECTED ENVIRONMENT

A query of the CNPS inventory (CNPS 2023) and California Natural Diversity Database (CNDDB) (CDFW 2023a) identified a total of 66 California Rare Plant Rank 1 and 2 special-status plant species as potentially occurring within or near the BSA, based on the USGS 7.5-minute quadrangle map that encompasses the BSA (Novato [3812215]) and the eight surrounding quadrangles (Petaluma [3812226)], Petaluma River [3812225], San Geronimo ([3812216], Bolinas [3712216], San Rafael [3712285], San Quentin [3712284], Petaluma Point [3812214], and Sears Point [3812224]). A complete list of species from the database searches is provided in Appendix J.

All 66 California Rare Plant Rank 1 and 2 species were considered for their potential to occur within the BSA. Also, 31 special-status species with CNDDB records within a 5-mile radius of the BSA or with potential habitat present within the BSA based on habitat mapping are discussed in Table 2.3-3 (listed in alphabetical order by scientific name).

Floristic, protocol-level surveys for special-status plants were conducted during the appropriate seasons for detecting each potentially occurring species, in early spring (March 30 and 31, 2022), mid-spring (April 25, 2022), and late summer (July 27 and 28, 2022). These surveys detected no special-status plants within the BSA; and therefore, special-status plants are determined to be currently absent from the BSA.

2.3.3.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Phase 1 Construction

Phase 1 of the Project would not have any direct or indirect effects on special-status plant species, as none were observed during floristic, protocol-level surveys completed within the BSA during appropriate seasons for detectability in 2022. There would be no impacts to special-status plants as a result of Phase 1 of the Build Alternative.

Phase 2 Construction

Because no special-status plants were detected in the BSA during protocol-level surveys, and because the BSA is heavily disturbed by the presence of SR 37, special-status plants are not expected to be impacted by Phase 2 construction. Therefore, impacts of Phase 2 construction on special-status plants would be less than significant. Caltrans would re-evaluate biological conditions, and impacts as appropriate, during the design phase of Phase 2.

Operation

Operation of the Build Alternative would be on a causeway, and there would be no impact on plants.

No-Build Alternative

The No-Build Alternative would have no effect on special-status plants potentially occurring within the BSA because the Novato Creek Bridge would not be replaced and the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue would not be built. There would be no improvements to SR 37.

2.3.3.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

Because special-status plants are currently absent from the BSA, the Project would not impact special-status plants, and no AMMs pertaining to special-status plants are necessary.

Table 2.3-3. Special-status Plants Considered for Potential to Occur within the Biological Study Area

Scientific Name **Common Name**	**CNPS Ranking[a]**	**Flowering Period**	**Habitat Preferences and Range**	**Species Potential to Occur within the BSA**
Amorpha californica var. *napensis* Napa False Indigo	1B.2	April to July	Broadleaf upland forest, chaparral, and cismontane woodland. Openings in forest, woodland, or chaparral; 165 to 6,560 feet.	**None.** No suitable chaparral habitat occurs within the BSA, and the small areas of woodland within the BSA are too disturbed to support the species. The BSA is also largely outside species' known elevation range.
Amsinckia lunaris Bent-flowered Fiddleneck	1B.2	March to June	Cismontane woodland, valley and foothill grassland, and coastal bluff scrub; 10 to 2,608 feet.	**None.** Grassland habitat and woodland understory within the BSA are highly disturbed, and the only reported occurrence within a 5-mile radius of the BSA is from 1938.
Arctostaphylos montana ssp. *montana* Mount Tamalpais Manzanita	1B.3	February to April	Chaparral and valley and foothill grassland in rocky, serpentine soils; 252 to 2,495 feet.	**None.** No suitable serpentine habitat occurs within the BSA, and the BSA is outside the species' elevation range.
Astragalus pycnostachyus var. *pycnostachyus* Coastal Marsh Milk-vetch	1B.2	June to October	Coastal dune, coastal scrub, and marsh and swamp; 0 to 100 feet.	**None.** Tidal salt marsh and brackish marsh occur on either side of SR 37 within the BSA, particularly along Novato Creek and Simonds Slough. Some Sonoma and Marin County locations are from marsh habitat similar to that in the BSA, but this species typically prefers an ecotone of salt marsh and coastal scrub habitats. No coastal scrub habitat occurs within the BSA. This species was not detected during protocol-level surveys.
Astragalus tener var. *tener* Alkali Milk-vetch	1B.2	March to June	Alkaline or volcanic substrate within vernal pool, playa, and valley and foothill grassland with adobe clay soils; 5 to 195 feet.	**None.** There are no alkaline grassland habitats or adobe clay soils within the BSA.
Calamagrostis crassiglumis Thurber's Reed Grass	2B.1	May to August	Coastal scrub and freshwater and marsh and swamp; 35 to 195 feet.	**None.** No suitable coastal scrub habitat occurs within the BSA. There is marginally suitable freshwater marsh habitat occurs within the BSA. In most cases, freshwater marsh includes a monoculture of *Typha* sp. and would not be expected to support the species in most locations. This species was not detected during protocol-level surveys.
Carex lyngbyei Lyngbye's Sedge	2B.2	April to August	Marsh and swamp in brackish water or freshwater; 0 to 35 feet.	**None.** Suitable brackish marsh habitat and freshwater wetland occur on either side of SR 37, but the BSA is not expected to support the species due to the thick cover of halophytic species typically present. Additionally, no CNDDB occurrences have been recorded within a 5-mile radius of the BSA. This species was not detected during protocol-level surveys.
Centromadia parryi ssp. *parryi* Pappose Tarplant	1B.2	May to November	Alkaline and often vernally mesic substrate in chaparral, coastal prairie, marsh and swamp, meadow and seep, and valley and foothill grassland; 0 to 1,380 feet.	**None.** The nearest CNDDB occurrence is within 5 miles of the BSA to the east (CDFW 2023a). Tidal and brackish marshes are marginally suitable but are unlikely to support the species due to thick monocultural halophyte cover. This species was not detected during protocol-level surveys.
Chloropyron maritimum ssp. *palustre* Point Reyes Salty Bird's-beak	1B.2	June to October	Coastal salt marsh, usually in coastal salt marsh with *Salicornia, Distichlis, Jaumea, and/or Spartina*; 0 to 35 feet.	**None.** Suitable habitat is present within the BSA along Novato Creek, but all local extant records are more than 5 miles to the west or south of the BSA. This species was not detected during protocol-level surveys.
Downingia pusilla Dwarf Downingia	1B.2	March to May	Valley and foothill grassland and vernal pool; 5 to 1,460 feet.	**None.** No suitable vernal pool habitat occurs within the BSA, but the species is known to occur in roadside ditches in Sonoma and Marin counties, similar to habitat on both sides of SR 37 in the western half of the BSA. CNDDB Occurrence No. 26, from 1961, occurs within a 5-mile radius of the BSA (CDFW 2023a). This species was not detected during protocol-level surveys.
Eriogonum luteolum var. *caninum* Tiburon Buckwheat	1B.2	May to September	Chaparral, valley and foothill grassland, cismontane woodland, and coastal prairie; serpentine soil; sandy to gravelly sites; 0 to 2,295 feet.	**None.** No suitable serpentine habitat occurs within the BSA.

Scientific Name Common Name	CNPS Ranking[a]	Flowering Period	Habitat Preferences and Range	Species Potential to Occur within the BSA
Extriplex joaquinana San Joaquin Spearscale	1B.1	April to October	In seasonal alkali wetland or alkali sink scrub with *Distichlis spicata, Frankenia* sp. in chenopod scrub, alkali meadow, playa, and valley and foothill grassland; 5 to 2,740 feet.	**None.** No alkaline grassland of sufficient quality to support this species occurs within the BSA, and most occurrences of this species are much farther inland than the BSA.
Fritillaria liliacea Fragrant Fritillary	1B.2	February to April	Coastal scrub, valley and foothill grassland, coastal prairie, and cismontane woodland. Often on serpentine soils; various soils reported although usually on clay, in grassland; 10 to 1,345 feet.	**None.** No suitable serpentine habitat occurs within the BSA.
Hemizonia congesta ssp. *congesta* Congested-headed Hayfield Tarplant	1B.2	April to November	Valley and foothill grassland; grassy valleys and hills, often in fallow fields and sometimes along roadsides; 65 to 1,835 feet.	**None.** Suitable grassland habitat occurs within the BSA, and some CNDDB records from Sonoma and Marin Counties are along roadsides (CDFW 2023a), but the closest occurrence is from 1946. This species was not detected during protocol-level surveys.
Hoita strobilina Loma Prieta Hoita	1B.2	May to July	Broadleafed upland forest, chaparral, and valley and foothill grassland, often in serpentine soils; 165 to 1,640 feet.	**None.** No suitable edaphic conditions (serpentine substrates) occur within the BSA, and riparian woodland in the BSA is highly disturbed and of generally low quality and likely would be unable to support the species.
Horkelia tenuiloba Thin-lobed Horkelia	1B.2	May to July	Broadleafed upland forest, chaparral, and valley and foothill grassland, typically in sandy soils; 165 to 1,640 feet.	**None.** No suitable sandy grassland or chaparral occurs within the BSA, and grasslands in the BSA are of low quality, often dominated by non-native and invasive species.
Isocoma arguta Carquinez Goldenbush	1B.1	August to December	Valley and foothill grassland with alkaline soils; 5 to 65 feet.	**None.** No alkaline grassland of sufficient quality to support this species occurs within the BSA, and the BSA may be slightly out of range for the species (CDFW 2023a).
Lathyrus jepsonii var. *jepsonii* Delta Tule Pea	1B.2	May to July	Marshes and swamps; 0 to 15 feet.	**None.** Suitable brackish and freshwater marsh habitat occurs in the BSA, but all known records are more than 5 miles east of the BSA. This species was not detected during protocol-level surveys.
Lilaeopsis masonii Mason's Lilaeopsis	1B.1	April to November	Marshes and swamps and riparian scrub; 0 to 35 feet.	**None.** Suitable northern coastal salt marsh and brackish marsh habitat on either side of SR 37 in the BSA is similar to that at locations of CNDDB occurrences in Sonoma and Marin Counties, but most records are east of the BSA (CDFW 2023a). This species was not detected during protocol-level surveys and is considered absent.
Microseris paludosa Marsh Microseris	1B.2	April to June	Cismontane woodland, closed-cone coniferous forest, coastal scrub, and valley and foothill grassland; 15 to 1,165 feet.	**None.** No suitable grassland and woodland habitats occur within the BSA, and there are no CNDDB records within a 5-mile radius of the BSA (CDFW 2023a).
Navarretia leucocephala ssp. *bakeri* Baker's Navarretia	1B.1	April to July	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, and lower montane coniferous forest; vernal pools and swales; adobe or alkaline soils; 15 to 1,215 feet.	**None.** Marginally suitable habitat occurs within the BSA in mesic areas within grasslands. A single CNDDB record, Occurrence No. 13, occurs just northwest of the BSA (CDFW 2023a). Some CNDDB records in Sonoma and Marin Counties are from roadside swales and mesic areas within alkaline grasslands, but this species was not detected during protocol-level surveys.
Plagiobothrys glaber Hairless Popcornflower	1A	March to May	Meadows and seeps (alkaline) and marshes and swamps (coastal salt); 50 to 590 feet.	**None.** Suitable northern coastal salt marsh and brackish marshes on either side of SR 37 in the BSA are similar to that at locations of CNDDB records observed in Sonoma and Marin Counties (CDFW 2023a). However, the records are old, and there are no recent records from the region (CDFW 2023a).
Plagiobothrys mollis var. *vestitus* Petaluma Popcornflower	1A	June to July	Marshes and swamps and valley and foothill grassland; 35 to 165 feet.	**None.** Suitable northern coastal salt marsh and brackish marsh habitat on either side of SR 37 in the BSA is similar to that at locations of CNDDB records in Sonoma and Marin counties (CDFW 2023a); but nearby records are old, and there are no recent records from the region.
Sagittaria sanfordii Sanford's Arrowhead	1B.2	May to October	Marshes and swamps; 0 to 2,135 feet.	**None.** Suitable northern coastal salt marsh and brackish marsh habitat on either side of SR 37 in the BSA is similar to that at locations of CNDDB records in Sonoma and Marin Counties (CDFW 2023a), but this species occurs most frequently in the Central Valley. This species also was not detected during protocol-level surveys.

Scientific Name Common Name	CNPS Ranking[a]	Flowering Period	Habitat Preferences and Range	Species Potential to Occur within the BSA
Sidalcea calycosa ssp. *rhizomata* Point Reyes Checkerbloom	1B.2	April to September	Marshes and swamps; 10 to 245 feet.	**None.** Suitable northern coastal salt marsh and brackish marsh habitat on either side of SR 37 in the BSA is similar to that at locations of CNDDB records in Sonoma and Marin Counties (CDFW 2023a). However, this species was not detected during protocol-level surveys.
Spergularia macrotheca var. *longistyla* Long-styled Sand-spurrey	1B.2	February to May	Marshes and swamps, and meadows and seeps; 0 to 835 feet.	**None.** Suitable northern coastal salt marsh and brackish marshes occur on either side of SR 37 in the BSA, but there are no records in the Project vicinity. Due to the absence of potential source populations (Calflora 2023, CDFW 2023a, Consortium of California Herbaria 2023), the species is considered absent.
Streptanthus anomalus Mount Burdell Jewelflower	1B.1	May to June	Cismontane woodland, grassy openings, and serpentinite; 150 to 450 feet.	**None.** No suitable serpentine edaphic conditions occur within the BSA.
Streptanthus glandulosus ssp. *pulchellus* Mount Tamalpais Bristly Jewelflower	1B.2	May to July	Chaparral and valley and foothill grassland; serpentine slopes; 490 to 2,625 feet.	**None.** No suitable edaphic conditions occur within the BSA, and the BSA is also outside the species' elevation range.
Symphyotrichum lentum Suisan Marsh Aster	1B.2	May to November	Marsh and swamp; 0 to 50 feet.	**None.** Suitable northern coastal salt marsh and brackish marsh habitat on either side of SR 37 in the BSA is similar to that at locations of CNDDB records in Sonoma and Marin Counties (CDFW 2023a), but this species was not detected during protocol-level surveys and is considered absent.
Trifolium hydrophilum Saline Clover	1B.2	April to June	Marsh and swamp, valley and foothill grassland, and vernal pool; mesic and alkaline sites; 0 to 985 feet.	**None.** Potentially suitable brackish marsh and grassland habitat occurs within the BSA, but no records are known in the Project vicinity. This species was not detected during protocol-level surveys.
Trifolium polyodon Pacific Grove Clover	1B.1	April and June	Closed-cone coniferous forest, coastal prairie, meadow and seep, and valley and foothill grassland; 15 to 1,395 feet.	**None.** A single CNDDB record has been observed in Sonoma County, Occurrence No. 23 (CDFW 2023a). This record, and records from surrounding counties, typically occur in open fields containing springs or seeps. Suitable mesic grassland habitat does not occur within the BSA.

[a] CNPS designations:

- 1A = plants extirpated
- 1B = plants rare, threatened, or endangered in California and/or elsewhere
- 2B = plants rare, threatened, or endangered in California but more common elsewhere
- 0.1 = seriously threatened in California (over 80 percent occurrences threatened and high degree and immediacy of threat)
- 0.2 = moderately threatened in California (20 percent to 80 percent occurrences threatened/moderate degree and immediacy of threat)
- 0.3 = not very threatened in California

Sources: Calflora 2023, CDFW 2023a, Consortium of California Herbaria 2023, CNPS 2023, USFWS 2023a.

2.3.4 Animal Species

2.3.4.1 REGULATORY SETTING

Many state and federal laws regulate impacts to wildlife. USFWS, NMFS, and 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 FESA or CESA. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.3.5, Threatened and Endangered Species. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NMFS 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:

- CEQA
- CFGC Sections 1600 through 1603
- CFGC Sections 4150 and 4152

2.3.4.2 AFFECTED ENVIRONMENT

Based on the review of special-status species databases, including CDFW (2023a), NMFS (2023), and USFWS (2023a), 18 special-status animal species were identified as potentially occurring within the general Project vicinity and were evaluated for their potential to occur within the BSA. The species information from the CNDDB, NMFS, and USFWS databases are provided in Appendix J. These species are listed in Table 2.3-4, in alphabetical order by scientific name within general groups in the following order: mammals, birds, reptiles, amphibians, fish, and insects. Half of these species were determined to have low or no potential to occur within the BSA because the BSA lacks suitable habitat and/or is outside the species' range (even if the species occurs nearby).

Focused habitat assessments for roosting bats were conducted for the Project, and guano and urine staining were noted where observed during these assessments. However, no focused surveys for individuals of any special-status wildlife species were performed, and determinations regarding potential for occurrence were made based primarily on evaluation of habitat suitability within the BSA and on a determination, based on known occurrences in CNDDB and other sources, regarding

whether the Project area is within the species' range. Therefore, special-status wildlife determined to have potential to occur within the BSA are presumed present. Nine special-status animal species were identified as having a moderate or high potential to occur within the BSA based on their habitat associations and/or known occurrences in the Project vicinity, as described in the text that follows.

Bat Species

Pallid Bat (*Antrozous pallidus*)

The pallid bat is designated as a species of special concern by CDFW. This species can be found in deserts, oak and pine forests, and open farmland throughout much of the western half of North America. The pallid bat prefers to roost on rocky outcrops, but may also use caves, rock crevices, mines, hollow trees, and buildings. Breeding in California typically occurs between August and September.

Several CNDDB occurrences of this species are known from the general Project vicinity and within 5 miles of the Project footprint (CDFW 2023a). Potentially suitable roosting habitat for this species occurs inside the U.S. 101/SR 37 interchange bridges and SR 37 bridge over Atherton Avenue, which pallid bats may access through soffit vents. Pallid bats may form maternity roosts in the U.S. 101/SR 37 interchange bridges and SR 37 bridge over Atherton Avenue and may forage in open grassland and wetland areas within and adjacent to the BSA. However, conditions in the BSA are cooler, due to the proximity to San Francisco Bay, than in areas where this and other bat species form larger roosts. Therefore, pallid bats could potentially roost in the BSA, however; it is likely that numbers in the BSA are low.

Townsend's Big-eared Bat (*Corynorhinus townsendii*)

The Townsend's big-eared bat is designated as a species of special concern by CDFW. This species roosts in a variety of sites, especially in mesic habitats, throughout the western half of North America. In California, Townsend's big-eared bats usually breed between November and February.

Several CNDDB occurrences of this species are known from the general Project vicinity, with the nearest being 2.4 miles to the northwest and 4.6 miles to the north (CDFW 2023a). Potentially suitable day- and night roosting habitat is present in cavernous areas underneath and adjacent to abutments of both ends of the Novato Creek Bridge. Small numbers of individuals could roost in these areas and possibly form maternity roosts. However, as noted for pallid bat previously, conditions in the BSA are cooler than in areas where this and other bat species form larger roosts.

Table 2.3-4. Special-status Animal Species Considered for Potential to Occur within the Biological Study Area

Species	*Scientific Name* Common Name	Listing Status Federal[a]	Listing Status State[b]	Listing Status CDFW[c]	Habitat Preferences and Range	Species Potential to Occur within the BSA
Mammals	*Antrozous pallidus* Pallid Bat	NA	NA	SSC	Desert, grassland, shrubland, woodland, and forest. Most common in open, dry habitat with rocky areas for roosting; roosts must protect bats from high temperatures; very sensitive to disturbance of roosting sites.	**Moderate potential.** Potentially suitable roosting habitat occurs in the U.S. 101/SR 37 interchange bridges and SR 37 bridge over Atherton Avenue. Several CNDDB occurrences are known from the general Project vicinity, with the nearest being 3.5 miles to the northeast (CDFW 2023a). Species may form maternity roosts in the U.S. 101/SR 37 interchange bridges and SR 37 bridge over Atherton Avenue and may forage in open grassland and wetland within and adjacent to the BSA.
Mammals	*Corynorhinus townsendii* Townsend's Big-eared Bat	NA	NA	SSC	Throughout California in a wide variety of habitats, but most common in mesic sites; roosts in the open, hanging from walls and ceilings; roosting sites limiting; extremely sensitive to human disturbance.	**Moderate potential.** Potentially suitable day and night roosting habitat is present in cavernous areas underneath and adjacent to abutments of both ends of the Novato Creek Bridge. Several CNDDB occurrences are known from the general Project vicinity (CDFW 2023a). Small numbers of individuals could roost in these areas and possibly form maternity roosts.
Mammals	*Phoca vitulina* Harbor Seal	MMPA	NA	NA	Generally marine and estuarine; forms breeding congregations on coastal islands and beaches and in a few locations inside San Francisco Bay.	**None.** This species occurs in the San Pablo Bay near the BSA but does not occur in the open water habitats present within the BSA (for example, this species is not expected to disperse up Novato Creek as far as the BSA). No pupping sites or haul-outs are known within the BSA vicinity.
Mammals	*Sorex ornatus sinuosus* Suisun Shrew	NA	NA	SSC	Tidal marsh of the northern shores of San Pablo and Suisun Bays; require dense low-lying cover, seaweed, and other litter above the mean high-tide line for nesting and foraging.	**None.** The species is not known to occur in Marin County. Shrews found along the Petaluma River and westward are presumed to be *Sorex ornatus* ssp. *californicus* (Bolster 1998).
Mammals	*Taxidea taxus* American Badger	NA	NA	SSC	Forages and dens in open and shrub-dominated habitats, especially grassland.	**None.** Grasslands within the BSA provides moderately suitable habitat, but no recent CNDDB records of the species are in the vicinity of the BSA (CDFW 2023a).
Mammals	*Zalophus californianus* California Sea Lion	MMPA	NA	NA	Generally marine and estuarine; forms breeding congregations on coastal islands and beaches; forages, but does not breed, inside San Francisco Bay.	**None.** This species occurs in the San Pablo Bay near the BSA but does not occur in the open-water habitats within the BSA (for example, this species is not expected to disperse up Novato Creek as far as the BSA).
Birds	*Athene cunicularia* Burrowing Owl	NA	NA	SSC	Open, dry annual or perennial grassland, desert, and scrubland characterized by low-growing vegetation; subterranean nester, dependent on burrowing mammals, most notably the California ground squirrel.	**Low potential.** In the BSA, suitable foraging habitat is present in herbaceous-dominated habitats, and potential nesting and roosting habitat occurs in open habitats with California ground squirrel burrows. There are multiple CNDDB (CDFW 2023a) and eBird (2023) records within 5 miles of the BSA. However, the species is not known to nest in the immediate Project vicinity (e.g., most eBird records are from winter or migration periods), and high groundwater would inhibit this species from using burrows in low-lying grasslands in the BSA. Likely present only as a migrant or wintering species.
Birds	*Circus hudsonius* Northern Harrier	NA	NA	SSC	Extensive grassland, wetland, and other herbaceous-dominated habitats, particularly those dominated by dense herbaceous vegetation for nesting and foraging.	**High potential.** Grassland and wetland within the BSA provide suitable foraging habitat, but due to traffic and noise along SR 37, this species is expected to forage infrequently within the BSA and would not nest within the BSA itself. Rather, harriers forage and nest primarily in adjacent grassland and wetland outside the BSA. Recorded in immediate vicinity of the BSA, both north and south of SR 37, year round (eBird 2023).
Birds	*Elanus leucurus* White-tailed Kite	NA	NA	FP	Rolling foothill and valley margins with scattered oak and river bottomland or marsh next to deciduous woodland; open grassland, meadow, or marsh for foraging close to isolated, dense-topped trees for nesting and perching.	**High potential.** Suitable habitat occurs in the form of trees near extensive grassland and wetland. Several recent breeding-season records are from the vicinity of the BSA (eBird 2023). This species likely nests in trees and forages in herbaceous and wetland habitats within or near the BSA.
Birds	*Geothlypis trichas sinuosa* San Francisco Common Yellowthroat	NA	NA	SSC	San Francisco Bay region resident in fresh, brackish, and saltwater marshes; requires thick, continuous cover down to water surface for foraging, and tall grass, tule patches, and willow for nesting.	**High potential.** Suitable habitat occurs in wetlands and scrub/shrub-dominated areas throughout much of the BSA. Several breeding-season records are from the vicinity of the BSA (eBird 2023); this species is expected to nest and forage in habitats with appropriate cover in much of the BSA.

Species	*Scientific Name* Common Name	Listing Status Federal[a]	Listing Status State[b]	Listing Status CDFW[c]	Habitat Preferences and Range	Species Potential to Occur within the BSA
Birds	*Melospiza melodia samuelis* San Pablo Song Sparrow	NA	NA	SSC	Salt marsh resident along the north side of San Francisco and San Pablo Bays; inhabits tidal sloughs in *Salicornia* marsh; nests in *Grindelia* bordering slough channels.	**High potential.** Suitable habitat occurs in brackish marsh within the BSA. The species has been recorded in the nearby San Pablo Bay National Wildlife Refuge, and it may occur within and adjacent to the BSA in diked brackish and tidal salt marshes along Novato Creek and Simonds Slough.
Birds	*Passerculus sandwichensis alaudinus* Bryant's Savannah Sparrow	NA	NA	SSC	Breeds and forages in grassland and wetland habitats with short vegetation along the northern California coast and around San Francisco Bay.	**High potential.** Suitable habitat occurs in wetland and grassland within and near the BSA. Several breeding-season records are from the vicinity of the BSA (eBird 2023), and this species is expected to nest and forage in fields and wetlands within or adjacent to the BSA.
Amphibians	*Dicamptodon ensatus* California Giant Salamander	NA	NA	SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County; aquatic larvae found in cold, clear streams and occasionally in lakes and ponds; adults occur in wet forests under rocks and logs near streams and lakes.	**None.** No suitable habitat occurs within the BSA, and the BSA is outside the species' range.
Fish	Sacramento Splittail *Pogonichthys macrolepidotus*	NA	NA	SSC	Endemic to Central Valley lakes and rivers but now confined to the Sacramento-San Joaquin Delta, Suisun Bay, San Pablo Bay, and associated marshes; slow-moving river sections and dead-end sloughs; requires flooded vegetation for spawning and foraging for young	**Moderate potential.** The northern San Pablo Bay supports habitat for the species, and fish may forage in Novato Creek due to proximity; however, there are no CNDDB occurrences of this species within Novato Creek. Due to the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, Sacramento splittail is presumed absent from Simonds Slough.
Insects	*Bombus crotchii* Crotch's Bumble Bee	Not applicable	SC	NA	Meadows and grasslands with abundant floral resources.	**None.** Although this species occurred within the BSA vicinity historically, it has been extirpated from much of its historical range. No recent records from the BSA vicinity are known, and the species is no longer expected to occur here.
Insects	*Danaus plexippus* Monarch Butterfly	FC	NA	NA	Winter roost sites extending along the coast from northern Mendocino to Baja California, Mexico; roosts in wind-protected tree groves (eucalyptus, Monterey pine, and cypress), with nectar and water sources nearby; requires milkweed (*Asclepias* spp.) for egg-laying and larval development, but nectar obtained by adults from a wide variety of flowering plants in many habitats.	**High potential.** No milkweed host plants were detected within the BSA during the reconnaissance field surveys, but the species could breed within the BSA if milkweed is present. Monarch butterflies are distributed fairly widely in California and could occur virtually anywhere in the state, at least during migration. Migrant monarchs move through the region and are expected to occasionally nectar at flowering plants within the BSA.

[a]Federal designations:
- FC = Candidate: information for the species is sufficient to be listed as endangered or threatened, but development of a proposed listing regulation is precluded by other higher-priority listing activities
- 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
- MMPA = protected under the Marine Mammal Protection Act

[b]State designations:
- SC = Candidate

[c]CDFW 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
- SSC = Species of special concern
- FP = Fully protected

NA = not applicable
Sources: Bolster 1998, CDFW 2023a, eBird 2023, USFWS 2023a.

Raptors and Other Nesting Birds

Northern Harrier (*Circus hudsonius*)

The northern harrier is designated as a species of special concern by CDFW. This species nests in marshes and grasslands, usually those with tall vegetation and moisture sufficient to inhibit accessibility of nest sites to predators. Northern harriers forage in a variety of open habitats, especially during the non-nesting season.

This species has been recorded within the immediate vicinity of the BSA, both north and south of SR 37, year-round (eBird 2023). Grassland and wetland habitats within the BSA provide suitable foraging habitat for this species; however, due to the proximity of such habitats to traffic along SR 37, this species is expected to forage infrequently within the BSA and is not expected to nest within the BSA itself. Rather, harriers forage and nest primarily in adjacent grassland and wetland areas outside the BSA.

White-tailed Kite (*Elanus leucurus*)

The white-tailed kite is designated as a fully protected species by CDFW. In California, white-tailed kites can be found in the Central Valley and along the coast, in grasslands, agricultural fields, cismontane woodlands, and other open habitats (Zeiner et al. 1990, Dunk 1995, Erichsen et al. 1996). White-tailed kites are year-round residents of the state, establishing nesting territories that encompass open areas with healthy prey populations, and snags, shrubs, trees, or other nesting substrates (Dunk 1995). Nonbreeding birds typically remain in the same area over the winter, although some movements do occur (Polite 1990). The presence of white-tailed kites is closely tied to the presence of prey species, particularly voles; and prey base may be the most important factor in determining habitat quality for white-tailed kites (Dunk and Cooper 1994, Skonieczny and Dunk 1997).

There are several recent breeding-season records of this species near the BSA (eBird 2023). Suitable habitat also occurs within and near the BSA in the form of trees near extensive grassland and wetland areas. This species likely nests in trees and forages in herbaceous and wetland habitats within or near the BSA. White-tailed kites are anticipated to forage and nest primarily in adjacent grassland and wetland areas outside the BSA given baseline disturbance from the SR 37 corridor (e.g., traffic and noise).

San Francisco Common Yellowthroat (*Geothlypis trichas sinuosa*)

The San Francisco common yellowthroat is designated as a species of special concern by CDFW. This species inhabits emergent vegetation and breeds in fresh and brackish marshes and moist floodplain vegetation. It uses small and isolated

patches of habitat as long as groundwater is close enough to the surface to encourage the establishment of dense stands of rushes, cattails, willows, and other emergent vegetation (Nur et al. 1997, Gardali and Evens 2008). Ideal habitat, however, has extensive, thick riparian, marsh, or herbaceous floodplain vegetation in perpetually moist areas, where populations of brown-headed cowbirds are low (Menges 1998). The San Francisco common yellowthroat breeds primarily in fresh and brackish marshes, although it nests in salt marsh habitats that support tall vegetation (Guzy and Ritchison 1999). Breeding occurs from mid-March through late July.

Several breeding-season records of this species are present within the vicinity of the BSA (eBird 2023). Suitable habitat occurs in wetlands and scrub/shrub-dominated areas throughout much of the BSA, including diked brackish marsh, freshwater marsh, native shrub, non-native shrub, riparian woodland, seasonal wetland, and tidal salt marsh habitats. This species is expected to nest and forage in habitats with appropriate cover in much of the BSA, although abundance within the Project impact areas is low given baseline disturbance from the SR 37 corridor (e.g., traffic and noise).

San Pablo Song Sparrow (*Melospiza melodia samuelis*)

The San Pablo song sparrow is designated as a species of special concern by CDFW. It resides within salt marsh habitats along the north side of San Francisco and San Pablo Bays and inhabits tidal sloughs in Salicornia marsh. San Pablo song sparrows prefer to nest in *Grindelia* spp. bordering slough channels.

Within the vicinity of the BSA, this species has been recorded in the nearby San Pablo Bay National Wildlife Refuge. Distinguishing this subspecies from the more abundant and widespread race *Melospiza melodia gouldii*, which nests in freshwater marsh and inland areas away from San Pablo Bay, is extremely difficult; and intergrades between the two subspecies are expected to occur. Nevertheless, *Melospiza melodia samuelis* may occur within and adjacent to the BSA in diked brackish and tidal salt marshes along Novato Creek and Simonds Slough. Abundance within the Project impact areas is low given baseline disturbance from the SR 37 corridor (e.g., traffic and noise).

Bryant's Savannah Sparrow (*Passerculus sandwichensis alaudinus*)

Bryant's savannah sparrow is designated as a species of special concern by CDFW. It is one of four subspecies of savannah sparrow that breed in California. The *alaudinus* subspecies occurs primarily in coastal and bayshore areas, from Humboldt Bay to Morro Bay, and is found year-round in low elevation, tidally influenced habitat, specifically pickleweed-dominated salt marshes, and in grasslands and ruderal

areas. Along the edge of the bay, levee tops with short vegetative growth and levee banks with high pickleweed growth are the preferred nesting habitat of this sparrow (Fitton 2008).

Several breeding-season records of this species are present within the vicinity of the BSA (eBird 2023), and this species is expected to nest and forage in herbaceous and seasonal wetland habitats, and possibly in tidal salt marsh, within or adjacent to the BSA. Abundance within the Project impact areas is low given baseline disturbance from the SR 37 corridor (e.g., traffic and noise).

Fish Species

Sacramento Splittail (*Pogonichthys macrolepidotus*)

The Sacramento splittail is designated as a species of special concern by CDFW. Splittail are large cyprinids, growing in excess of 40 centimeters in length, and are distinctive in that the upper lobe of the caudal fin is larger than the lower lobe. The body shape is elongate with a blunt head. There are two genetically distinct populations of Sacramento splittail: one centered in San Pablo Bay around the Petaluma and Napa Rivers in the lower San Francisco Estuary, and the other centered around the Sacramento-San Joaquin Delta and Suisun Marsh (Baerwald et al. 2008). Splittail depend both on brackish-water rearing habitats in the San Francisco Estuary and on floodplain and river-edge spawning habitats immediately above the estuary. Splittail are benthic foragers that feed mostly on aquatic invertebrates.

There are no CNDDB occurrences of this species within Novato Creek; however, the northern San Pablo Bay supports habitat for the species, and fish may forage in Novato Creek due to proximity, but might be limited by seasonal water quality conditions. Therefore, there is moderate seasonal potential for Sacramento splittail to occur within the Novato Creek BSA. Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, Sacramento splittail is presumed absent from Simonds Slough.

Insect Species

Monarch Butterfly (*Danaus plexippus*)

The monarch butterfly is a candidate species for listing under FESA. Monarchs feed and breed exclusively on plant species in the subfamily Asclepiadoideae, with 27 species of milkweed (*Asclepias* spp.), as well as a few plants in closely related genera, having been recorded as larval food plants (Malcolm and Brower 1986). Monarchs are known to overwinter along the California coast from Mendocino County south to Baja California, with the largest groups typically occurring in Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara Counties. They typically begin

arriving at overwintering sites in mid-October (California Department of Parks and Recreation 2023), where they form dense clusters on the branches and leaves of trees. Monarchs depart from these overwintering sites in late-February or March. At this time, they disperse across California and several western states to breed (Dingle et al. 2005).

Milkweed host plants for this species were not detected within the BSA during protocol-level plant surveys, and therefore, breeding within the BSA is not expected. However, monarch butterflies are distributed fairly widely in California and could occur anywhere in the state, at least during migration. Whether or not the species breeds within the BSA, migrant monarchs move through the region and are expected to occasionally nectar at flowering plants within the BSA.

Migratory Birds

During the nesting season (generally February 1 through August 31 for most birds in the Project vicinity), migratory birds may nest within the BSA on the ground; on or in human-made structures; and in trees, shrubs, or other vegetation. These birds receive protection under the federal Migratory Bird Treaty Act and CFGC Section 3503.

A number of common bird species were seen or heard within the BSA during surveys, including red-tailed hawk (*Buteo jamaicensis*), California towhee (*Melozone crissalis*), dark-eyed junco (*Junco hyemalis*), and turkey vulture (*Cathartes aura*). Potential nesting sites (e.g., trees, bridges, groundcover) exist throughout the BSA, except in the active roadway.

2.3.4.3 Environmental Consequences

Build Alternative

Phase 1 Construction

Bat Species

Construction activities would lead to temporary increases in noise, dust, and human disturbance, all of which have the potential to impact bat species potentially present within the BSA. Construction of the transition and permanent bridges at Novato Creek, increased human presence within staging areas located adjacent to the U.S. 101/SR 37 interchange bridges, and removal of vegetation that could support roosting bats would result in temporary displacement of bats and temporary loss of bat roosting habitat.

The U.S. 101/SR 37 interchange bridges, Novato Creek Bridge, and Atherton Avenue Undercrossing provide suitable roosting habitat for bats within and adjacent to Phase 1 work areas within the BSA. Cliff swallow (*Petrochelidon pyrrhonota*) nests

and crevices present at both the U.S. 101/SR 37 interchange bridges and the Atherton Avenue Undercrossing provide suitable cavity roosting habitat for bat species, particularly pallid bat, Mexican free-tailed bat, and Yuma myotis. Maternity roosting habitat is potentially present within the interior of the U.S. 101/SR 37 interchange bridge as accessed via soffit vents, as well as within box girders present at the Atherton Avenue Undercrossing. Swallow nests present at both of these locations likely do not support bat maternity roosts; rather, they provide potential day roosting habitat. Crevice features present between sections of concrete bridge railings at the Atherton Avenue Undercrossing also provide suitable day roosting habitat.

The underside of the Novato Creek Bridge contains crevices and cavities that could support roosting bats. Bat guano and urine staining were observed at the crevices present in this location during a focused assessment of bat habitat throughout the BSA, but no bat species were observed during this survey. Nevertheless, day- and night roosting could occur here. Townsend's big-eared bat could potentially use cavernous areas located at each end of the bridge (near the abutments), and Mexican free-tailed bat and Yuma myotis could roost in crevices. Prior to construction, Caltrans would implement AMM-BIO-1, Maternity-season Survey for Roosting Bats, to survey for bats in the Novato Creek Bridge.

Phase 1 construction would replace the existing Novato Creek Bridge with a longer bridge. A temporary construction trestle would be used for demolition of the existing bridge and construction of the new bridge. Any bats roosting in and under the existing bridge would be excluded prior to demolition in accordance with AMM-BIO-4, Bat Exclusion. The Project would result in the loss of an existing bat roosting structure. However, with implementation AMM-BIO-2, Replacement of Lost Bat Roost Habitat, a qualified bat biologist would determine the appropriate type and design of one or more (with the number depending on the number of bats that need to be supported) artificial roost structures to be placed on the Novato Creek Bridge.

Nevertheless, construction-related disturbance could cause the temporary abandonment of roost sites. Construction that occurs during the bat maternity season (generally April 1 through August 31) could cause females to abandon their young, leading to the loss of individuals. Injury or mortality of individuals could also occur if bats are present when demolition of existing structures, such as the existing Novato Creek Bridge, occurs. Implementation of AMM-BIO-3, Pre-activity Survey for Roosting Bats, and AMM-BIO-4, Bat Exclusion, would avoid such impacts through pre-construction bat surveys and bat exclusion outside of (or disturbance-free buffers during) the maternity season. Project features (Appendix D) would further reduce impacts to bats by minimizing impacts to vegetation that could support roost sites or

prey (PF-BIO-10, Vegetation and Tree Removal), minimizing night lighting (PF-BIO-13, Night Lighting), and revegetating temporary impact areas (PF-BIO-11, Landscaping and Revegetation Plan). With implementation of AMM-BIO-3, Pre-activity Survey for Roosting Bats, AMM-BIO-4, Bat Exclusion, and Project features, impacts of Phase 1 construction on bats would be less than significant.

Raptors, Other Nesting Birds, and Migratory Birds

During Phase 1 of Project construction, 3.35 acres of vegetated habitat (excluding 2.93 acres of herbaceous vegetation in the median that has negligible habitat value) would be permanently impacted, and another 20.17 acres of vegetated habitat would be temporarily impacted. The permanent impact to vegetated habitat excludes 2.93 acres of impacts to the median, which provides negligible habitat value, from the total 6.28 acres of vegetated habitat. Vegetated habitat acres include all general habitat type depicted in table 2.3-2 except open water. This vegetation removal and disturbance would result in the loss of nesting, foraging, and roosting habitat for a variety of birds, including special-status species such as the northern harrier, white-tailed kite, San Francisco common yellowthroat, San Pablo song sparrow, and Bryant's savannah sparrow, and numerous species of non-special-status birds. Vegetation removal may also impact food availability for birds. During the bird nesting season (generally February 1 through August 31 for most bird species nesting in the Project vicinity), removal of vegetation, demolition and reconstruction of the Novato Creek Bridge, and replacement of culverts could result in the direct loss or disturbance of nests with eggs and young; and construction activities involving noise and movement of personnel and equipment in proximity to active nests could cause adults to abandon their eggs and young.

Project features (Appendix D) would minimize direct and indirect impacts to nesting birds through nesting bird surveys and buffers around active nests (PF-BIO-6, Nesting Bird Surveys and Buffers); marking ESAs (PF-BIO-4, Mark Environmentally Sensitive Areas); minimizing impacts to vegetation that could support nesting sites, roost sites, or food for birds (PF-BIO-10, Vegetation and Tree Removal); minimizing night lighting that might disturb birds (PF-BIO-13, Night Lighting); replanting trees to offset tree removals (PF-BIO-11, Landscaping and Revegetation Plan); and revegetating temporary impact areas (PF-BIO-9, Restore Disturbed Areas). In addition, other Project features and AMMs described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Build Alternative on a number of bird species that forage and/or nest in wetlands, including the white-tailed kite, northern harrier, San Francisco common yellowthroat, San Pablo song sparrow, and Bryant's savannah sparrow. The majority of potential nesting and foraging habitat for birds that would be impacted by the Build Alternative is located close to the existing traffic lanes of SR 37, and much of this habitat consists of ruderal herbaceous vegetation

within the existing interchanges, in the median, and along the immediate shoulders of SR 37. As a result, potential nesting and foraging habitat to be impacted by the Project is of low quality and is expected to be used by relatively low numbers of nesting birds. With implementation of Project features, impacts of Phase 1 construction on protected birds would be less than significant.

The Project design would provide additional habitat for animal species beneath the Novato Creek Bridge. For example, the availability of bat roosting habitat may increase, if sufficient suitable roosting sites for bats are present under the causeway; and cliff swallows, barn swallows (*Hirundo rustica*), black phoebes (*Sayornis nigricans*), and other birds would nest under the enlarged Novato Creek Bridge.

Sacramento Splittail

Phase 1 consists of replacing Novato Creek Bridge. If the Sacramento splittail is present within the BSA, aspects of the Project may result in behavioral changes from waterborne noise from nearby pile driving and increased turbidity.

Although there would be no pile driving within the Novato Creek channel, the new bridge piles and the temporary construction trestle piles within the marsh area of Novato Creek would be vibrated in as deep as possible before using an impact pile hammer. Impact pile driving would generate a high level of noise, which could propagate through the water and potentially impact fish behavior and physiology. Temporary increases in turbidity within Novato Creek from demolition of the existing bridge and installation of the new bridge and temporary construction trestle within the marsh area of Novato Creek could have a range of effects on fish behavior, including altered feeding, impaired vision, disrupted migration patterns, and increased stress levels.

Construction of the new Novato Creek Bridge, including installation of the temporary construction trestle, and demolition of the existing bridges would occur over Novato Creek and have the potential to introduce debris and pollutants into the creek. Debris and pollutants could include concrete from the existing bridge, and oil and grease from nearby vehicles and construction equipment. A construction or debris containment platform would be used to minimize the potential for debris to enter the waterway.

Existing piles associated with the Novato Creek Bridge would be cut to a depth of 3 feet below the mudline. These 224 existing piles, each 16 inches in diameter, collectively represent 313 square feet (0.007 acre) of structures that would be removed from existing wetland and aquatic habitats. Because Novato Creek is a perennial waterbody, a small area around each pile within the channel might need to be dewatered to remove these piles. A series of sheet-pile cofferdams, or similar

structure, would be constructed around existing piles within the channel. These sheet-pile cofferdams are anticipated to surround existing piles on all sides. The sheet piles that would form the cofferdams would be driven to a depth of 20 feet and would be installed so that they are above the water levels during high tides. Once the sheet piles have been sealed, water would be pumped out as needed. Installation of the cofferdams around the piles could result in fish stranding. To minimize potential effects on Sacramento splittail, a qualified fisheries biologist would conduct fish rescue and relocation efforts to collect fish located within the cofferdam, as safe and feasible to do so. This would be implemented during dewatering of the area behind the cofferdam.

PF-BIO-3, Worker Environmental Awareness Training, PF-WQ-1, Stormwater Pollution Prevention Plan, PF-BIO-9, Restore Disturbed Areas, PF-BIO-19, In-channel Work Period, and PF-BIO-23, Vibratory Pile Driving, would minimize potential impacts on Sacramento splittail. However, because suitable habitat is present within the BSA, Caltrans would also implement the following AMMs for the Sacramento splittail:

- AMM-BIO-5: Fish Removal and Relocation Plan
- AMM-BIO-6: Cofferdam Installation

With implementation of these AMMs and Project features, impacts of Phase 1 construction on Sacramento splittail would be less than significant.

Monarch Butterfly

For the monarch butterfly, vegetated habitat includes all general habitat types shown in Table 2.3-2 except open water and excludes 2.93 acres of permanent impact and 0.25 acre of temporary impact to the median, which provide negligible habitat value.

During Phase 1 of the Project, impacts to vegetation that support nectaring monarchs could impact individuals of this species. Phase 1 would permanently impact 3.35 acres of vegetated habitat (excluding 2.93 acres of herbaceous vegetation in the median that has negligible habitat value) and temporarily impact another 20.17 acres of vegetated habitat that could support nectar sources for the monarch butterfly. Although breeding monarchs are determined to be absent from the BSA due to a lack of suitable host plants (e.g., *Asclepias* spp.), individuals may use flowering plants within the BSA as food sources. Permanent and temporary impacts where vegetation clearing would be required as part of construction for staging areas, construction access roads, temporary bridge access areas, and construction of the transition and permanent bridges at Novato Creek would impact potential nectaring habitat for this species. However, Project features (Appendix D)

would reduce impacts on monarch butterfly habitat by minimizing impacts to vegetation (PF-BIO-10, Vegetation and Tree Removal) and revegetating temporary impact areas (PF-BIO-9, Restore Disturbed Areas). Therefore, impacts of Phase 1 construction on the monarch butterfly would be less than significant.

Phase 2 Construction

Bat Species

During Phase 2, construction activities would lead to the same types of impacts on roosting bats as described for Phase 1 construction. In addition to the potential roost sites discussed for Phase 1, the larger Novato Creek Bridge and transition bridges constructed during Phase 1 could support roosting bats. Construction that occurs during the bat maternity season (generally April 1 through August 31) could cause females to abandon their young, leading to the loss of individuals. Injury or mortality of individuals could also occur if bats are present when demolition or replacement of existing structures, such as the Simonds Slough culvert, occurs.

Implementation of AMM-BIO-3, Pre-activity Survey for Roosting Bats, and AMM-BIO-4, Bat Exclusion, would avoid such impacts through pre-construction bat surveys and bat exclusion outside of (or disturbance-free buffers during) the maternity season. Project features (Appendix D) would further reduce impacts to bats by minimizing impacts to vegetation that could support roost sites or prey (PF-BIO-10, Vegetation and Tree Removal), minimizing night lighting (PF-BIO-13, Night Lighting), and revegetating temporary impact areas (PF-BIO-9, Restore Disturbed Areas). With implementation of AMM-BIO-3, Pre-activity Survey for Roosting Bat, and AMM-BIO-4, Bat Exclusion, and Project features, impacts of Phase 2 construction on bats would be less than significant.

Raptors, Other Nesting Birds, and Migratory Birds

During Phase 2 construction, construction activities would potentially lead to the same types of impacts on birds as described for Phase 1 construction. During Phase 2 of Project construction, 1.65 acres of vegetated habitat (excluding 4.33 acres of herbaceous vegetation in the median that has negligible habitat value) would be permanently impacted, and another 22.42 acres of vegetated habitat would be temporarily impacted. This vegetation removal and disturbance would result in the loss of nesting, foraging, and roosting habitat as described for Phase 1 construction. Impacts to both vegetated areas and artificial structures could result in the direct loss or disturbance of nests with eggs and young, and construction activities involving noise and movement of personnel and equipment in proximity to active nests could cause adults to abandon their eggs and young.

Project features (Appendix D) as described for Phase 1 construction, would minimize direct and indirect impacts to nesting birds through nesting bird surveys and buffers around active nests (PF-BIO-6, Nesting Bird Surveys and Buffers) and by minimizing impacts to vegetation that could support nesting sites, roost sites, or food for birds (PF-BIO-10, Vegetation and Tree Removal); minimizing night lighting that might disturb birds (PF-BIO-13, Night Lighting); and revegetating temporary impact areas (PF-BIO-9, Restore Disturbed Areas). With implementation of Project features, impacts of Phase 2 construction on protected birds would be less than significant. The causeway and the Novato Creek Bridge may provide new habitat for animal species, such as nesting birds and possibly roosting bats.

Sacramento Splittail

Because of the lack of an unimpeded hydrological connection to San Pablo Bay and inadequate habitat, Sacramento splittail is presumed absent from Simonds Slough; and therefore, there would be no impact.

Monarch Butterfly

During Phase 2 construction, construction activities would lead to the same types of impacts on monarch butterflies as described for Phase 1 construction. Phase 2 would permanently impact 1.65 acres of vegetated habitat (excluding 4.33 acres of herbaceous vegetation in the median that has negligible habitat value) and temporarily impact 22.42 acres of vegetated habitat that could support nectar sources. However, Project features (Appendix D) would reduce impacts on monarch butterfly habitat by minimizing impacts to vegetation and revegetating temporary impact areas. In addition, Caltrans would re-evaluate biological conditions during the design phase of Phase 2. Therefore, impacts of Phase 2 construction on the monarch butterfly would be less than significant.

Operation

Operation of the Build Alternative would have no direct impacts to animal species. At completion, the Build Alternative would provide additional habitat for animal species beneath the causeway and the Novato Creek Bridge as the availability of bat roosting habitat would increase, as bats are likely to roost under the causeway; and cliff swallows, barn swallows (*Hirundo rustica*), black phoebes (*Sayornis nigricans*), and other birds would nest under the causeway and the enlarged Novato Creek Bridge. The new Novato Creek Bridge would free-span the Novato Creek channel, avoiding the installation of permanent fill in the channel and resulting in the net addition of aquatic habitat as well as easing upstream and downstream passage for fish and positively impacting fish habitat. Animals would also be able to more easily move across SR 37 by moving under the lengthened Novato Creek Bridge and the causeway, resulting in a positive impact in connectivity and habitat.

No-Build Alternative

The No-Build Alternative would have no impact on special-status animals potentially occurring within the BSA because the Novato Creek Bridge would not be replaced and the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue would not be built. There would be no improvements to SR 37, and any special-status animals potentially present would not be impacted.

2.3.4.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following AMMs would be implemented to minimize impacts on special-status animals and other protected animals:

AMM-BIO-1: Maternity-season Survey for Roosting Bats. Sometime during the maternity season (April 1 through August 31), within 3 years prior to Phase 1 construction (including demolition), qualified biologists would conduct a survey of the Novato Creek Bridge and the Simonds Slough Bridge to determine the species, and estimate the number of individuals of each species, of bats using each of these two structures as day roosts. Such data would be collected using a combination of visual surveys, dusk emergence surveys, and acoustic monitoring data to document the species using these structures that would be impacted by the Project. A similar survey would be conducted at the transition bridges and at the abutments of the Novato Creek Bridge within 3 years prior to the start of Phase 2 construction.

AMM-BIO-2: Replacement of Lost Bat Roost Habitat. Based on the results of the survey that would be conducted prior to construction of each Project phase, as well as the detailed design of the Novato Creek Bridge and causeway, a qualified bat biologist would determine whether there would be a loss of bat roost habitat. For example, if Caltrans designs the bridge and/or causeway to incorporate bat roosting habitat into the bridge design itself, no additional replacement of bat roost habitat would be necessary. However, if the qualified bat biologist determines that the bridge and/or causeway would not provide enough suitable bat roost habitat to replace existing habitat lost as a result of the Project, the biologist would determine the appropriate type and design of one or more artificial roost structures to be placed either at a suitable off-site location or on the Novato Creek Bridge (immediately following completion of Phase 1 construction) and/or causeway (immediately following completion of Phase 2 construction) to provide day roosting habitat to replace impacts by each Project phase. The artificial roost structure(s) would be large enough to support at least the same number of bats that would be permanently displaced by each phase of the Project. The off-site locations, or locations on the bridge/causeway where the artificial structure(s) would be placed, would be determined by a qualified Caltrans biologist or another qualified bat biologist in coordination with Caltrans.

AMM-BIO-3: Pre-activity Survey for Roosting Bats. Prior to Phase 1 construction (including demolition), and again prior to Phase 2 construction, a qualified biologist would conduct an initial inspection of the entire Project area and surrounding areas within 250 feet (if accessible) for suitable day roosting bat sites. The biologist would then conduct a pre-activity survey for roosting bats within and under all bridges, culverts, and trees on and within 250 feet of the Project site that are found to provide suitable day roosting habitat. The survey would be conducted by a qualified bat biologist within 7 days prior to the start of demolition or construction activities within a given area. If close inspection of potential roost features during the daytime is infeasible, the focused survey would include a dusk emergence survey when bats can be observed flying out of the roost.

If a bat day roost is present, the qualified biologist would identify an appropriate disturbance-free buffer zone to be maintained until either the end of the maternity season or a qualified biologist has determined that all young are volant (i.e., capable of flight) to avoid the loss of dependent young. The exclusion measures described in AMM-BIO-4, Bat Exclusion, would be implemented after dependent young are no longer present and prior to the removal of any portion of the roost (or, prior to the maternity season).

AMM-BIO-4: Bat Exclusion. If bats are present in a bridge, culvert, or tree to be removed, or close enough to demolition or construction areas that a qualified biologist determines the bats should be excluded to avoid abandoning young during the maternity season, a qualified biologist would install appropriate exclusion devices on all roost habitat features to allow any roosting bats to vacate the roost and prevent any bats from occupying these features before demolition is initiated.

For active roosts that are present in trees, as an alternative to the installation of exclusion devices, the contractor may remove suitable roost trees on the Project site using a two-step tree removal process outside the maternity season (i.e., during the period from September 1 to March 31). The first day of tree removal would involve the removal of tree limbs that do not support roost habitat features, so that the tree and any roosting bats are sufficiently disturbed and thereby encouraged to vacate the tree. The tree may then be removed on the second day. Exclusion of bats would take place during weather when nighttime lows are not less than 45°F and during dry weather conditions when bats are most active. Bat exclusion may occur proactively, prior to April 1, to prevent breeding bats from constraining dry-season construction activity, or after the maternity season (i.e., after August 31 or after a qualified biologist has determined that all young are capable of flight).

AMM-BIO-5: Fish Removal and Relocation Plan. As directed by state or federal permitting agencies, the Caltrans biologist would prepare a fish removal and relocation plan for the Project. This plan would include measures to relocate fish

within cofferdams and other areas to be dewatered. The plan would include reasonable and prudent efforts that would be taken to prevent and minimize injury, stress, or death of captured fish, while ensuring safety of the biologists conducting the fish removal and relocation. A qualified fisheries biologist would act as the lead monitor during implementation of the plan during construction.

AMM-BIO-6: Cofferdam Installation. During construction, cofferdams would be installed and sealed during low tides to minimize the potential for fish to be present within them.

2.3.5 Threatened and Endangered Species

2.3.5.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the FESA (16 USC Section 1531, et seq.; see also 50 CFR Part 402). FESA and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under FESA Section 7, federal agencies, such as FHWA (and Caltrans, as assigned), are required to consult with USFWS and NMFS 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. FESA Section 3 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, CESA CFGC 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. CDFW is the agency responsible for implementing CESA. CFGC Section 2080 prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in CFGC Section 86 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 FESA Section 7, CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under CFGC Section 2080.1.

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 the following: (1) 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 (2) 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

As discussed in Section 2.3.3.2, a query of the CNPS inventory (CNPS 2023), CNDDB database (CDFW 2023a), and USFWS species list (USFWS 2023a) was performed to identify state or federally threatened, endangered, or proposed plants potentially occurring near the BSA, based on the USGS 7.5-minute quadrangle map that encompasses the BSA (Novato [3812215]), and the eight surrounding quadrangles (Petaluma [3812226)], Petaluma River [3812225], San Geronimo ([3812216], Bolinas [3712216], San Rafael [3712285], San Quentin [3712284], Petaluma Point [3812214], and Sears Point [3812224]).

Those 17 listed or proposed plant species with CNDDB records within a 5-mile radius of the BSA or with potential habitat present within the BSA based on habitat mapping are discussed in Table 2.3-5 (listed in alphabetical order by scientific name).

Focused, protocol-level surveys for special-status plants were conducted during the appropriate seasons for detecting each potentially occurring species – in early spring (March 30 and 31, 2022), mid-spring (April 25, 2022), and late summer (July 27 and 28, 2022). These surveys detected no state or federally threatened, endangered, or proposed plants within the BSA. Such plants are considered absent for purposes of Phase 1 impact assessment. Because no special-status plants were detected in the BSA during protocol-level surveys and the BSA is heavily disturbed by the presence of SR 37, special-status plants are also not expected to be impacted by Phase 2 construction. Caltrans would re-evaluate biological conditions, and impacts as needed, during the design phase of Phase 2.

As discussed in Section 2.3.4.2, CDFW (2023a), NMFS (2023), and USFWS (2023a) species lists were reviewed to identify state or federally threatened, endangered, or proposed animals potentially occurring near the BSA. Twenty listed animal species were evaluated for their potential to occur within the BSA. These species are listed in Table 2.3-6, in alphabetical order by scientific name within general groups in the following order: mammals, birds, reptiles, amphibians, fish, insects, crustaceans. Figure 2.3-6 depicts the locations of designated critical habitat for listed species in the Project vicinity.

Table 2.3-5. Threatened and Endangered Plants Considered for Potential to Occur within the Biological Study Area

Scientific Name	Common Name	Status FESA[a]	Status CESA[b]	Status CNPS[c]	General Habitat Requirements, Micro-habitat, Elevation Range (NAVD 88)	Blooming Period	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
Alopecurus aequalis var. *sonomensis*	Sonoma Alopecurus	FE	NA	1B.1	Marsh and swamps and riparian scrub; 15 to 1,200 feet.	May to July	**None.** Marginally suitable freshwater marsh occurs in the BSA, primarily south of SR 37; but in most areas, freshwater marsh within the BSA includes a monoculture of *Typha* sp. that would likely preclude this species. This species was not detected during protocol-level surveys and is considered absent.	No effect
Arctostaphylos pallida	Pallid Manzanita	FT	SE	1B.1	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub underlain by siliceous shale and sandy and gravelly soil; 605 to 1,525 feet.	December to March	**None.** No suitable chaparral or coastal scrub is present in the BSA, and no edaphic conditions suitable for the species exist within the BSA. Additionally, the BSA is also well outside the known species' elevation range.	No effect
Blennosperma bakeri	Sonoma Sunshine	FE	SE	1B.1	Valley and foothill grassland and vernal pool; 35 to 360 feet.	March to May	**None.** No suitable vernal pool occurs within the BSA. Nearby records from Sonoma and Marin Counties suggest the species has also been found in roadside drainages and swales such as those on either side of SR 37 (CDFW 2023a), but most of these records are historical or potentially extirpated. This species was not detected during protocol-level surveys and is considered absent.	No effect
Calochortus tiburonensis	Tiburon Mariposa-lily	FT	ST	1B.1	Valley and foothill grassland in serpentine soil; 165 to 490 feet.	March to June	**None.** Suitable edaphic conditions are absent, and grassland in the BSA is highly disturbed and annually mowed.	No effect
Castilleja affinis var. *neglecta*	Tiburon Paintbrush	FE	ST	1B.2	Valley and foothill grassland on serpentinite substrate; 195 to 1,310 feet.	April to June	**None.** Suitable serpentine grassland is absent from the BSA. Of the four occurrences in Marin County, none occurs within a 5-mile radius of the BSA (CDFW 2023a).	No effect
Chloropyron molle ssp. *molle* [*Cordylanthus mollis* ssp. *mollis*]	Soft Salty Bird's-beak	FE	Rare	1B.2	Coastal salt marsh in coastal salt marsh with *Distichlis, Salicornia, Frankenia*, and similar; 0 to 10 feet.	June to November	**None.** Suitable habitat occurs within the BSA along Novato Creek, and records are in the Project vicinity in the Burdell area. This species was not detected during protocol-level surveys and is considered absent.	No effect
Chorizanthe valida	Sonoma Spineflower	FE	SE	1B.1	Coastal prairie; 35 to 1,000 feet.	June to August	**None.** No suitable coastal prairie occurs within the BSA.	No effect
Delphinium bakeri	Baker's Larkspur	FE	SE	1B.1	Mesic, shale substrate in broadleafed upland forest, coastal scrub, or valley and foothill grassland; 260 to 1,000 feet.	March to May	**None.** No suitable edaphic conditions occur within the BSA. Additionally, the BSA is outside the species' elevation range.	No effect
Delphinium luteum	Golden Larkspur	FE	Rare	1B.1	Rocky substrate in chaparral, coastal prairie, and coastal scrub; 0 to 330 feet.	March to May	**None.** No suitable chaparral, coastal prairie, and coastal scrub with rocky soils occur within the BSA.	No effect
Hesperolinon congestum	Marin Western Flax	FT	ST	1B.1	Chaparral and valley and foothill grassland in serpentine barrens, serpentine grassland, and chaparral; 15 to 1,215 feet.	April to July	**None.** No suitable edaphic conditions occur within the BSA. The species was determined to be absent.	No effect
Holocarpha macradenia	Santa Cruz Tarplant	FE	SE	1B.1	Coastal prairie, coastal scrub, and valley and foothill grassland; 35 to 720 feet.	June to October	**None.** Marginally suitable grassland habitat occurs in the BSA, but coastal prairie is absent. The species is no longer considered extant in Marin or Sonoma Counties (CNPS 2023) and is considered absent.	No effect

Scientific Name	Common Name	Status FESA[a]	Status CESA[b]	Status CNPS[c]	General Habitat Requirements, Micro-habitat, Elevation Range (NAVD 88)	Blooming Period	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
Lasthenia conjugens	Contra Costa Goldfields	FE	NA	1B.1	Mesic in cismontane woodland, playa (alkaline), valley and foothill grassland, and vernal pool; 0 to 1,540 feet.	March to June	**None.** No suitable vernal pool occurs within the BSA, but the species may also occur in roadside ditches with sufficiently alkaline soil, which are present in the BSA. There are no records within 5 miles of the BSA. This species was not detected during protocol-level surveys and is considered absent.	No effect
Lilium pardalinum ssp. *pitkinense*	Pitkin Marsh Lily	FE	SE	1B.1	Cismontane woodland, meadow and seep, marsh and swamp; saturated sandy soil with grass and shrub; 15 to 1,215 feet.	April to July	**None.** Only one reported occurrence of this species is within a 5-mile radius of the BSA, and it is old and presumed extirpated. Appropriate sandy substrate is lacking from the BSA.	No effect
Pentachaeta bellidiflora	White-rayed Pentachaeta	FE	SE	1B.1	Cismontane woodland and valley and foothill grassland, often rocky and sometimes serpentinite or ultramafic; 115 to 2,035 feet.	March to May	**None.** Marginally suitable grassland habitat occurs within the BSA north of SR 37, but edaphic conditions are not appropriate. All six CNDDB records from Sonoma and Marin Counties (CDFW 2023a) are old, suggesting the species is no longer extant in the region.	No effect
Streptanthus glandulosus ssp. *niger*	Tiburon Jewelflower	FE	SE	1B.1	Valley and foothill grassland and serpentinite; 100 to 490 feet.	May to June	**None.** No suitable edaphic conditions are present in the BSA.	No effect
Suaeda californica	California Seablite	FE	NA	1B.1	Coastal salt marsh and swamp; 0 to 50 feet.	July to October	**None.** The only records near San Francisco Bay are from planted populations. CNDDB or CNPS records are north of San Francisco Bay or near San Pablo Bay (CDFW 2023a). This species is, considered absent.	No effect
Trifolium amoenum	Two-fork Clover	FE	NA	1B.1	Coastal bluff scrub and valley and foothill grassland on heavy soil, sometimes ultramafic; 15 to 1,360 feet.	April to June	**None.** Potentially suitable brackish marsh and grassland occur within the BSA; CNDDB Occurrence No. 11 occurs within a 5-mile vicinity of the BSA (CDFW 2023a). However, edaphic conditions within the BSA are not ideal for the species. This species was not detected during protocol-level surveys and is considered absent.	No effect

[a]Federal (USFWS) 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

[b]State (CDFW) designations:

- SE = Endangered: any species in danger of extinction throughout all or a significant portion of its range
- Rare = Rare - not presently threatened with extinction, but may become endangered if conditions worsen (designation for plants only)
- ST = Threatened: any species likely to become endangered within the foreseeable future

[c]CNPS designations:

- 1B = Plants rare, threatened, or endangered in California or elsewhere
- 0.1 = Seriously threatened in California (over 80 percent occurrences threatened/high degree and immediacy of threat)
- 0.2 = Moderately threatened in California (20–80 percent occurrences threatened/moderate degree and immediacy of threat)

Sources: CDFW 2023a, CNPS 2023, USFWS 2023a.

Table 2.3-6. Threatened and Endangered Animals Species with Potential to Occur within the Biological Study Area

Species	Scientific Name	Common Name	Status FESA[a]	Status CESA[b]	Status CDFW[c]	General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
Mammals	*Reithrodontomys raviventris*	Salt Marsh Harvest Mouse	FE	SE	FP	Only in saline emergent wetland of San Francisco Bay and its tributaries.	Pickleweed is primary habitat but may occur in other marsh vegetation and adjacent upland areas; does not burrow, builds loosely organized nests, and requires higher areas for refugia from flooding.	**High potential.** Known to occur in marshes along San Pablo Bay and the Petaluma River (CDFW 2023a). Species was undetected in the BSA. A focused habitat assessment determined that diked brackish marsh and tidal salt marsh along Novato Creek and Simonds Slough and along the south side of SR 37 from Novato Creek eastward nearly to Atherton Avenue provide potential habitat for this species.	May affect, likely to adversely affect
Birds	*Agelaius tricolor*	Tricolored Blackbird	NA	ST	NA	Highly colonial species, most numerous in the Central Valley and its vicinity. Largely endemic to California, occurring in marshes and agricultural lands.	Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**Moderate potential.** Suitable breeding habitat occurs in freshwater wetlands (such as along Simonds Slough) and possibly in Himalayan blackberry stands within and adjacent to the BSA. Breeding colonies have been recorded within 3.5 miles of the BSA (CDFW 2023a). There is a low probability of breeding within the BSA due to noise and traffic along SR 37.	N/A (not federally listed or proposed)
Birds	*Buteo swainsoni*	Swainson's Hawk	NA	ST	NA	Nests in trees close to open foraging habitat, such as grassland, wetlands, hayfields, and certain other agricultural land uses.	Uses a variety of trees as nest sites, and forages in a variety of open habitats.	**High potential.** Suitable nesting habitat occurs in the form of trees near extensive grassland and wetlands. No recent CNDDB records are within 5 miles of the site (CDFW 2023a), but several recent breeding-season records are from the vicinity of the BSA (eBird 2023), and this species' breeding range has been expanding westward from core Central Valley breeding areas. This species could breed in trees that are in or near the BSA and forage within and adjacent to the BSA in open herbaceous and wetland habitats.	N/A (not federally listed or proposed)
Birds	*Charadrius nivosus*	Western Snowy Plover	FT	NA	SSC	Sandy beaches, salt pond levees, and shores of large alkali lakes.	Needs sandy, gravelly, or friable soils for nesting.	**None.** No suitable nesting or foraging habitat occurs within or near the BSA.	No effect
Birds	*Laterallus jamaicensis coturniculus*	California Black Rail	NA	ST	FP	Inhabits salt marsh and brackish marsh around San Francisco Bay, and breeds in freshwater marsh in portions of the Central Valley and Sierra Nevada foothills.	Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**Moderate potential.** The species has been recorded in the salt marsh along Novato Creek, immediately south of the BSA (CDFW 2023a). A focused habitat assessment determined that tidal salt marsh along Novato Creek within the BSA provides suitable breeding habitat, and the species may breed there. It is unlikely to nest within the BSA itself, given noise and traffic along SR 37.	N/A (not federally listed or proposed)

Species	Scientific Name	Common Name	Status FESA[a]	Status CESA[b]	Status CDFW[c]	General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
Birds	*Rallus obsoletus*	California Ridgway's Rail	FE	SE	FP	Saltwater and brackish marshes traversed by tidal sloughs near San Francisco Bay.	Nests in cordgrass, gumplant, pickleweed, or bulrush, usually near tidal channels where most foraging occurs.	**Moderate potential.** There is a 1993 CNDDB record of individuals along Novato Creek both north and south of SR 37 in June during the nesting season). There are numerous additional CNDDB records from tidal marsh farther downstream (CDFW 2023a) and a breeding-season eBird record from late May 2021 along Novato Creek approximately 0.7 mile south of the BSA. A focused habitat assessment determined the tidal salt marsh along Novato Creek within the BSA provides suitable breeding habitat, and the species may breed there. It is unlikely to nest within the BSA itself, given noise and traffic along SR 37.	May affect, likely to adversely affect
Birds	*Sternula antillarum browni*	California Least Tern	FE	SE	FP	Nests along the coast from San Francisco Bay south to northern Baja California; colonial breeder on bare or sparsely vegetated, flat substrates.	Nests on sand beaches, alkali flats, landfills, or even paved areas.	**None.** No suitable nesting habitat occurs within the vicinity of the BSA. Nearest known nesting site is more than 7 miles east of the BSA, which is outside of the species' foraging range.	No effect
Birds	*Strix occidentalis caurina*	Northern Spotted Owl	FT	ST	NA	Old-growth forests or mixed stands of old-growth and mature trees; occasionally in younger forests with patches of big trees.	High, multistory canopy dominated by big trees, many trees with cavities, or broken tops, woody debris, and space under canopy.	**None.** No suitable habitat occurs within or near the BSA.	No effect
Reptiles	*Actinemys marmorata*	Northwestern Pond Turtle	FPT	NA	SSC	Aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation (NAVD 88).	Requires basking sites in and around aquatic habitat, and suitable upland habitat (sandy banks or grassy open fields) up to 0.3 mile from water for egg-laying.	**Moderate potential.** Potential habitat occurs in Simonds Slough within the BSA, but no CNDDB-recorded occurrences are close to the Project limits (CDFW 2023a). The nearest CNDDB-recorded occurrences are mapped 2.3 miles west of the BSA (across U.S. 101) and 4.3 miles south of the BSA. Surveys by the Marin County Flood Control and Water Conservation District have documented this species in ponds (Duck Bill and Pacheco Pond) both north and south of the Project area, as close as 0.6 mile away. Because this species can occur in brackish water to some extent, there is some potential for dispersing individuals to occur in the Project alignment along Simonds Slough and possibly Novato Creek, although given the lack of high-quality freshwater pools with basking sites, the probability of occurrence in the BSA is fairly low.	May affect, likely to adversely affect

Species	Scientific Name	Common Name	Status FESA[a]	Status CESA[b]	Status CDFW[c]	General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
Reptiles	*Chelonia mydas*	Green Sea Turtle	FT	NA	NA	Marine; completely herbivorous.	Needs adequate supply of seagrasses and algae.	**None.** No marine habitat occurs within the BSA.	No effect
Amphibians	*Rana boylii*	Foothill Yellow-legged Frog	FP	SE	SSC	Partly shaded, shallow streams, and riffles with a rocky substrate in a variety of habitats.	Needs at least some cobble-sized substrate for egg-laying and at least 15 weeks to attain metamorphosis.	**None.** No suitable habitat occurs within the BSA, and the BSA is outside the species' range.	No effect
Amphibians	*Rana draytonii*	California Red-legged Frog	FT	NA	SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	Requires 11 to 20 weeks of permanent water for larval development and access to aestivation habitat.	**Moderate potential.** Potentially suitable breeding habitat occurs in freshwater wetland (such as Simonds Slough) within the BSA. Drainage ditches also provide suitable dispersal and potential breeding habitats for this species. CNDDB reports several records within 5 miles to the northeast (CDFW 2023a), and habitat between those occurrences and the BSA is potentially suitable for dispersal. This species may breed within the BSA and could forage within or disperse through virtually any part of the BSA.	May affect, likely to adversely affect
Fish	*Acipenser medirostris*	North American Green Sturgeon Southern DPS and Critical Habitat	FT	NA	SSC	Spawns in the Sacramento, Klamath, and Trinity Rivers and in temperatures between 8 to 14°C. Spawns in freshwater rivers; forages in estuarine and marine habitats when not spawning.	Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	**Moderate potential.** No spawning habitat occurs within the BSA, and the species does not spawn in the Novato Creek; however, the species may be present due to the BSA's suitable foraging habitat and proximity to the greater San Pablo Bay, where the fish may be migrating to spawn in the Sacramento River. Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, this species is presumed absent from Simonds Slough.	May affect, not likely to adversely affect; no impact to critical habitat
Fish	*Eucyclogobius newberryi*	Tidewater Goby	FE	NA	NA	Brackish water along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River; found in shallow lagoons and lower stream reaches.	Requires fairly still but not stagnant water and high oxygen levels.	**None.** One CNDDB occurrence of this species is within Novato Creek from 1945, considered extirpated (CDFW 2023a). The species was not discovered during 1994 targeted surveys of Novato Creek (USFWS 2005). USFWS declares this population to be extirpated from San Francisco Bay tributaries (USFWS 2005).	No effect
Fish	*Hypomesus transpacificus*	Delta Smelt	FT	SE	NA	Sacramento-San Joaquin Delta; seasonally in Suisun Bay, Carquinez Strait, and San Pablo Bay.	Seldom found at salinities more than 10 ppt and is most often at salinities less than 2 ppt.	**Low potential.** The BSA is outside of the species' current range.	No effect
Fish	*Oncorhynchus kisutch*	Central California Coast Coho Salmon ESU and Critical Habitat	FE	SE	NA	Federal listing for populations between Punta Gorda and San Lorenzo River; state listing for populations south of Punta Gorda. Spawns in freshwater streams; forages in marine habitats when not spawning.	Requires beds of loose, silt-free, coarse gravel for spawning, cover, cool water, and enough dissolved oxygen.	**None.** Although suitable habitat occurs within the BSA, the species is extirpated from the San Francisco and San Pablo Bays and their tributaries.	No effect; no impact to critical habitat

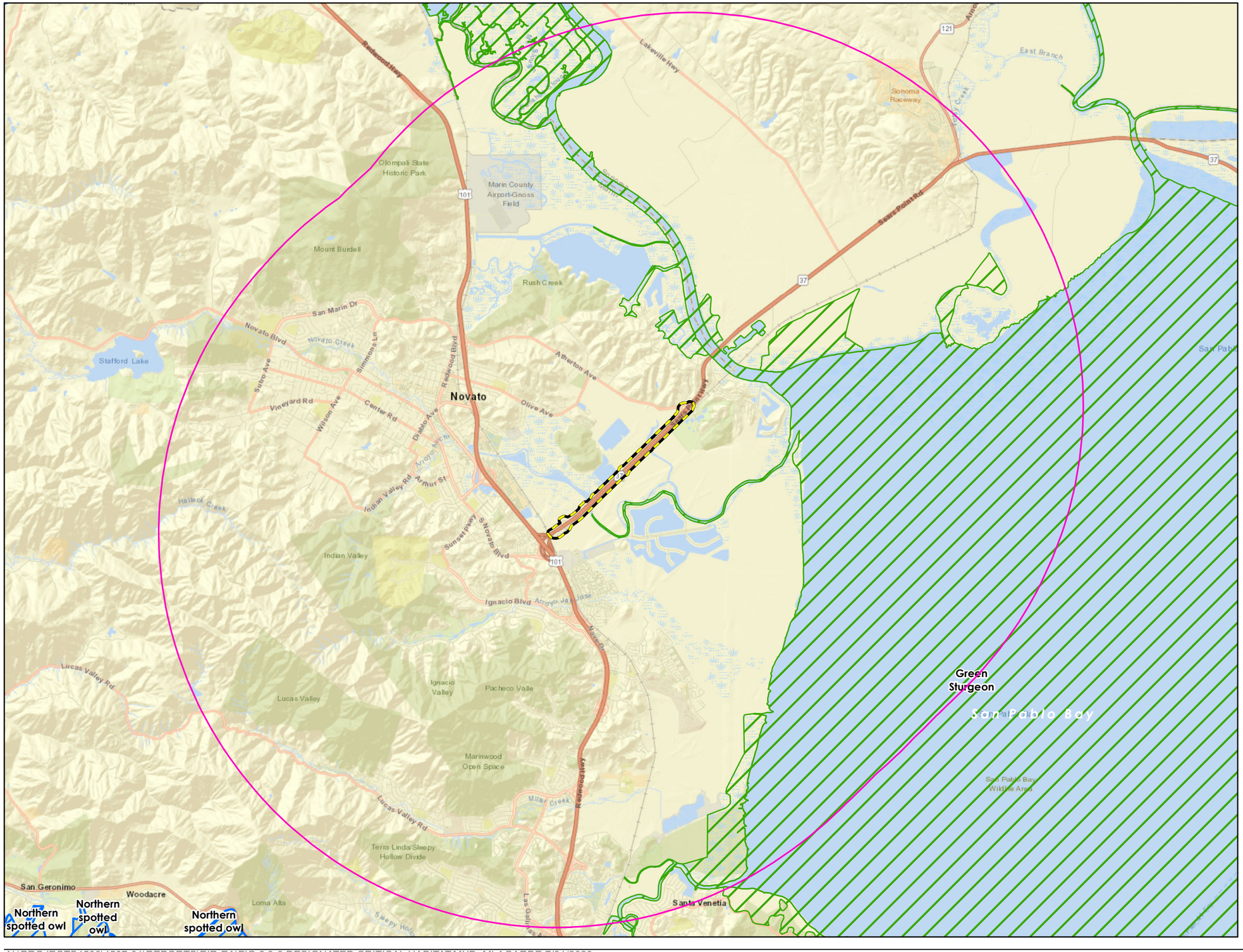
Species	Scientific Name	Common Name	Status FESA[a]	Status CESA[b]	Status CDFW[c]	General Habitat Requirements	Micro-habitat	Potential to Occur within the BSA	Potential Effects to Federally Listed Species
Fish	*Oncorhynchus mykiss*	Central California Coast Steelhead DPS and Critical Habitat	FT	NA	NA	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive) and drainages of San Francisco and San Pablo Bays. Spawns in freshwater streams; forages in marine habitats when not spawning.	Requires beds of loose, silt-free, coarse gravel for spawning, cover, cool water, and enough dissolved oxygen.	**Moderate potential.** Suitable habitat occurs within the BSA. The species has been reported in Novato Creek (Leidy et al. 2005). Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, steelhead is presumed absent from Simonds Slough.	May affect, not likely to adversely affect; no impact to critical habitat
Fish	*Oncorhynchus tshawytscha*	Sacramento River Winter-run Chinook Salmon ESU	FE	SE	NA	Sacramento River below Keswick Dam; spawns in the Sacramento River but not tributary streams; forages in marine habitats when not spawning.	Requires clean, cold water over gravel beds with water temperatures between 6 and 14°C for spawning.	**None.** The Project is located outside of the ESU boundaries.	No effect
Fish	*Spirinchus thaleichthys*	Longfin Smelt	FC	ST	NA	Euryhaline, nektonic, and anadromous; found in open waters of estuaries, mostly in middle or bottom of water column.	Prefers salinities of 15 to 30 ppt but can be found in completely fresh water to almost pure sea water.	**Moderate potential.** The San Pablo Bay supports habitat for the species, and fish may forage in Novato Creek; however, no records are within Novato Creek. Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, this species is presumed absent from Simonds Slough.	May affect, not likely to adversely affect
Insects	*Speyeria callippe*	Callippe Silverspot Butterfly	FE	NA	NA	Since 1988, recorded at San Bruno Mountain near South San Francisco (San Mateo County), in the hills hear Pleasanton (Alameda County), at Sears Point (Sonoma County), and in the hills between Vallejo and Cordelia (USFWS 2023b). Grasslands.	Males seek hilltops and hillsides of native grasslands for mates, and females lay their eggs in dead or dying larval food plant (*Viola pedunculata*) or nearby woody debris.	**None.** The BSA is outside the species' range, and no suitable habitat occurs within the BSA.	No effect
Crustaceans	*Syncaris pacifica*	California Freshwater Shrimp	FE	NA	NA	Endemic to Marin, Napa, and Sonoma Counties; found in low-elevation, low-gradient streams where riparian cover is moderate to heavy and there are shallow pools away from main streamflow.	Winter: undercut banks with exposed roots; summer: leafy branches touching water.	**None.** No suitable habitat occurs within the BSA.	No effect

DPS = Distinct Population Segment
ppt = parts per thousand
[a] Federal designations:
- FC = Candidate: information for the species is sufficient to be listed as endangered or threatened, but development of a proposed listing regulation is precluded by other higher-priority listing activities
- FPT = Proposed for federal listing as threatened
- 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

[b] State 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

[c] CDFW designations:
- SSC = Species of special concern
- FP = Fully protected

Sources: CDFW 2023a, eBird 2023, Leidy et al. 2005, NMFS 2023, USFWS 2005, USFWS 2023a.



Legend

- Biological Study Area
- 5-mile Radius
- Green Sturgeon Critical Habitat
- Northern Spotted Owl Critical Habitat

Data Source:
Caltrans 7/19/2022

0 6,500 13,000
Feet

Figure 2.3-6
Designated Critical Habitat
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2/13.8
Marin County, California

N:\PROJECTS4500\4507-01\REPORTS\EIR-EA\FIG 2.3-6 DESIGNATED CRITICAL HABITAT.MXD MLAGARDE 7/31/2023

Most of the state or federally threatened, endangered, or proposed animals considered for potential occurrence near the BSA were determined to be absent from the BSA because the BSA lacks suitable habitat and/or is outside the species' range (even if the species occurs nearby).

Focused habitat assessments for California red-legged frog, California Ridgway's rail, California black rail, and salt marsh harvest mouse were conducted for the Project. However, no protocol-level or focused surveys for special-status wildlife species were performed, and determinations regarding potential for occurrence were made based primarily on evaluation of habitat suitability within the BSA. Therefore, listed wildlife determined to have potential to occur within the BSA are presumed present unless surveys provide more information to support determinations of presence/absence.

Nine listed or proposed animal species were identified as having a moderate or high potential to occur within the BSA based on their habitat associations and/or known occurrences in the Project vicinity. These species are discussed in the sections that follow, and additional information on their potential occurrence within the BSA is provided in Table 2.3-6.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse is federally and state listed as endangered and is designated as a fully protected species under the CFGC. Critical habitat has not been designated for this species. This species is found only in saline and brackish wetlands of San Francisco Bay and its tributaries. Agriculture and urbanization has claimed much of the former historical tidal marshes, resulting in a 79 percent reduction in the extent of tidal marshes in these areas (Goals Project 1999). At present, the distribution of the northern subspecies, which is found in the Project vicinity, occurs along Suisun and San Pablo Bays north of Point Pinole in Contra Costa County, and Point Pedro in Marin County.

Early descriptions of habitat for the salt marsh harvest mouse suggest that this species was "restricted to the salt marshes of the San Francisco Bay" (Dixon 1908). However, recent research including radio-tracking has demonstrated that salt marsh harvest mice also use brackish marshes, non-tidal managed wetlands, and some adjacent upland habitats as well (Smith 2019). The species also has a much broader diet than the pickleweed-focused diet previously assumed. When presented a variety of foods that were seasonally abundant, the diet of the salt marsh harvest mouse comprised 45 native and non-native plant species along with a few invertebrates, with the two most commonly chosen plants being the non-native rabbits-foot grass (*Polypogon monspeliensis*) and fat hen (*Atriplex prostrata*) (Smith 2019). Salt marsh

harvest mice are highly dependent on cover, and open areas as small as 16 to 33 feet wide may act as barriers to movement (USFWS 1984, Geissel et al. 1988).

Most of the tidal marshes around the San Francisco Bay have been eliminated, and those remaining have lost the upper portion of their pickleweed zones as well as the higher zone of peripheral halophytes. Many tidal salt marshes are small, isolated strip-like marshes along backshores against levees or other hardened structures that promote predation, inhibit further high marsh development, and are threatened by SLR (Shellhammer 1989). As a result of habitat loss, degradation, and fragmentation, salt marsh harvest mouse populations are low. Despite the species' low populations, they are known to rapidly colonize restored areas. This species quickly moves into areas of appropriate habitat from nearby inhabited areas.

In the Project vicinity, the salt marsh harvest mouse is known to occur in marshes along San Pablo Bay and the Petaluma River (CDFW 2023a). Although the species has not been confirmed to occur within the BSA, suitable habitat is present. A focused habitat assessment determined that diked brackish marsh and tidal salt marsh along Novato Creek and Simonds Slough and along the south side of SR 37 from Novato Creek eastward nearly to Atherton Avenue provide potential habitat for this species. Therefore, salt marsh harvest mice are expected to occur within the BSA.

California Ridgway's Rail

The California Ridgway's rail is federally and state listed as endangered. It is also a fully protected species under the CFGC. Critical habitat has not been designated for this species. This secretive marsh bird currently occurs only in marshes of the San Francisco Bay. It formerly bred at several other locations, including Humboldt Bay (Humboldt County), Elkhorn Slough (Monterey County), and Morro Bay (San Luis Obispo County); but it is extirpated from all sites outside of the San Francisco Bay (USFWS 2013).

California Ridgway's rails are typically found in the intertidal zone and sloughs of salt and brackish marshes dominated by pickleweed, Pacific cordgrass (*Spartina foliosa*), gumplant (*Grindelia* sp.), saltgrass, jaumea (*Jaumea carnosa*), and adjacent upland refugia. Shrubby areas adjacent to or within these marshes are also important for predator avoidance at high tides. Although California Ridgway's rails are typically found in tidal salt marshes, they have also been documented in brackish marshes.

Evens and Page (1983) concluded from research in a northern San Francisco Bay marsh that the California Ridgway's rail nesting season, including pair bonding and nest construction, may begin as early as February. The end of the nesting season is typically defined as the end of August, which corresponds with the time when eggs

laid (during renesting attempts) have hatched and young are mobile. The California Ridgway's rail builds a bowl-shaped platform nest of marsh vegetation and detritus (DeGroot 1927, Harvey 1988). California Ridgway's rails typically feed on benthic invertebrates, but the diet is wide ranging, and includes seeds and occasionally small mammals such as the harvest mouse.

The California Ridgway's rail was listed as endangered primarily because of habitat loss. Throughout the San Francisco Estuary, the California Ridgway's rail population is impacted by a suite of mammalian and avian predators. At least 12 native and 3 non-native animal species are known to prey on various life stages of the California Ridgway's rail (Albertson 1995).

There is a 1993 CNDDB record of individuals along Novato Creek both north and south of SR 37 in June (during the nesting season). There are several other records near the BSA that come from tidal marsh farther downstream from the Project site along Novato Creek, along the edge of San Pablo Bay, and along the Petaluma River (CDFW 2023a). A breeding-season eBird record is from late May 2021 along Novato Creek approximately 0.7 mile south of the BSA. A focused habitat assessment conducted for the Build Alternative determined the tidal salt marsh along Novato Creek within the BSA provides suitable breeding habitat; and therefore, the species may breed there. However, it is unlikely to nest within the BSA itself, given the disturbance associated with traffic noise on SR 37 and the presence of less-disturbed marsh along Novato Creek farther upstream and downstream from the bridge. For the same reason, California Ridgway's rails are unlikely to forage regularly or for long periods very close to SR 37.

California Black Rail

The California black rail is state listed as threatened and is designated as a fully protected species under the CFGC. The California black rail is a small rail that inhabits tidal salt and brackish marshes around San Francisco Bay, and freshwater marshes in some Central Valley locations. This small bird is very secretive and is most often seen during high tides when it is forced into high marshes. Little information is available regarding the biology of California black rails. Around San Francisco Bay, the species nests primarily in pickleweed-dominated marshes with patches or borders of bulrush, often near the mouths of creeks. Nests are usually constructed of pickleweed and are placed directly on the ground or slightly above ground in vegetation. California black rails feed on terrestrial insects, aquatic invertebrates, and possibly seeds (Trulio and Evens 2000).

The California black rail has been recorded in the salt marsh surrounding Novato Creek, immediately south of the BSA. There are additional records near the BSA

from a tidal marsh farther downstream from the site along Novato Creek, along the edge of San Pablo Bay, and along the Petaluma River (CDFW 2023a). A focused habitat assessment conducted for the Project determined that tidal salt marsh along Novato Creek within the BSA provides suitable breeding habitat. However, it is unlikely to nest within the BSA itself, given the disturbance associated with traffic noise on SR 37 and the presence of less-disturbed marsh along Novato Creek farther upstream and downstream from the bridge. For the same reason, California black rails are unlikely to forage regularly or for long periods very close to SR 37.

Swainson's Hawk

Swainson's hawk is listed as threatened by the state of California due to population declines likely precipitated by significant losses of riparian habitat and conversion of open foraging habitats to developed lands (Woodbridge 1998, England et al. 1997). Swainson's hawks are distributed throughout western North America during the nesting season; but in California, they are primarily limited to the Central Valley and the southeastern Great Basin region (Woodbridge 1998).

Those in California are strongly associated with riparian habitats, although they are also found in oak woodlands and other open habitats (Smallwood 1995, England et al. 1997, Woodbridge 1998). Prime breeding habitat for Swainson's hawk encompasses riparian draws or clumps of trees surrounded by open grassland or oak savannah for foraging (England et al. 1997, Woodbridge 1998). This species builds sturdy stick nests in low willows, box elders, oaks, or other trees, breeding from early March through July (England et al. 1997).

In addition to suitable nest sites, Swainson's hawks require suitable foraging habitat relatively close to, or preferably adjacent to, the nest site; and the proximity, suitability, and quality of such foraging habitat likely plays a key role in measures of reproductive success (e.g., England et al. 1997). Suitable foraging habitat consists of open habitats with relatively low vegetative structure that allows Swainson's hawks to forage for and capture prey items (e.g., small mammals, such as voles [*Microtus* sp.], mice, and invertebrates, such as grasshoppers), such as native and non-native grasslands, disked or mowed fields, tilled or fallow agricultural fields, and flooded fields (Bechard et al. 2020). Open habitats with taller vegetative structure, such as taller crops, cannot be used by foraging Swainson's hawks (Bechard 1982, Estep 1989, Babcock 1995, Bechard et al. 2020). In the Central Valley, alfalfa fields provide particularly valuable foraging habitat because of their low vegetative height and persistent nature, essentially providing constant cover for small mammals and consistently available foraging habitat for Swainson's hawks (Estep 1989).

Swainson's hawks are neotropical migratory birds, flying south after the nesting season to spend the winter months on the Pampas of Argentina (England et al. 1997, Canavelli et al. 2003). Stresses on winter populations, including pesticide poisoning, on the winter grounds have contributed to declines in North American breeding populations. In recent years, California populations have been increasing; and the species' range has been expanding in some areas.

Suitable nesting habitat occurs in the Project area in the form of trees near extensive grassland and wetlands. There are no recent CNDDB records within 5 miles of the BSA (CDFW 2023a). However, several recent breeding-season records are from the vicinity of the BSA (eBird 2023), and this species' breeding range has been expanding westward, from core Central Valley breeding areas, into the Project vicinity.

Current Swainson's hawk population estimates provide considerable evidence of a growing and recovering population, particularly in the past 20 years. An estimated 3,200+ breeding pairs existed in the Central Valley in 2005–2006, and an estimated 18,810 breeding pairs existed statewide in 2019, based on rigorous standardized surveys (Battistone et al. 2019, Furnas et al. 2022). Moreover, Swainson's hawks have reoccupied areas known to be devoid of any nesting pairs or summering birds for nearly a century, such as in certain valleys of the Central Coast Range (CDFW 2023a, eBird 2023, Klein et al. 2022). This species could potentially nest in trees that are in or near the BSA. However, records from the Project vicinity could also be of non-breeding birds. In either case, this species forages near the BSA in open herbaceous and wetland habitats. Given the proximity of such habitats to traffic along SR 37, this species is expected to forage less frequently within the BSA than in more extensive open habitats farther from the SR 37 roadway, and it is unlikely to nest within the BSA itself.

Tricolored Blackbird

Tricolored blackbird is state listed as threatened. Tricolored blackbirds are found primarily in the Central Valley and in central and southern coastal areas of California. This species was listed due to concerns over the loss of wetland habitats in the state. The tricolored blackbird is highly colonial in its nesting habits and forms dense nesting colonies that, in some parts of the Central Valley, may consist of up to tens of thousands of pairs. This species typically nests in tall, dense stands of cattails (*Typha* spp.) or tules (*Scirpus* spp.), but also nests in blackberry, wild rose (*Rosa californica*) bushes, and tall herbs. Nesting colonies are usually located near fresh water. Tricolored blackbirds form large, often multi-species flocks, during the non-breeding period and range more widely than during the nesting season.

In the Project area, suitable breeding habitat occurs in freshwater wetlands (such as along Simonds Slough) and possibly in Himalayan blackberry stands within and adjacent to the BSA. Breeding colonies have been recorded along Lakeville Highway 3.2 and 3.5 miles northeast of the BSA (CDFW 2023a), and the species could breed within the BSA. However, given disturbance from SR 37 within the BSA, the likelihood that this species would breed within the BSA is low. Rather, the species may nest in nearby areas and occur within the BSA only as a forager.

Northwestern Pond Turtle

The northwestern pond turtle is proposed for listing under FESA and is designated as a species of special concern by CDFW. This species occurs primarily in freshwater ponds, streams, and rivers that provide perennial water and open, sunny basking sites on logs, bare shorelines, or rocks. However, it also occurs to some extent in brackish waterbodies, and it occurs in some intermittent streams as well. Most of the species' activity takes place in or immediately adjacent to aquatic habitat, but some overland dispersal occurs; and females lay eggs in upland grasslands and other open habitats up to 0.3 mile from water, excavating shallow pits in dry upland soils, laying eggs, and covering the eggs with soil.

Potential habitat for northwestern pond turtles is present in Simonds Slough within the BSA, but no CNDDB-recorded occurrences are close to the Project limits (CDFW 2023a). The nearest CNDDB-recorded occurrences are mapped 2.3 miles west of the BSA (across U.S. 101) and 4.3 miles south of the BSA. Surveys by the Marin County Flood Control and Water Conservation District have documented this species in ponds (Duck Bill and Pacheco Pond) both north and south of the Project area, as close as 0.6 mile away. Because this species can occur in brackish water to some extent, there is some potential for dispersing individuals to occur in the Project alignment along Simonds Slough and possibly Novato Creek, although given the lack of high-quality freshwater pools with basking sites, the probability of occurrence in the BSA is fairly low.

California Red-legged Frog

The California red-legged frog is federally listed as threatened and has been designated a California species of special concern. USFWS listed the California red-legged frog due to continued habitat degradation and population declines (USFWS 1996). Critical habitat for the species was designated in 2010 (USFWS 2010). There is no critical habitat within the BSA. California red-legged frogs inhabit perennial freshwater pools, streams, and ponds throughout the Central California Coast Range and in isolated portions of the western slope of the Sierra Nevada (Fellers 2005).

They have been observed in a number of aquatic and terrestrial habitats. Larvae, juveniles, and adult frogs have been collected from natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs, as well as human-created stock ponds, secondary and tertiary sewage treatment ponds, wells, canals, golf course ponds, irrigation ponds, sand and gravel pits (containing water), and large reservoirs (USFWS 1996, 2002).

The red-legged frog requires the presence of perennial, or near perennial, water and a general lack of introduced aquatic predators such as centrarchid fishes, crayfish, and bullfrogs (*Lithobates catesbeianus*). If there is standing, near perennial water at least several inches deep and introduced aquatic predators are rare or nonexistent, conditions are at least potentially suitable for red-legged frogs. Adults need dense shrubby or emergent riparian vegetation closely associated with deep (more than 2.3 feet deep) still or slow-moving water (USFWS 2010). Preferred breeding habitat consists of deep perennial pools with emergent vegetation such as cattails, tules, or sedges (*Carex* spp.) for attaching egg clusters (Hayes and Jennings 1988, Fellers 2005), as well as shallow benches to act as nurseries for juveniles (Jennings and Hayes 1994).

Non-breeding frogs are found adjacent to streams and ponds in grasslands and woodlands. They use small mammal burrows in or under vegetation, willow root wads, the undersides of old boards and other debris within the riparian zone, and large cracks in the bottom of dried ponds as refugia (Jennings and Hayes 1994, USFWS 2002). Individuals also occasionally use ground squirrel burrows as refugia (Tatarian 2008).

California red-legged frogs are known to travel over 2 miles from their breeding locations across a variety of upland habitats to suitable nonbreeding habitats (Bulger et al. 2003, Fellers and Kleeman 2007). Although movements by this species typically occur along riparian corridors, individuals are known to move directly from one site to another through normally inhospitable habitats (e.g., heavily grazed pastures or oak-grassland savannas) (USFWS 2002, Fellers 2005, Fellers and Kleeman 2007). The distance moved is also highly site-dependent, as influenced by the local landscape (Fellers and Kleeman 2007).

A focused habitat assessment was conducted for the Project in October 2021. The Project site was determined to occur within the general current range of the California red-legged frog based on the presence of records of this species in the site vicinity (CDFW 2023a). The nearest CNDDB record is 2.4 miles to the northeast and is separated from the Project site by the Petaluma River. The river is likely a barrier to dispersal because of its width, tidal action, and salinity. Potentially suitable habitat for the California red-legged frog occurs within and adjacent to the Project site.

Drainage ditches, creeks (such as Simonds Slough), wetlands, and various other waterways are present on both sides of SR 37 throughout much of the Project site. Although some features within the Project limits may be too saline to provide suitable breeding habitat, many of these aquatic and wetland habitats provide potential freshwater breeding habitat that could serve as sources for frogs dispersing into the Project area. These features also provide conduits for dispersal within the greater area (e.g., between more remote breeding habitat and the Project site). Upland dispersal habitat for this species is present throughout the Project site vicinity in the form of agricultural fields, grassland, and other land cover types devoid of barriers to dispersal (e.g., development or heavily trafficked roadways). Although there are no CNDDB records from these areas close to the Project site, it is possible that these areas have simply not been surveyed adequately to detect California red-legged frogs that may be present.

Given the proximity of suitable dispersal and breeding habitat for the California red-legged frog to the Project site, there is a reasonable potential for this species to occur within and immediately adjacent to the site. In the Project vicinity, agricultural fields and open space areas bisected by numerous waterways provide dispersal habitat for this species. Ruderal and native shrub vegetation, small mammal burrows, and other debris present within these habitats also provide refugia for dispersing frogs.

Suitable breeding habitat for the California red-legged frog at Simonds Slough consists of freshwater pools segmented from the main channel, as well as sections of the main channel that remain inundated long enough to support breeding conditions for this species. Emergent riparian vegetation is present within these wetlands, providing suitable attachment sites for egg clusters of this species. Additional wetlands in the Project vicinity are known to contain varying levels of salinity that may preclude frogs from successfully breeding. Juvenile and adult California red-legged frogs appear to avoid salinities greater than 9.0 ppt and are known to migrate considerable distances in search of freshwater or brackish water habitats that support breeding (Jennings and Hayes 1994). For this reason, frogs present in the site vicinity may be more likely to disperse greater distances through upland habitats surrounding the site in an effort to reach tolerable aquatic habitats.

North American Green Sturgeon

The North American green sturgeon (*Acipenser medirostris*) Southern DPS is federally threatened (NMFS 2006) and is designated as a species of special concern by CDFW. NMFS determined that the Southern DPS currently contains only a single spawning population from the Sacramento River. Green sturgeon are benthic feeders, and in estuaries they may feed on amphipods, shrimp, clams, or anchovies.

San Pablo Bay serves as an important habitat for all life stages of green sturgeon, as it supports rearing and serves as an important migratory/connectivity corridor between the Sacramento River system and nearshore coastal marine waters (Moyle et al. 1995). Adult and sub-adult green sturgeon frequently congregate in the San Pablo Bay during the summer and fall (Lindley et al. 2008).

No spawning habitat for green sturgeon occurs within the BSA, and the species does not spawn in the Novato Creek; however, the species may be present due to the BSA's suitable foraging habitat and proximity to the greater San Pablo Bay, where the fish may be migrating to spawn in the Sacramento River. Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, this species is presumed absent from Simonds Slough.

Central California Coast Steelhead

The Central California Coast DPS of steelhead is federally listed as threatened (NMFS 2014). The range of Central California Coast steelhead is defined by NMFS as all naturally spawned anadromous steelhead populations from the Russian River south to and including Aptos Creek in Santa Cruz County, and all drainages of San Francisco, San Pablo, and Suisun Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers.

Adult Central California Coast steelhead migrate from the ocean to fresh water between December and April, typically peaking in January and February (Fukushima et al. 1998), when flows are sufficient to allow steelhead to reach suitable habitat in far upstream areas.

Steelhead typically spawn from January through April in gravel substrates located in clear, cool, perennial sections of relatively undisturbed streams, with dense canopy cover that provides shade, woody debris, and organic matter.

Juvenile Central California Coast steelhead are found in all habitat types, and habitat preferences change with seasonal changes in stream conditions. Estuaries often are an important rearing area for juvenile Central California Coast steelhead on their way to the ocean.

Suitable habitat for Central California Coast steelhead occurs within the BSA in Novato Creek. The species has been reported in Novato Creek (Leidy et al. 2005). There is no hydrological connection between San Pablo Bay and Simonds Slough. Therefore, steelhead is presumed absent from Simonds Slough.

Longfin Smelt

The longfin smelt (*Spirinchus thaleichthys*) is listed as state threatened and is a federal candidate for listing. This species was historically found in the San Francisco Estuary, Sacramento-San Joaquin Delta, Humboldt Bay, and the estuaries of the Eel and Klamath Rivers (Moyle 2002). Adult longfin smelt occur in bays, estuaries, and nearshore coastal areas, and migrate into freshwater rivers to spawn from January through March (Moyle 2002). Adult and juvenile longfin smelt primarily use the middle or bottom of the water column in salt or brackish water, and larval longfin smelt concentrate near the surface of brackish waters (Merz et al. 2013). Adults and juveniles can be found within the Suisun Bay, San Pablo Bay, and San Francisco Bay year-round and have been found occasionally in the Petaluma and Napa Rivers (Merz et al. 2013).

The San Pablo Bay supports habitat for longfin smelt, and fish may forage in Novato Creek. However, there are no records of this fish within Novato Creek. Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, longfin smelt is presumed absent from Simonds Slough.

2.3.5.3 Environmental Consequences

Build Alternative

Phase 1 Construction

Listed Plants

Because no special-status plants were detected in the BSA during protocol-level surveys, Phase 1 construction would not impact special-status plants.

Salt Marsh Harvest Mouse

Construction activities associated with Phase 1 Project construction could result in impacts to the salt marsh harvest mouse and its habitats. There is potential for vegetation removal, grading, movement of heavy equipment, and trampling of suitable habitat by construction personnel to injure or kill salt marsh harvest mice in the absence of Project features and AMMs.

Phase 1 construction would impact the salt marsh found in the Project area along Novato Creek. However, the habitat found beneath the spans is unlikely to support salt marsh harvest mice due to shading. Temporary impacts from Phase 1 construction would impact 1.25 acres of tidal salt marsh along Novato Creek and 0.27 acre of brackish marsh that could potentially support salt marsh harvest mice.

Project features as provided in Appendix D incorporated into the Project would reduce impacts of Phase 1 construction on salt marsh harvest mice through

PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-5, Wildlife Exclusion Fencing, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-12, Prevent Inadvertent Entrapment of Animals, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13, Night Lighting, and PF-BIO-14, Agency-approved Biologist. Implementation of AMM-BIO-7, Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring, and AMM-BIO-8, Salt Marsh Harvest Mouse Exclusion Fencing, would further avoid and minimize impacts to this species. Because salt marsh harvest mice primarily occupy wetland habitats, Project features and MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on salt marsh harvest mice.

The tidal salt marsh habitat that would be permanently impacted is immediately adjacent to and between the two existing bridge spans. These marsh patches are likely unsuitable for the mouse, and the loss of this habitat is not expected to have a substantial impact on this species. The long-term benefits to this species' ability to disperse under the new Novato Creek Bridge and causeway to be constructed by the Project would offset the loss of a small amount of low-quality habitat. Therefore, habitat impacts on this species would not be substantial, and no compensatory mitigation for such impacts is necessary. With implementation of Project features and AMMs, impacts of Phase 1 construction on the salt marsh harvest mouse would be less than significant.

California Ridgway's Rail and California Black Rail

Potential impacts of the Project on the California Ridgway's rail and California black rail are discussed together because these species' habitat associations, locations of potential occurrence, potential impacts, and AMMs are similar. Construction activities associated with Phase 1 Project construction could result in disturbance of California Ridgway's rails, California black rails, and their habitats. The Project would not result in the direct injury or mortality of individuals, and these species are not expected to nest within the Phase 1 construction area given proximity to SR 37, so no direct loss of nests would occur. However, if construction occurs during the nesting season (roughly February 1 through August 31) and close enough to active nests, it is possible that noise and movement of construction personnel and equipment could cause adults to abandon their nests. If any adults were foraging along Novato Creek during construction, construction activities could similarly disturb those birds, possibly causing them to flush and increasing risk of predation.

Temporary impacts from Phase 1 construction would impact 1.25 acres of tidal salt marsh along Novato Creek due to construction access.

Project features incorporated into the Project would reduce impacts of Phase 1 construction on California Ridgway's rails and California black rails through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-5, Wildlife Exclusion Fencing, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-6, Nesting Bird Surveys and Buffers, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13, Night Lighting, PF-BIO-14, Agency-approved Biologist. Implementation of AMM-BIO-8, Salt Marsh Harvest Mouse Exclusion Fencing, would further avoid and minimize impacts to California Ridgway's rails and California black rails. Because these rails occupy wetland habitats, Project features and MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on these birds.

The tidal salt marsh habitat that would be permanently impacted is immediately adjacent to and between the two existing bridge spans. The loss of this habitat is not expected to have a substantial impact on these species. The long-term benefits to these species' ability to disperse under the new Novato Creek Bridge and causeway to be constructed by the Project would offset the loss of a small amount of low-quality habitat. Therefore, habitat impacts on these species would not be substantial, and no compensatory mitigation for such impacts would be necessary. With implementation of Project features and AMM-BIO-9, California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers, impacts of Phase 1 construction on the California Ridgway's rail and California black rail would be less than significant.

Swainson's Hawk

Although Swainson's hawk is not currently known to breed in the immediate vicinity of the BSA, it is possible that the species could nest in trees in or very close to the BSA. If this occurs, then tree removal could result in the loss of suitable nest trees. With implementation of Project features, no removal or disturbance of active nests would occur. Construction activities could disturb foraging individuals.

Within the BSA, non-native forest providing potential nesting habitat and herbaceous, shrub, and wetland habitat that could potentially be used as foraging habitat by Swainson's hawks is located close to the existing highway. As a result of noise and traffic, these habitats are not expected to be used frequently by Swainson's hawks. Phase 1 construction would result in temporary impacts on 1.38 acres of non-native forest that could potentially be used for nesting and 18.79 acres of herbaceous, shrub, and wetland habitat providing potential foraging habitat, as well as permanent impacts on 3.35 acres of herbaceous, shrub, and wetland habitat providing potential

foraging habitat. Vegetated habitat includes all general habitat types shown in Table 2.3-2 except for open water and excludes 2.93 acres of permanent impact and 0.25 acre of temporary impact to the median, which provide negligible habitat type.

Project features incorporated into the Project would reduce the potential for impacts of Phase 1 construction on Swainson's hawks through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13: Night Lighting, and PF-BIO-14, Agency-approved Biologist. Implementation of AMM-BIO-10, Swainson's Hawk Pre-construction Surveys and Avoidance, would further avoid and minimize impacts to this species. In addition, Project features, AMMs, and mitigation measures described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on wetland foraging habitat for Swainson's hawk. With implementation of Project features and AMM-BIO-10, Swainson's Hawk Pre-construction Surveys and Avoidance, impacts of Phase 1 construction on Swainson's hawk would be less than significant.

Tricolored Blackbird

Although the tricolored blackbird is not currently known to breed in the immediate vicinity of the BSA, it is possible that the species could nest in emergent vegetation within non-tidal marsh habitat, and possibly in Himalayan blackberry and other scrub near the BSA. The species is unlikely to nest within the BSA because of traffic disturbance along SR 37; however, if it were to do so, vegetation removal could result in the loss of suitable nesting habitat, and vegetation removal during the nesting season could even result in the loss of active nests. Even if vegetation removal does not directly impact nests or nesting habitat, if construction occurs during the nesting season (roughly March 15 through July 31) close enough to active nests, it is possible that noise and movement of construction personnel and equipment could cause adults to abandon their nests. Construction activities could also disturb foraging individuals.

Phase 1 construction would result in temporary impacts on 6.28 acres of brackish marsh, freshwater marsh, native shrub, and non-native shrub habitat that provides potential nesting habitat and 12.47 acres of herbaceous and tidal salt marsh habitat providing potential foraging habitat, as well as permanent impacts on 0.99 acre of freshwater marsh, native shrub, and non-native shrub habitat that provides potential nesting habitat and 1.90 acres of herbaceous habitat providing potential foraging habitat.

Project features incorporated into the Project would reduce the potential for impacts of Phase 1 construction on tricolored blackbirds through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-6, Nesting Bird Surveys and Buffers, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13, Night Lighting, PF-BIO-14, Agency-approved Biologist. Project features, AMMs, and mitigation measures described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on wetland foraging (and potential breeding) habitat for the tricolored blackbird. With implementation of Project features, impacts of Phase 1 construction on the tricolored blackbird would be less than significant.

Northwestern Pond Turtle

There is minimal potential for northwestern pond turtles to occur within the BSA in freshwater marsh and fresh aquatic habitats such as Simonds Slough, as well as brackish waters and wetlands along Novato Creek. Nesting in the Project area is highly unlikely because of the absence of high-quality aquatic habitat (freshwater habitat with good basking sites) nearby. Construction activities associated with Phase 1 Project construction could result in the direct loss and indirect disturbance of northwestern pond turtles and their habitats. The Project could impact individual northwestern pond turtles as follows:

- Direct mortality may occur during construction as a result of trampling by construction personnel or equipment.
- Increased mortality from roadkill could be caused by construction equipment and vehicular use in and around the Project.
- Degradation of water quality could result from unregulated discharge of hazardous materials, contaminants, or sediment in aquatic habitats during construction.
- Individuals that are found during pre-activity surveys and relocated to suitable habitat outside of the BSA may be subjected to physiological stress and greater risk of predation, or may undergo increased competition with turtles already present in the area to which they are relocated.

Phase 1 would temporarily impact 3.95 acres of freshwater marsh, 0.27 acre of diked brackish marsh, and 0.13 acre of fresh open water (in Simonds Slough), and permanently impact 0.03 acre of open water (via shading) and 0.24 acre of freshwater marsh that could be used by this species.

Project features incorporated into the Project would reduce impacts of Phase 1 construction on northwestern pond turtles through the following:

- PF-BIO-3: Worker Environmental Awareness Training
- PF-BIO-4: Mark Environmentally Sensitive Areas
- PF-BIO-5: Wildlife Exclusion Fencing
- PF-BIO-7: Construction Site Management Practices
- PF-BIO-8: Erosion Control Matting
- PF-BIO-9: Restore Disturbed Areas
- PF-BIO-10: Vegetation and Tree Removal
- PF-BIO-12: Prevent Inadvertent Entrapment of Animals
- PF-BIO-14: Agency-approved Biologist
- PF-BIO-18: Wildlife Species Relocation

Implementation of AMM-BIO-12, California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys, and AMM-BIO-13, California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols, would further avoid and minimize impacts to northwestern pond turtles. Because northwestern pond turtles rely heavily on wetland and aquatic habitats, Project features, AMMs, and mitigation measures described in Section 2.3.2.4 for wetlands would minimize impacts of the Project on this species. With implementation of Project features and these AMMs, impacts of Phase 1 construction on the northwestern pond turtle would be less than significant.

California Red-legged Frog

California red-legged frogs may be present within the BSA in freshwater marsh and fresh aquatic habitats such as Simonds Slough, and in upland habitats. Construction activities associated with Phase 1 Project construction could result in the direct loss and indirect disturbance of California red-legged frogs and their habitats. The Project could impact individual California red-legged frogs as follows:

- Direct mortality may occur during construction as a result of trampling by construction personnel or equipment.
- Direct mortality as a result of dewatering of aquatic habitats where egg masses or larvae may be present.
- Increased mortality from roadkill caused by construction equipment and vehicular use in and around the Project.
- Degradation of water quality resulting from unregulated discharge of hazardous materials, contaminants, or sediment in aquatic habitats during construction.

- Individuals that are found during pre-activity surveys and relocated to suitable habitat outside of the BSA may be subjected to physiological stress and greater risk of predation, or may undergo increased competition with frogs already present in the area to which they are relocated.

This species is not expected to use brackish or saline marshes or aquatic habitats. Phase 1 would temporarily impact 3.95 acres of freshwater marsh, 0.13 acre of fresh open water (in Simonds Slough), and 14.41 acres of potential upland habitat for the species, and permanently impact 0.24 acre of freshwater marsh and 2.65 acres of potential upland habitat for this species.

Project features incorporated into the Project would reduce impacts of Phase 1 construction on California red-legged frogs through the following:

- PF-BIO-3: Worker Environmental Awareness Training
- PF-BIO-4: Mark Environmentally Sensitive Areas
- PF-BIO-5: Wildlife Exclusion Fencing
- PF-BIO-7: Construction Site Management Practices
- PF-BIO-8: Erosion Control Matting
- PF-BIO-9: Restore Disturbed Areas
- PF-BIO-10: Vegetation and Tree Removal
- PF-BIO-12: Prevent Inadvertent Entrapment of Animals
- PF-BIO-13: Night Lighting
- PF-BIO-14: Agency-approved Biologist
- PF-BIO-18: Wildlife Species Relocation

Implementation of AMM-BIO-11, California Red-legged Frog Work Window, AMM-BIO-12, California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys, and AMM-BIO-13, California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols, would further avoid and minimize impacts to California red-legged frogs; and MM-BIO-2, California Red-legged Frog Compensatory Mitigation, would be implemented to compensate for Project impacts on California red-legged frog habitat. Because California red-legged frogs rely heavily on wetland and aquatic habitats, Project features, AMMs, and mitigation measures described in Section 2.3.2.4 for wetlands would minimize impacts of the Project on this species. With implementation of Project features and these AMMs and mitigation measures, impacts of Phase 1 construction on the California red-legged frog would be less than significant.

North American Green Sturgeon, Central California Coast Steelhead, and Longfin Smelt

Phase 1 consists of replacing Novato Creek Bridge. If the North American green sturgeon, Central California Coast steelhead, and longfin smelt are present within the BSA, aspects of the Project would result in behavioral changes from waterborne noise from nearby pile driving and increased turbidity.

Although there would be no pile driving within the wetted Novato Creek channel, the new bridge piles and the temporary construction trestle piles within the marsh area of Novato Creek would be vibrated in as deep as possible before using an impact pile hammer. This would generate a high level of noise, which could propagate through the water and potentially impact fish behavior and physiology. Temporary increased turbidity within Novato Creek from removal of the old bridge and installation of the new bridge and temporary construction trestle within the marsh area of Novato Creek could have a range of effects on fish behavior, including altered feeding, impaired vision, disrupted migration patterns, and increased stress levels.

Installation of the replacement Novato Creek Bridge and demolition of the existing bridges would occur over Novato Creek and have the potential to introduce debris and pollutants into Novato Creek. Debris and pollutants could include concrete from the existing bridge, and oil and grease from nearby vehicles and construction equipment. A protective cover would be installed to minimize debris entering the waterway.

Existing piles associated with the Novato Creek Bridge would be cut to a depth of 3 feet below the mudline. Because Novato Creek is a perennial waterbody, a small area around each pile within the channel might need to be dewatered to remove these piles. A series of sheet-pile cofferdams would be constructed around existing piles within the channel. These sheet-pile cofferdams are anticipated to surround existing piles on all sides. The sheet piles that would form the cofferdams would be driven to a depth of approximately 20 feet and would be installed so that they are above the water levels during high tides. Once the sheet piles have been sealed, water would be pumped out as needed. Installation of the cofferdams around the existing piles may result in fish stranding. To minimize potential effects on North American green sturgeon, Central California Coast steelhead, and longfin smelt, a qualified fisheries biologist would conduct fish rescue and relocation to collect fish located within the cofferdam, as safe and feasible to do so. This rescue effort would be implemented during dewatering of the area behind the cofferdam.

PF-BIO-3, Worker Environmental Awareness Training, PF-WQ-1, Stormwater Pollution Prevention Plan, PF-BIO-9, Restore Disturbed Areas, PF-BIO-19, In-

channel Work Period, and PF-BIO-23, Vibratory Pile Driving, would minimize potential impacts on North American green sturgeon, Central California Coast steelhead, and longfin smelt. However, because suitable habitat is present within the BSA, Caltrans would also implement the following AMMs for the North American green sturgeon, Central California Coast steelhead, and longfin smelt:

- AMM-BIO-5: Fish Removal and Relocation Plan
- AMM-BIO-6: Cofferdam Installation

With implementation of these AMMs and Project features, impacts of Phase 1 construction on North American green sturgeon, Central California Coast steelhead, and longfin smelt would be less than significant.

Phase 2 Construction

As discussed in Section 2.3.3.3, no special-status plants were detected in the BSA during protocol-level surveys; and therefore, special-status plants are not expected to be impacted by Phase 2 construction. Caltrans would re-evaluate biological conditions, and impacts as appropriate, during the design phase of Phase 2.

Salt Marsh Harvest Mouse

During Phase 2 construction, construction activities would lead to the same types of impacts on the salt marsh harvest mouse as described for Phase 1 construction. Phase 2 construction would result in the permanent loss of 0.07 acre of tidal salt marsh through shading and temporary impacts to 1.20 acres of tidal salt marsh habitat along Novato Creek and 0.35 acre of diked brackish marsh that could potentially support this species.

As described for Phase 1 construction, Project features would reduce impacts of Phase 2 construction on the salt marsh harvest mouse; and implementation of AMM-BIO-7, Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring, and AMM-BIO-8, Salt Marsh Harvest Mouse Exclusion Fencing, would further avoid and minimize impacts to this species. With implementation of Project features and AMMs, impacts of Phase 2 construction on the salt marsh harvest mouse would be less than significant.

California Ridgway's Rail and California Black Rail

During Phase 2 construction, construction activities would lead to the same types of impacts on California Ridgway's rail and California black rail as described for Phase 1 construction. Phase 2 construction would result in the permanent loss of 0.07 acre of tidal salt marsh through shading and temporary impacts to 1.20 acres of tidal salt marsh habitat along Novato Creek.

As described previously for Phase 1 construction, Project features would reduce impacts of Phase 2 construction on California Ridgway's rail and California black rail; and implementation of AMM-BIO-9, California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers, would further avoid and minimize impacts to these species. With implementation of Project features and AMM-BIO-9, California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers, impacts of Phase 2 construction on the California Ridgway's rail and California black rail would be less than significant.

Swainson's Hawk

During Phase 2 construction, construction activities would lead to the same types of impacts on Swainson's hawk as described for Phase 1 construction. Phase 2 construction would result in the permanent loss of 0.01 acre of non-native forest providing potential nesting habitat and 1.74 acres of potential foraging habitat. Phase 2 construction would also result in temporary impacts to 1.37 acres of non-native forest that could potentially be used for nesting, as well as 21.05 acres of herbaceous, shrub, and wetland habitat that could potentially be used as foraging habitat by Swainson's hawks. However, because this habitat is so close to the existing highway, neither the potential nesting habitat nor the foraging habitat are expected to be used frequently by Swainson's hawks.

As described previously for Phase 1 construction, Project features would reduce impacts of Phase 2 construction on Swainson's hawk, and implementation of AMM-BIO-10, Swainson's Hawk Pre-construction Surveys and Avoidance, would further avoid and minimize impacts to this species. With implementation of Project features and AMM-BIO-10, Swainson's Hawk Pre-construction Surveys and Avoidance, impacts of Phase 2 construction on Swainson's hawk would be less than significant.

Tricolored Blackbird

During Phase 2 construction, construction activities would lead to the same types of impacts on tricolored blackbird as described for Phase 1 construction. Phase 2 construction would result in the permanent loss of 0.02 acre of potential native shrub nesting habitat and 1.74 acres of potential foraging habitat. Phase 2 construction would also result in temporary impacts to 6.27 acres of freshwater marsh, native shrub, and non-native shrub habitat that could potentially provide nesting habitat for the species, as well as 14.39 acres of herbaceous and tidal salt marsh habitat that could potentially be used as foraging habitat. However, because this habitat is so close to the existing highway, neither the potential nesting habitat nor the foraging habitat is expected to be used frequently by tricolored blackbirds.

As described previously for Phase 1 construction, Project features would reduce impacts of Phase 2 construction on tricolored blackbirds. With implementation of Project features, impacts of Phase 2 construction on the tricolored blackbird would be less than significant.

Northwestern Pond Turtle

During Phase 2 construction, construction activities would lead to the same types of impacts on northwestern pond turtles as described for Phase 1 construction. Phase 2 construction would result in the permanent loss of 0.01 acre of aquatic habitat that could be used by northwestern pond turtles. Phase 2 construction would temporarily impact 4.04 acres of freshwater marsh, 0.15 acre of fresh open water (in Simonds Slough), and 0.35 acre of diked brackish marsh that could potentially be used by this species.

As described previously for Phase 1 construction, Project features would reduce impacts of Phase 2 construction on northwestern pond turtles; implementation of AMM-BIO-12, California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys, and AMM-BIO-13, California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols, would avoid and minimize impacts to northwestern pond turtles. With implementation of Project features and these AMMs, impacts of Phase 2 construction on the northwestern pond turtle would be less than significant.

California Red-legged Frog

During Phase 2 construction, construction activities would lead to the same types of impacts on California red-legged frogs as described for Phase 1 construction. Phase 2 construction would not result in the permanent loss of any wetland or aquatic habitat suitable for this species but would result in the permanent loss of 1.68 acres of upland habitat that may be used by California red-legged frogs for foraging and dispersal. Temporary impacts from Phase 2 construction would impact 4.04 acres of freshwater marsh, 0.15 acre of fresh open water (in Simonds Slough), and 16.79 acres of potential upland habitat for the species.

As described previously for Phase 1 construction, Project features would reduce impacts of Phase 2 construction on California red-legged frogs; implementation of AMM-BIO-11, California Red-legged Frog Work Window, AMM-BIO-12, California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys, and AMM-BIO-13, California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols, would further avoid and minimize impacts to California red-legged frogs; and MM-BIO-2, California Red-legged Frog Compensatory Mitigation, would be implemented to compensate for Project impacts on California red-legged frog habitat.

With implementation of Project features and these AMMs and mitigation measures, impacts of Phase 2 construction on the California red-legged frog would be less than significant.

North American Green Sturgeon, Central California Coast Steelhead, and Longfin Smelt

Because of the lack of an unimpeded hydrological connection to San Pablo Bay, as well as inadequate habitat, North American green sturgeon, Central California Coast steelhead, and longfin smelt are presumed absent from Simonds Slough; therefore, there would be no impact.

Operation

Once construction is completed, the Project design would improve the ability of listed animals, such as the California red-legged frog, California Ridgway's rail, California black rail, and salt marsh harvest mouse, to move across the Project segment of SR 37. Instead of having to move across the highway under the relatively narrow Novato Creek Bridge, through even smaller culverts, or over the road's surface, these species could more easily move from one side of the highway to the other beneath the longer Novato Creek Bridge and the causeway. Additionally, the new Novato Creek Bridge would fully span the Novato Creek channel, avoiding the installation of permanent fill in the channel. This would result in the net addition of aquatic habitat and easing upstream and downstream passage for fish and positively affecting North American green sturgeon, Central California Coast steelhead, and longfin smelt habitat. Therefore, the Project would benefit these species' dispersal in the Project area.

No-Build Alternative

The No-Build Alternative would have no effect on listed animals potentially occurring within the BSA because the Novato Creek Bridge would not be replaced and the causeway from U.S. 101 to Novato Creek Bridge and from Novato Creek Bridge to Atherton Avenue would not be built. There would be no improvements to SR 37, and any listed animals potentially present would not be impacted.

2.3.5.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The following AMMs would be implemented to minimize impacts on listed species, and compensatory mitigation measures are provided to offset Project impacts on these species. In some cases, the following AMMs are similar to Project features, but these AMMs are provided here to incorporate more detail regarding implementation of these measures. The AMMs proposed for threatened and endangered fish species are not described in the following text because they have been previously introduced

in Section 2.3.4.4 and are described in Appendix E. There are no AMMs proposed for listed special-status plants as discussed in Section 2.3.3.4.

AMM-BIO-7: Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring. Within areas where vegetation potentially supporting salt marsh harvest mice would be impacted, vegetation and debris that could provide cover for mice would be removed using only hand tools at least 1 week prior to the commencement of construction activities. Vegetation removal would occur under the supervision of a USFWS- and CDFW-approved biologist. This vegetation would be removed on a progressive basis, such that the advancing front of vegetation removal moves toward vegetation that would not be disturbed. In some cases, temporary berms might need to be constructed over borrow ditches to enable suitable escape routes, or temporary shelter consisting of dead vegetation might be positioned to provide escape routes to suitable habitat.

A USFWS- and CDFW-approved biologist would monitor the vegetation removal and make specific recommendations with respect to the rate of vegetation removal (to ensure that any harvest mice present are able to escape to cover that would not be impacted) and whether vegetation needs to remain in a certain area temporarily to facilitate dispersal of mice into habitat outside the impact area.

During construction, a USFWS- and CDFW-approved biologist would check underneath vehicles and equipment for salt marsh harvest mice before such equipment is moved, unless the equipment is surrounded by harvest mouse wildlife exclusion fencing (WEF).

AMM-BIO-8: Salt Marsh Harvest Mouse Exclusion Fencing. The following requirements for salt marsh harvest mouse WEF would be implemented:

- All supports for the WEF would be placed on the inside of the work area to prevent salt marsh harvest mouse from climbing the stakes into the work area.
- The salt marsh harvest mouse-proof WEF would be at least 2 feet high but no higher than 4 feet.
- The fencing would be made of a heavy plastic sheeting material that is too smooth for salt marsh harvest mouse to climb.
- The toe of the fence would be buried approximately 6 or 8 inches in the ground to prevent salt marsh harvest mouse from crawling or burrowing underneath it.

- A 4-foot buffer would be maintained free of vegetation around the WEF and work areas.

The final design and proposed location of the fencing would be reviewed and approved by USFWS and CDFW prior to placement.

AMM-BIO-9: California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers. If work would occur during the rail nesting season (February 1 through August 31) within 700 feet of California Ridgway's rail or California black rail habitat along Novato Creek (or within 200 feet if separated by a major slough or other barrier such as SR 37), a pre-construction survey by a USFWS- and CDFW-approved biologist familiar with California Ridgway's rail and California black rail would be conducted to determine whether these species are present. Survey requirements and timing would be determined in consultation with USFWS and CDFW.

If California Ridgway's rail and/or California black rail are detected during pre-construction surveys, then Project activities would not occur within 700 feet of an identified detection (or 200 feet if separated from work areas by a major barrier, or a smaller distance if approved by USFWS and CDFW) during the rail nesting season.

AMM-BIO-10: Swainson's Hawk Pre-construction Surveys and Avoidance. Pre-construction surveys would be conducted prior to any work that would occur during the bird nesting season of February 1 through August 31 for Project activities within a 0.25-mile radius of Swainson's hawk nesting or forage habitat. Surveys would be conducted as follows:

- Surveys would be conducted in accordance with applicable guidance and methods found in *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee 2000).

- Surveys would be conducted between March 1 and April 30.

- Caltrans would conduct surveys during two survey periods immediately prior to initiating any Project-related construction activity.

If a Swainson's hawk nest is discovered during surveys or monitoring, then a minimum 250-foot buffer (or as otherwise determined in coordination with CDFW) would be kept free from Project-related activities as long as the nest is active.

AMM-BIO-11: California Red-legged Frog Work Window. In portions of the Project limits where suitable California red-legged frog habitat occurs (e.g.,

freshwater aquatic and wetland habitats, and vegetated upland habitats), initial ground disturbance (that is, areas that have not been previously disturbed in such a way that removes or destroys access to burrows and migratory habitat or has not previously been enclosed with WEF) would be timed to occur between April 15 and October 31 (with the possibility of extending this work window via email request and written resource agency approval).

AMM-BIO-12: California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys. Pre-construction surveys for the California red-legged frog and northwestern pond turtle would be conducted by a qualified biologist within 14 calendar days of the initiation of Project activities in suitable upland and aquatic habitat prior to ground-disturbing activities, vegetation removal, and WEF installation. Surveys would be conducted as outlined in the 2005 USFWS species survey guidelines for California red-legged frog.

Pre-construction surveys would include the following:

- Pedestrian surveys of potential frog habitat, which would also be suitable for northwestern pond turtle, would be conducted within the Project limits and accessible adjacent areas (within at least 50 feet of Project limits).
- Potential cover sites (burrows, rocks, soil cracks, vegetation, and other potential refuge habitat) and any areas of disturbed soil would be investigated for signs of California red-legged frog or northwestern pond turtle.

Native vertebrates found in cover sites within the Project limits would be documented and, if handling is allowed, relocated to an adequate cover site in the vicinity. Species that cannot be relocated because of special protection status would be addressed in coordination with the appropriate agency(s) with jurisdiction.

AMM-BIO-13: California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols. During construction in and near potential California red-legged frog and northwestern pond turtle habitat, the following protocols would be observed by the Project biologist during construction monitoring:

- Within 24 hours before initial ground-disturbing activities, portions of the Project footprint where potential California red-legged frog and northwestern pond turtle habitat has been identified would be surveyed by a Project biologist(s) to clear the site of frogs and turtles moving above ground or taking refuge in burrow openings or under materials that could provide cover.
- A Project biologist(s) would be present during all initial ground-disturbing activities and vegetation removal in suitable refugia habitats for the California

red-legged frog and northwestern pond turtle to monitor the removal of the top 12 inches of topsoil.

- If potential aestivation burrows are discovered, the burrows would be flagged for avoidance.
- After a rain event, and prior to construction activities resuming, a qualified biologist would inspect the work area and all equipment/materials for the presence of California red-legged frog and northwestern pond turtle.
- Upon discovery of a California red-legged frog or northwestern pond turtle individual(s) in an active construction area, all work would cease within a 50-foot radius of the individual. The individual would be allowed to leave the site on its own; or if the individual(s) does not leave on its own, it would be relocated to suitable habitat as close to the Project site as feasible by a USFWS-approved biologist.
- USFWS would be notified of any California red-legged frog or northwestern pond turtle discovery in the Project area in accordance with conditions of the Biological Opinion.

MM-BIO-2: California Red-legged Frog Compensatory Mitigation. Caltrans will compensate for the permanent loss of California red-legged frog habitat through the purchase of credits from an approved conservation bank in the Project's service area. At least one such bank currently has available credits for the California red-legged frog, with a service area that includes the Project site. Credits will be purchased according to ratios determined through consultation with USFWS.

Caltrans will offset temporary impacts during construction to California red-legged frog habitat by restoring disturbed areas to pre-Project conditions at a 1.1:1 ratio.

2.3.6 Invasive Species

2.3.6.1 Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is, not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." 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

Several plant species listed as invasive by the California Invasive Plant Council (Cal-IPC 2023) were detected within the BSA during Project surveys. Examples of species rated as having “high” or “moderate” invasiveness by California Invasive Plant Council, and that are present within the BSA, include Himalayan blackberry, highway iceplant (*Carpobrotus edulis*), poison hemlock (*Conium maculatum*), fennel, hedgeparsley (*Torilis arvensis*), Italian thistle, bull thistle (*Cirsium vulgare*), French broom (*Genista monspessulana*), yellow star thistle (*Centaurea solstitialis*) artichoke thistle (*Cynara cardunculus*), Bermuda grass (*Cynodon dactylon*), stinkwort (*Dittrichia graveolens*), black mustard (*Brassica nigra*), perennial pepperweed (*Lepidium latifolium*), wild oats, ripgut brome, and foxtail barley (*Hordeum murinum*). The large number of invasive plants present within the BSA is typical of heavily disturbed roadsides in California.

Invasive species also occur in aquatic habitats, especially tidal aquatic habitats such as Novato Creek. San Francisco Bay is among the most heavily invaded aquatic ecosystems in North America (Cohen and Carlton 1995, Jimenez and Ruiz 2016, Epstein and Smale 2017). Non-native aquatic species can have substantial impacts on the San Francisco Estuary through aggressive predation, highly efficient filter feeding, and competition, which, when magnified by the great abundance of some of these species, has the potential to change (or already has changed) the trophic structure and dynamics of the Bay ecosystem (Josselyn et al. 2004). The primary vector for the introduction and establishment of non-native aquatic species in California is by hull fouling, followed by ballast water (California Department of Fish and Game 2011).

Cohen and Carlton (1995) note that at least 212 species, 69 percent of which are invertebrates, have been introduced to the Bay and Delta since 1850. The most important include a number of clams, many of which were introduced into the Bay via releases of ballast water (Cohen and Carlton 1995), such as the introduced Asian species of *Venerupi*s and *Musculista*, the Asian clam (*Potamocorbula amurensis*), and the Atlantic clam *Gemma*. Other invasive aquatic species include a carnivorous opisthobranch (*Philine auriformis*) that feeds on bivalves, the polychaete worm (*Streblospio benedicti*), the amphipod (*Ampelisca abdita*), and the European green crab (*Carcinus maenas*). Invasive aquatic algae, such as *Undaria pinnatifida* and *Sargassum muticum,* have also been documented in the San Francisco Bay (Miller et al. 2011). These algae rapidly colonize and can become conspicuous components of coastal marine communities, particularly on artificial hard substrates such as pilings, boat hulls, and floats.

2.3.6.3 ENVIRONMENTAL CONSEQUENCES

Build Alternative

Phase 1 and Phase 2 Construction

During both Phase 1 and Phase 2 construction, the Build Alternative would result in additional disturbance to grassland and native scrub habitats that contain invasive terrestrial plant species. Construction equipment and materials have the potential to introduce and/or spread new or existing invasive plant species into the BSA during Project implementation. The Build Alternative would require removal of both native and invasive species to construct the Project. Areas of exposed soil may become more susceptible to the establishment and spread of invasive terrestrial plant species. Improper removal and disposal of invasive plants and their seeds could contribute to the spread of invasive species.

In addition, work within the aquatic habitats of Novato Creek could result in the introduction of invasive aquatic species. For example, invasive aquatic species or their propagules (e.g., eggs, larvae, or seeds) could be introduced to the area on equipment such as boats or barges that may be used to install the temporary trestle used for construction of the Novato Creek Bridge or to construct the bridge itself. Invasive species could then have potential impacts on native aquatic species via predation, highly efficient filter feeding (which may reduce resources available for natives), and competition for space or food.

With implementation of PF-BIO-9, Restore Disturbed Areas, PF-BIO-11, Landscaping and Revegetation Plan, and PF-BIO-22, Invasive Weed Control, the proposed Project would prevent the introduction and spread of invasive terrestrial plant species. All equipment and materials would be inspected for the presence of terrestrial invasive species. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor would contain the plant material associated with these noxious weeds and dispose of it in a manner that would not promote the spread of the species. The contractor would be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. None of the species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping. Project construction is not expected to result in an increase in invasive wildlife species.

Project features incorporated into the Project would minimize the potential for the introduction and spread of invasive plants through worker environmental awareness training, implementing construction site management practices to minimize impacts

to sensitive habitats, restoring disturbed areas, revegetating temporary impact areas, and employing invasive weed control measures.

Implementation of PF-BIO-3, Worker Environmental Awareness Training, and PF-BIO-24, Invasive Aquatic Species Control, would minimize the potential for introduction and establishment of invasive aquatic species through appropriate training of construction personnel, ensuring that in-water vessels used during construction originate in San Francisco Bay, providing a qualified biologist to inspect in-water vessels and equipment, and taking appropriate steps if marine invasive species are detected on Project equipment, vessels, or materials.

With implementation of Project features, Phase 1 and Phase 2 construction impacts associated with invasive species would be less than significant.

Operation

Operation of the Project is expected to have a minimal effect on the distribution of invasive species within the BSA over the existing condition as there would be no change in long-term vehicular capacity, and no in-water activities that may result in introduction of aquatic invasive species would occur during operation. Use of any roadway can result in further propagating these non-native plant species that have a competitive advantage over natives due to their higher tolerance for roadway-related disturbances (e.g., exhaust, dust, increased wind exposure) and/or better suitability for habitats where the natural plant communities have been disrupted by human activity. The Project is not expected to result in an increase in invasive wildlife species. Therefore, Project operation impacts associated with invasive species would be less than significant.

No-Build Alternative

Under the No-Build Alternative, the Project would not be implemented. As with any major roadway, the No-Build Alternative would continue to contribute to the spread of invasive species within the BSA through ongoing use of SR 37.

2.3.6.4 AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

No AMMs or mitigation measures would be required to reduce effects related to invasive species.

2.4 Cumulative Impacts

This section provides information regarding past, present, and reasonably foreseeable development projects dating from 2010 onward, which, together with the Project, could potentially have a substantial or considerable contribution to cumulative environmental impacts in the respective resource study area. While the past is generally represented by the current existing condition, this analysis reviews known projects that have resulted in recent changes in the previous 10 years. The reasonably foreseeable future is generally a 20-year timeframe.

Incremental impacts that may result from the Project are considered in the context of the cumulative condition that exists from previous human actions and in light of other reasonably foreseeable future actions. The analysis proceeds as follows:

1. Determine which resources would be significantly impacted by the Project.
2. Determine whether there is a detrimental condition or deterioration in health of a resource within the context of impacts from past, present, and other reasonably foreseeable future actions.
3. Determine whether, collectively, the Project and foreseeable condition combine to result in 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. 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 NEPA can be found in 40 CFR Section 1508.7.

2.4.2 Resources Analyzed

The "Interim Guidance: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts" in the *NEPA Process Guidance for Preparers of Cumulative Impact Analyses* (FHWA 2003) describes how the cumulative impact analysis should focus on resources substantially impacted by a proposed project, or resources currently in poor or declining health. The resources evaluated in this Draft EIR/EA that meet these criteria are as follows:

- Visual resources along the SR 37 corridor in the resource study area
- Biological resources (wetlands and waters, threatened and endangered species, e.g., the California red-legged frog) within the biological study area (BSA) along SR 37
- Transportation and traffic along SR 37

2.4.2.1 Resources with No Cumulative Impacts

If a proposed project would not result in a direct or indirect adverse effect on a resource, then it would not contribute to a cumulative impact on that resource and does not need to be further evaluated.

In the initial phases of the Project, the following resources were determined not to result in an adverse effect:

- Coastal Zone
- Environmental Justice
- Growth
- Paleontology
- Real Property and Real Estate Acquisition
- Section 4(f)
- Parks and Recreational Facilities
- Timberlands
- Wild and Scenic Rivers

Therefore, these resources would not contribute to a cumulative impact. Through the evaluation in Sections 2.1 through 2.3, it was also determined that the Project would result in less than significant impacts, with incorporation of Project features and AMMs, and thus no cumulative impacts, on the following resources:

- Land Use
- Farmlands
- Community Character and Cohesiveness

- Utilities and Emergency Services
- Transportation/Pedestrian and Bicycle Facilities
- Cultural Resources
- Water Quality
- Hydrology/Floodplain
- Air Quality
- Greenhouse Gas Emissions
- Noise
- Hazardous Waste/Materials

Certain resources are not vulnerable to incremental/cumulative impacts. Examples include geologic and seismic hazards related to future developments in the project resource study area. Geologic and seismic hazards are site-specific and relate to the type of building or structure proposed and soil composition and slope of a given site. No other planned projects in the vicinity would interact with the proposed Project structure to increase the risk of geologic or seismic hazards. Therefore, no further cumulative impact analysis is warranted.

2.4.3 Resource Study Areas

Table 2.4.3-1 lists all resource areas included in the cumulative analysis, as well as the resource study area that corresponds to the cumulative analysis for each resource. The resource study areas in the context of the cumulative analysis are different than the “study areas” defined in Sections 2.1 through 2.3 for analyzing the direct and indirect impacts to each resource area. This difference is because a cumulative impact analysis reviews the resources in the Project vicinity as a whole rather than merely the potential range of direct and indirect impacts from the Project.

Table 2.4.3-1. Resource Study Area by Resource Area

Resource Area	Included in Cumulative Analysis	Resource Study Area
Visual/Aesthetics	Yes	Viewshed of the Project area along SR 37.
Biological Environment	Yes	BSA – Project footprint plus 200-foot buffer. Buffer extended 700 feet from Project limits at Novato Creek and Simonds Slough.
Transportation and Traffic	Yes	SR 37 from U.S. 101 east to Atherton Avenue off-ramp

Table 2.4.3-2 lists current and foreseeable projects, including feasibility plans, near the SR 37 corridor in Marin County. Figure 2.4.3-1 shows the foreseeable projects in the Project area. These projects are considered along with past projects, the Build Alternative, and the No-Build Alternative in the following cumulative analysis.

Table 2.4.3-2. Cumulative Projects: Current and Foreseeable Projects within Two Miles of the Project Area

Project Name	Project Description	Expenditure Authorization Number	County	Post Miles	Lead Agency	Status
SR 37 Pavement Rehabilitation– Capital Preventive Maintenance	Pavement rehabilitation along highway mainline and ramps, replace guardrails, upgrade curb ramps.	2K740	Marin	R11.2/14.6	Caltrans	Delivery 2024.
SR 37 Ultimate SLR Resilience Design Alternatives Assessment (U.S. 101 to SR 121)	Exploration of long-term solutions for SR 37 for SLR resilience focused on SR 37 from U.S. 101 to SR 121.	Not Identified	Marin/Sonoma	R11.2/14.6; 0.0/3.9	MTC	Feasibility Study completed February 2022.
SR 37 Petaluma River Bridge Preservation	Resurface the bridge deck, replace bridge fender system, mitigate bridge scour, and upgrade bridge railings.	2Q500	Marin	14.5	Caltrans	Delivery 2024.
SR 37 Operational Improvements – SR 37/121 Junction	Reconstruct intersection of SR 37 and SR 121. Considering roundabout and “T” intersection design alternatives.	1Q480	Sonoma	3.8/4.0	Caltrans	This project is now part of the 1Q761 project (see the project that follows—SR 37 Sears Point to Mare Island Improvement Project). Delivery 2027.
SR 37 Lane Extension and Railroad Crossing at Tolay Creek	This project would extend the lane in the eastbound direction in the vicinity of SR 121 to the SMART railway crossing area.	2Q200	Sonoma	3.9/4.1	Caltrans	Delivery 2024.
SR 37 Sears Point to Mare Island Improvement Project	The project focuses on the portion of SR 37 that has a traffic capacity need where it transitions from four to two lanes between approximately SR 121 and Mare Island Interchange.	1Q761	Napa/Sonoma/ Solano	Sonoma: 2.9/6.2; Solano: 0.0/7.4	Caltrans	Construction completion anticipated for 2027.
SR 37 Alternatives Assessment Report for the Ultimate Project (SR 121 to Mare Island Interchange)	Adding an SR 37 causeway starting east of SR 121 to Mare Island (Walnut Avenue).	Not Identified	Sonoma/Solano	3.5/6.2; 0.0/R7.4	MTC	Feasibility Study completed April 2019.
SR 37 Corridor Planning and Environmental Linkages (PEL) Study (U.S. 101 to I-80)	To create a vision for the SR 37 corridor that addresses existing and future transportation needs by planning for infrastructure resilience against climate change and SLR while improving route movement, reliability, adaptability, and functionality for corridor commuters, residents, and essential service industries in the area.	Not Identified	Marin/Sonoma/ Napa/Solano	R11.2/14.6; 0.0/6.2; 0.0/R11.4	Caltrans and MTC	Study completed December 2022.
SR 37 Pedestrian Enhancements	SR 37 pedestrian enhancements at Wilson Avenue and Fairgrounds Drive, and other regional locations. The project would include warning beacons, high-visibility crosswalk markings, and signs.	0P760	Solano	Various	Caltrans	Delivery 2024.
Safety Enhancement Project- Sonoma and Solano Counties	The intent of this project is to reduce the potential for serious injuries and fatalities on or near locations along the State Highway System by implementing effective safety measures that will also serve to beautify and preserve infrastructure. The project will include decorative security fencing, decorative paving, and natural rock groundcover.	4W830	Solano	R7.21, R7.39, R9.98	Caltrans	Construction completion anticipated by 2024.
Fairgrounds Drive Interchange Improvements	The project proposes roadway improvements along portions of Fairgrounds Drive and Redwood Parkway/Redwood Street, as well as several nearby intersections and interchanges within the City of Vallejo.	4A441	Solano	10.6/11.2	Solano Transportation Authority	Delivery 2023.

Project Name	Project Description	Expenditure Authorization Number	County	Post Miles	Lead Agency	Status
Variable Message Sign Project (SR 37)	The project proposes safety improvements on SR 37 in the city of Vallejo such as variable message signs, flashing beacon, and safety lighting to improve safety and reduce collisions.	1Y600	Solano	7.07/7.97	Solano Transportation Authority	Delivery late 2026.
Hamilton Wetlands Restoration Project	A 648-acre tidal marsh restoration project along the western margin of San Pablo Bay in Novato.	Not Identified	Marin	Not Applicable/ Located on former Hamilton Air Force Base	USACE and California Coastal Conservancy	7 years post-construction and in monitoring phase to support establishment of a stable habitat.
Northern Waterfront Project	175 single-family detached residences, commercial areas, and two parks. EIR certified in 2005.	Not Applicable	Solano	Between Mare Island Way and Mare Island Causeway (approximately 1 mile southeast)	City of Vallejo	City of Vallejo approved a Disposition and Development Agreement (5th) in 2016 with Callahan Property Development.
Mare Island	Mixed-use development.	Not Applicable	Solano	South of G Street (approximately 1 mile south)	City of Vallejo	The project received entitlements for the Waterfront Planned Development Master Plan in 2007 and certified its Environmental Impact Report in 2005.
Bahia Drive Subdivision	Subdivision of nine residential single-family units on 7-acre lot.	Not Applicable	Marin	Bahia Drive	City of Novato	Design review.
Hanna Ranch Mixed Use Development	Mixed-use development: hotel, retail, office space, restaurant, and Costco Fuel Center.	Not Applicable	Marin	Hanna Ranch (near U.S. 101 and SR 37 interchange)	City of Novato	Design review.
Vogel Land Division	Subdivision of a residential single-family into two lots.	Not Applicable	Marin	116 H Lane	County of Marin	Draft Initial Study – Mitigated Negative Declaration submitted in December 2016.
Deer Island Basin Tidal Wetlands Restoration Project	Floodplain and tidal connectivity restoration project.	Not Applicable	Marin	Adjacent to SR 37 to the north	Marin County Department of Public Works	Design alternatives and environmental studies are underway; anticipate completion in summer 2023.
Novato Creek Flood Control Dredging Project	Dredging Novato Creek and disposal of dredge material.	Not Applicable	Marin	Adjacent to SR 37, both north and south	Marin County Department of Public Works	Construction occurred in 2020; next dredging planned for 2025.
Novato Creek Bypass Study Project	Additional analysis of Novato Creek for a flood bypass system. No physical construction work is proposed.	Not Applicable	Marin	Adjacent to SR 37 to the north	Marin County Department of Public Works	The study is anticipated to be completed in 2023, and an update will be presented in February 2023.
SMART Rail Expansion	Passenger rail from Novato to Suisun City.	Not Applicable	Marin, Napa. and Solano	Adjacent to SR 37	SMART	Feasibility Study completed in 2019. Project Study Report to be completed winter 2023.
Sonoma Creek Baylands Strategy	Plan for restoration, flood protection, and public access in the Sonoma Creek Baylands.	Not Applicable	Sonoma	Adjacent to SR 37, east of the Project	Sonoma Land Trust and San Francisco Bay Restoration Authority	Strategy Final Report completed May 2020.
Novato Creek Baylands Strategy	Plan to advance climate resilience, restoration, flood protection, and public access in the Novato Creek Baylands.	Not Applicable	Marin	Adjacent to SR 37	Marin County Department of Public Works, Coastal Conservancy, City of Novato, and State Lands Commission	In Progress
Marin County Housing Element	Future housing on six sites in the Atherton-Black Point-Green Point areas in Novato.	Not Applicable	Marin	Adjacent to SR 37 to the north	Marin County Planning Department	Development of housing sites are in the future.

Project Name	Project Description	Expenditure Authorization Number	County	Post Miles	Lead Agency	Status
San Francisco Bay Trail Project	Planned trail segments for the SR 37 area identified as mid-range priorities: SR 37 between U.S. 101 and Petaluma River; railroad corridor between U.S. 101 and Petaluma River; Bel Marin Keys between Pacheco Pond and Hamilton Drive; and railroad corridor between Bolling Drive and Bel Marin Keys Boulevard.	Not Applicable	Focused on Marin County segments	Not Applicable	MTC	Gap Analysis Study completed in August 2005.

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Figure 2.4.3-1
Cumulative Projects
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

2.4.4 Resource Trends/Historical Context

2.4.4.1 VISUAL/AESTHETICS

Visual Setting

The Project setting is defined as the area of land that is visible from, adjacent to, and outside the SR 37 highway ROW and is determined by topography, vegetation, and viewing distance.

The proposed Project is located on SR 37 between U.S. 101 and Atherton Avenue in the town of Novato in Marin County, California (Figure 1-1). The Project is located along the northern edge of San Pablo Bay, with Deer Island Preserve to the north of the roadway and the Bel Marin Keys neighborhood to the south. The landscape is characterized by flat farmland for much of the Project area. The land use surrounding SR 37 within the Project limits is primarily rural, with naturalized and native vegetation along the roadside, and few residences and businesses at the eastern and western ends of the Project limits. At Atherton Avenue are the Black Point Park & Ride and Caltrans storage yard. The SMART[2] railroad tracks run parallel to the Project area to the south. The land use designations adjacent to the Project area are Agricultural, Open Space, and Residential. SR 37 provides scenic views of the mountain hillsides on the north side of the highway corridor, which is a prominent attribute of the surrounding landscape.

Within the Project limits, SR 37 is classified as eligible, but not designated for, California State Scenic Highway status.

From a historic standpoint, some development has occurred in the Project vicinity over time; however, the area has undergone little visual change. Newer development outside of the highway corridor has occurred to the southwest adjacent to U.S. 101. The Project would be visible to residents that use SR 37 to access their homes or travel SR 37 for work/commuter purposes and is visible in distant views from homes and Montego Park located in Bel Marin Keys to the south of the SR 37 corridor.

2.4.4.2 BIOLOGICAL RESOURCES

The following section discusses wetlands and waters and threatened and endangered species where the Build Alternative would have a significant impact.

Wetlands and Waters

Most of the wetlands in the BSA are in an area that is relatively undeveloped, apart from some agriculture and some residential developments. The BSA is within a low-lying area crossed by Novato Creek and Simonds Slough, with high groundwater

[2] SMART runs freight service three times per week along SR 37.

elevations. As a result, wetlands and other waters are present in several areas within the BSA. Habitat types within the BSA that are considered waters of the U.S. are diked brackish marsh, freshwater marsh, open water, seasonal wetland, and tidal salt marsh. These same habitat types are also considered waters of the state.

Over the past 150 years, humans have considerably altered the natural systems of the San Pablo Bay and Marin County undesirably by land use practices including floodplain changes, farming, diking, degrading water quality, importing exotic and invasive species, and disturbing aquatic systems.

Because of uncertainties in both natural and human-caused factors, monitoring changes in wetland areas is difficult. Natural events, including earthquakes, floods and fires, and short- and long-term climate change can affect the distribution and acreage of wetlands. The overall trend has been toward a decline in wetlands due to urbanization and agricultural practices; however, the “no net loss” policies, set forth by the USEPA and USACE, require that present and future development replace any acreage of wetland or other waters lost.

California Red-legged Frog

The geographic context for the California red-legged frog includes the current range distribution as designated by USFWS. For this analysis, the BSA and local watershed was analyzed to evaluate any cumulative effects to the California red-legged frog. As discussed in the Natural Environment Study (Caltrans 2023g) and Section 2.3.5, Threatened and Endangered Species, the California red-legged frog has a history of population decline throughout a significant portion of its geographic range.

California Ridgway’s Rail

The California Ridgway’s rail is federally and state listed as endangered and is designated as a fully protected species under the CFGC. Critical habitat has not been designated for this species. The California Ridgway’s rail was listed as endangered primarily because of habitat loss. Throughout the San Francisco Bay Estuary, the Ridgway’s rail population is impacted by a suite of mammalian and avian predators. At least 12 native and three non-native animal species are known to prey on various life stages of the Ridgway’s rail (Albertson 1995).

Salt Marsh Harvest Mouse

The salt marsh harvest mouse is federally and state listed as endangered, and is designated as a fully protected species under the CFGC. Critical habitat has not been designated for this species. This species is found only in saline and brackish wetlands of San Francisco Bay and its tributaries. Agriculture and urbanization has

claimed much of the former historical tidal marshes, resulting in a 79 percent reduction in the extent of tidal marshes in these areas (Goals Project 1999). At present, the distribution of the northern subspecies, which is found in the Project vicinity, occurs along Suisun and San Pablo Bays north of Point Pinole in Contra Costa County, and Point Pedro in Marin County.

In summary, all the previously listed factors can contribute to cumulative impacts on the three species described previously.

2.4.4.3 TRANSPORTATION AND TRAFFIC

The Project limits are at the western terminus of the SR 37 corridor, between U.S. 101 and the Atherton Avenue off-ramp. The SR 37 corridor is a 21-mile-long facility along the northern shore of San Pablo Bay, from U.S. 101 in the city of Novato, in Marin County, to I-80 in the city of Vallejo, Solano County.

Currently, SR 37 floods during extreme weather events, which contributes to highway closures and traffic congestion. In the future, SR 37 would continue to be impacted by operational closures, in particular near Novato Creek, from flooding during 10-year storm surge events, and would be permanently inundated around the year 2050 with projected roadway flooding depths ranging up to 5 feet (Caltrans 2021e). From an operational standpoint, SR 37 would experience significant and unavoidable impacts to transportation and traffic conditions if the proposed Project is not built.

Construction would occur in two phases. In both phases, lane closures, nighttime work, and detours would add significant time to travelers' use of SR 37 to reach their destinations, ranging from 8 minutes to 15 minutes depending on the location of construction work.

Because of these potential impacts, MM-TRANS-1, Prepare Traffic Analysis, is proposed. A traffic analysis will be prepared for Phase 2 during the design phase because it would be too speculative to be modeled at this time. This traffic analysis will include a more accurate reflection of current traffic, anticipated detours, and impacts.

2.4.5 Cumulative Impact Analysis

2.4.5.1 NO-BUILD ALTERNATIVE

The No-Build Alternative would not include improvements to SR 37. Existing stormwater overtopping would be perpetuated, and the potential impacts associated with the Build Alternative would not occur. Furthermore, SLR would impact traffic circulation and the regional economy in the Northern Bay Area resulting in an

increase in vehicle miles traveled due to detours from highway closures during flooding.

The No-Build Alternative would also not include the beneficial effects of the Build Alternative, which would improve reliability and accessibility along SR 37 during winter months. It would not require construction and would not contribute to cumulative environmental effects in combination with other projects.

2.4.5.2 BUILD ALTERNATIVE

For this cumulative impact analysis, Caltrans evaluated recent projects (known within the last 5 years), pending, or proposed projects in the vicinity of the Project, the San Pablo Bay and SR 37 corridor and within the city of Novato. These projects are listed in Table 2.4.3-2. A discussion of these projects and their potential to contribute to cumulative impacts is provided in the following:

- The SR 37 Ultimate SLR Resilience Design Alternatives Assessment (U.S. 101 to SR 121), the SR 37 Alternatives Assessment Report for the Ultimate Project (SR 121 to Mare Island Interchange), the SR 37 Corridor Planning and Environmental Linkages (PEL) Study (U.S. 101 to I-80), the Novato Creek Bypass Study Project, the SMART Rail Expansion, the Sonoma Creek Baylands Strategy and the San Francisco Bay Trail Project are feasibility or strategic planning studies that would not have an impact on the Project vicinity. The Project's barrier-separated bicycle and pedestrian path could someday become an officially designated segment of the San Francisco Bay Trail. Each of these studies may lead to selection of a project to undergo environmental review and implementation, but in general, planning studies do not have an impact on the environment and would not contribute to a cumulative impact.

- SR 37 Pavement Rehabilitation – Capital Preventive Maintenance is a project within the same project limits as the SR 37 Flood Reduction Project; however, the construction would remain within the developed portions of SR 37 between U.S. 101 and the Atherton Avenue off-ramp. This project did not have significant or less than significant environmental impacts to wetlands and waters, endangered or threatened species, visual/aesthetics, or transportation and traffic. Therefore, this project would not contribute to a cumulative impact.

- SR 37 Petaluma River Bridge Rehabilitation is a project that would repair and rehabilitate the Petaluma Bridge on SR 37, which connects the county of Marin with the county of Sonoma. The project would upgrade the bridge support piers in the Petaluma River as well as repair the four lanes of SR 37 that are on the bridge deck. This project did not have significant environmental impacts to endangered or threatened species, visual/aesthetics, or transportation and traffic.

This project has the potential to impact wetlands and waters from the repair work to the bridge piers in the Petaluma River. Therefore, this project would have a minor incremental contribution to cumulative impacts.

- SR 37 Operational Improvements – SR 37/121 Junction, SR 37 Lane Extension and Railroad Crossing at Tolay Creek, and SR 37 Sears Point to Mare Island Improvement Projects are projects that will be constructed within the SR 37 corridor, east of the SR 37 Flood Reduction Project limits. The projects collectively are expected to improve traffic conditions along SR 37, and to improve the traffic flow and travel times during peak travel.

- The SR 37 Sears Point to Mare Island Improvement Project would create moderate-high to high visual impacts because of its potential to obstruct views of scenic landscapes on the other side of the highway for most motorists (due to the median barrier). However, this project is located on the east side of Petaluma Bridge and is far enough east to not contribute to visual cumulative impacts to the SR 37 Flood Reduction Project. The project would have substantial direct impacts resulting in approximately 9.02 acres of permanent loss of wetlands and other waters in the project area, primarily from fill in wetlands where roadway expansion is planned. Another 0.7 acre of wetlands and other waters would be permanently shaded by the Sonoma Creek Bridge widening. Approximately 7.02 acres of temporary impacts to wetlands and other waters, primarily from temporary construction access, would occur and would be restored to pre-project conditions or better. An additional 1.76 acres of wetlands and other waters would be temporarily shaded to install a temporary construction trestle during Sonoma Creek Bridge widening. The project would have substantial permanent and temporary impacts on habitat for listed Chinook salmon, Delta smelt, steelhead, green sturgeon, longfin smelt, Ridgway's rail, California black rail, salt marsh harvest mouse, and California red-legged frog habitat, respectively. This project would not contribute a cumulative impact for visual/aesthetics and transportation and traffic; however, this project would have a cumulative impact contribution for wetlands, and threatened and endangered species, particularly for the California Ridgway's rail, salt marsh harvest mouse, and California red-legged frog habitat. Although these impacts are outside the resource areas evaluated for the SR 37 Flood Reduction Project, this would nevertheless contribute to biological resource impacts in the broader San Pablo Bay environment.

- Fairgrounds Drive Interchange Improvements, Variable Message Signs, SR 37 Pedestrian Enhancements, and Safety Enhancement Project – Sonoma and Solano Counties are projects located in Solano/Sonoma and would be constructed within developed areas and would not contribute to cumulative

impacts on wetlands and waters, endangered or threatened species, and visual/aesthetics within the general vicinity.

- The Hamilton Wetlands Restoration Project is a 648-acre tidal marsh restoration project along the western margin of San Pablo Bay in Novato. The project is complete and is in the monitoring phase. This project has a net benefit to wetlands and threatened and endangered species in San Pablo Bay.

- The Northern Waterfront Project and Mare Island projects are located on developed upland areas in the city of Vallejo, are in the design review stage, and have completed environmental review. These projects are remote from the Project limits and would not contribute to a cumulative impact.

- The Bahia Drive Subdivision, Hanna Ranch Mixed Use, and the Vogel Land Division projects are in Marin south of SR 37 and east of the U.S. 101 interchange. These projects are located in upland and developed areas and would not contribute to impacts on wetlands and waters, endangered or threatened species, and visual/aesthetics in the Project region.

- The Deer Island Basin Tidal Wetlands Restoration Project, located north of SR 37, is a floodplain and tidal connectivity restoration project. The project is designed to restore tidal wetlands and hydrologic connectivity to San Pablo Bay. This project would have a net benefit to tidal wetlands and threatened and endangered species in San Pablo Bay.

- The Novato Creek Flood Control Dredging Project is located north and south of and underneath SR 37 at its intersection with Novato Creek. This project consists of sediment removal from Novato Creek resulting in wetland enhancement. This project would have a net benefit to tidal wetlands and threatened and endangered species in Novato Creek, which flows into San Pablo Bay.

Based on the analysis presented in this Draft EIR/EA, the Project would significantly impact visual/aesthetics, and the identified AMMs (Appendix E) for this resource would not reduce this impact to a less than significant level. The Project would significantly impact biological resources without mitigation, such as wetlands and waters and the California red-legged frog; and mitigation measures are included to reduce the impact to this biological resource and species. The Project would have significant impacts on the California Ridgway's rail and the salt marsh harvest mouse, as identified in Section 2.3. Project cumulative impacts would likely occur to wetlands and these three species in conjunction with the SR 37 Sears Point to Mare Island Improvement Project listed in Table 2.4.3-2, but with the proper

implementation of Project features, AMMs, and mitigation measures, these cumulative impacts would be less than significant.

A cumulative analysis is also required for any impacted resources that are in poor health, declining health, or at risk. The three resources evaluated, visual/aesthetics, biological resources, and transportation and traffic, would be potentially at risk for significant impacts from the Project (visual/aesthetics) from the extensive changes in the Project visual environment due to the introduction of a new bridge structure in a currently bucolic and open space setting, or (biological resources) from declining populations or health from a cumulative and historic context, or (transportation and traffic) from declining traffic operations during temporary construction activities. However, in spite of the significant impacts on these three resources, the Project would have a minimal contribution to cumulative impacts because most other current and reasonably foreseeable projects in the Project vicinity are located distant from the Project area or would not interact with the Project in construction timing. Additionally, other planned projects in the region (Table 2.4.3-2) are not expected to contribute to a reduction in aesthetics or visual quality or reduce the amount of wetlands or suitable California red-legged frog, California Ridgway's rail, or salt marsh harvest mouse habitat in the Project vicinity. In addition, the proposed Project, combined with the Deer Island Basin Tidal Wetlands Restoration and the Novato Creek Flood Control Dredging projects, which are in proximity to the SR 37 Project limits, would have a net beneficial impact to tidal wetlands, and threatened and endangered species in Novato Creek and San Pablo Bay. The Project by elevating the roadway would improve wildlife connectivity in the region.

With implementation of Project features, AMMs, and mitigation measures, this Project would not make a considerable contribution to cumulative impacts in the region on the previously listed three species, and wetlands and waters.

From a construction traffic management standpoint, Caltrans has 12 active projects within the SR 37 corridor for multiple highway improvement capital projects (Table 2.4.3-2). Depending on delivery schedules, several of the projects along the SR 37 corridor may occur within a similar timeframe. However, Caltrans would regularly coordinate with the Metropolitan Transportation Commission, the Transportation Authority of Marin, Sonoma Transportation Authority, Solano Transportation Authority, and the City of Vallejo to develop a regional TMP that would address and minimize impacts to traffic in the San Pablo Bay region due to construction of multiple planned transportation improvements.

2.4.5.3 CONCLUSION

The Build Alternative would have a minimal contribution to a cumulatively significant impact on the previously listed impacted resources in conjunction with other planned

transportation and development projects near or in the SR 37 corridor. All potential impacts would be minimized through the proposed Project features, AMMs, and mitigation measures. Based on this cumulative impact analysis, no further AMMs or mitigation measures are proposed.

Chapter 3 California Environmental Quality Act Evaluation

Determining Significance Under CEQA

The State Route 37 Flood Reduction Project (Project) is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation has been prepared in accordance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (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 United States Code (USC) Section 327 and the Memorandum of Understanding dated May 27, 2022, 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 that significance is determined. Under NEPA, significance is used to determine whether an Environmental Impact Statement (EIS) or a lower level of documentation would 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 a project may have a significant effect on any 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.

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

Section 3.1.1 through Section 3.1.21 of this chapter present the CEQA determinations under Appendix G of the CEQA Guidelines. The CEQA determinations depend on the level of potential environmental impact that would result from the Project. The level of significance determinations are defined as follows:

- No Impact: Indicates no physical environmental change from existing conditions.
- Less than Significant Impact: Indicates the potential for an environmental impact that is not significant with or without the implementation of avoidance and minimization measures.
- Less than Significant Impact with Mitigation Incorporated: Indicates the potential for a significant impact that would be mitigated with the implementation of a mitigation measure to a level of less than significant.
- Potentially Significant Impact: Indicates the potential for significant and unavoidable environmental impact.

3.1.1 Aesthetics

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

Question	CEQA Determination
a) Have a substantial adverse effect on a scenic vista?	Significant Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Significant Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than Significant Impact

CEQA SIGNIFICANCE DETERMINATIONS FOR AESTHETICS

As described in Section 2.1.8, Visual/Aesthetics, the Project is located along the northern edge of San Pablo Bay, with Deer Island Preserve to the north of the roadway and the Bel Marin Keys neighborhood to the south. The landscape is characterized by flat farmland for much of the Project area. The land use within the Project corridor is primarily rural, with vegetation along the roadside, and a few residences and businesses at the eastern and western ends of the Project limits. The Black Point Park & Ride and a Caltrans storage yard are located on Atherton Avenue. The Sonoma-Marin Area Rail Transit (SMART) rail runs parallel to the south of the Project corridor from United States Highway 101 (U.S. 101) to Atherton Avenue.

Within the Project limits, SR 37 is classified as eligible, but not designated for, California State Scenic Highway status.

The western limits of the Project area are visible from Montego Park in Bel Marin Keys. Looking northwest from the park, the rolling green hills, mountains, and high-voltage transmission line are visible. The utility poles and high-voltage transmission lines are dominant features that run parallel to the roadway.

a) <u>Significant Impact</u>

There are no designated scenic vistas in the Project area; however, scenic vistas of the rural setting and surrounding hillsides are available from certain key views as

described in the Visual Impact Assessment (Caltrans 2023a) and Section 2.1.8. The Project would detract from the scenic vista of the surrounding environment. The impact of the Build Alternative would be potentially significant impact.

b) No Impact

The Project is eligible for California State Scenic Highway designation. The Project area is within a flat non-urbanized area mostly surrounded by agricultural lands and hillsides in the distance. There are no historic buildings or rock outcroppings in the immediate vicinity. There would be no impact from the proposed Project on scenic resources.

c) Significant Impact

The Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.

During construction, temporary visual changes from construction activities would be a fleeting view for travelers on SR 37. Construction activities would be slightly visible from Montego Park.

During operation, and as summarized in Section 2.1.8, the views from Montego Park in Bel Marin Keys looking northwest toward the Project area would substantially change. With the Project, SR 37 would become the dominant visual feature from the park. The elevated roadway would obstruct views of the rolling hills and mountains to the north. Therefore, the Project would result in a potentially significant impact. Implementation of avoidance and minimization measure (AMM)-AES-1, Restore Disturbed Areas, AMM-AES-2, Design Contours to Mimic Natural Terrain, AMM-AES-3, Lighting, AMM-AES-4, Screen Construction Area, and AMM-AES-5, Bridge Design Enhancement, would reduce this impact but not to a less than significant level. Therefore, the Project would have a significant impact on the existing visual character or quality of public views.

d) Less than Significant Impact

The Project would not create a new source of substantial light or glare. The existing streetlights within the Project footprint would be replaced, and no new permanent lighting would be introduced. Day and nighttime construction activities would temporarily add new sources of light and glare along the Project corridor. Construction lighting would be shielded and directed toward the area of work and would not constitute a substantial source of light outside the work area. These temporary visual impacts would be less than significant and minimized further through implementation of AMM-AES-3, Lighting.

AVOIDANCE AND MINIMIZATION MEASURES

Caltrans would incorporate the following AMMs into the Project and would implement them during the design and construction phase to minimize or avoid potential impacts to aesthetics:

AMM-AES-1: Restore Disturbed Areas. Caltrans would re-grade and re-vegetate areas disturbed by construction, staging, and storage, and would re-vegetate areas of removed roadways with native and climate-appropriate vegetation species along roadway and bridge embankments.

AMM-AES-2: Design Contours to Mimic Natural Terrain. Prior to completion of construction activities, slopes would be graded to be consistent with site topography, to increase context sensitivity, and reduce engineered appearance of slopes to the maximum extent practicable.

AMM-AES-3: Lighting. During construction, lighting for the Project would be of color, height, and design consistent with the overall aesthetic approach of the Project to minimize visual intrusion into the corridor.

AMM-AES-4: Screen Construction Area. Caltrans or its contractor would set up construction staging and storage areas with opaque screening wherever work would be exposed to public view for extended periods.

AMM-AES-5: Bridge Design Enhancement. To minimize the degree of visual contrast, Caltrans would incorporate design enhancement measures such as column, bent, and parapet into the final Project design. Caltrans would also consider surface texture treatments to reduce brightness and the potential for concrete reflectivity.

3.1.2 Agriculture and Forestry Resources

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

Question	CEQA Determination
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	No Impact
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	No Impact

CEQA SIGNIFICANCE DETERMINATIONS FOR AGRICULTURE AND FORESTRY RESOURCES

a, b, c, d) <u>No Impact</u>

The Project area is not located within areas of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. As noted in Section 2.1.5, the Project is surrounded by land classified as both Farmland of Local Importance, Grazing Land, and Urban and Built-Up Land (CDC 2016, 2018a). In addition, the Project is not located within Williamson Act parcels and would not conflict with a Williamson Act contract. The Project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Protection, nor would the Project result in the loss of forest land or conversion of forest land to non-forest use. The Project is located in an area zoned for Agricultural Residential Planned and Open Space (Marin County 2023a; City of Novato 2019).

As summarized in Section 2.1.5, temporary construction impact areas within the TCEs would be to land that is not actively cultivated for agriculture. The TCEs as shown on Figure 2.1.5-1 are outside the Caltrans ROW and within the SMART railroad ROW. Implementation of Project Feature (PF)-BIO-11, Landscaping and Revegetation Plan, would replace all temporarily impacted areas with native and climate-appropriate species. The temporary impacts would not preclude agricultural operations in the land surrounding the Project, and no permanent conversion or acquisition of land under the Williamson Act contract would occur. Therefore, there would be no impact to agriculture and forestry resources.

3.1.3 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:

Question	CEQA Determination
a) Conflict with or obstruct implementation of the applicable air quality plan?	No Impact
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Less than Significant Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	Less than Significant Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than Significant Impact

CEQA SIGNIFICANCE DETERMINATIONS FOR AIR QUALITY

The Project is located in Marin County within the San Francisco Bay Area Air Basin under the jurisdiction of the Bay Area Air Quality Management District. Sonoma County is designated as nonattainment for ozone and particulate matter with aerodynamic diameter equal to or less than 2.5 micrometers under national ambient air quality standards (USEPA 2023b), and nonattainment for ozone, particulate matter with aerodynamic diameter equal to or less than 2.5 micrometers, and particulate matter with aerodynamic diameter equal to or less than 10 micrometers under state air quality standards (CARB 2023d). It is in attainment or unclassified for other federal and state air quality standards.

A *Construction Criteria Air Pollution Emissions Analysis Memorandum* (Appendix L) was prepared by the Caltrans Office of Environmental Engineering (Caltrans 2024a). The findings are summarized in the following text.

a) No Impact

The Project would have temporary construction emissions and construction-related activities would comply with state and local regulations and policies. Emission reduction measures would be implemented as discussed under PF-AQ-1, Dust Control, PF-AQ-2, Construction Equipment Controls, PF-AQ-3, Hauling and Grading Material, PF-AQ-4, Caltrans Standard Specifications for Air Quality, PF-AQ-5, Asbestos, and PF-AQ-6, Idling, to reduce construction emissions. The Project would not affect vehicle operation on SR 37 or nearby roadways when construction is complete. Long-term emission increases and adverse impacts from the Project are

not anticipated. Therefore, the Project would not conflict with the region's air quality plans. There would be no impact to the air quality plans.

b, c, d) Less than Significant Impact

The improvements to the Project corridor would not change the long-term vehicular capacity on SR 37. Therefore, no long-term impacts to air quality would occur.

During construction, there would be air pollutant emissions from the use of construction equipment and vehicles powered by gas and diesel, and dust from earthmoving activities. Table 2.2.6-3 in Section 2.2.6.3 shows the total estimated construction-related criteria pollutant for Phase 1 and Phase 2 would not exceed the Bay Area Air Quality Management District thresholds for construction emissions. Furthermore, a substantial amount of pollutants that would result in a cumulatively considerable net increase of criteria pollutants would not be generated. Potential impacts to air quality, including emissions of air pollutants, odors affecting nearby sensitive receptors, and exposure of sensitive receptors to pollutants, would be less than significant based on the temporary nature of the Project construction-related activities. The Project would implement the construction site BMPs described in PF-AQ-1, Dust Control, PF-AQ-2, Construction Equipment Controls, PF-AQ-3, Hauling and Grading Material, PF-AQ-4, Caltrans Standard Specifications for Air Quality, PF-AQ-5, Asbestos, and PF-AQ-6, Idling, to further reduce air quality impacts.

The Project would have no long-term impacts on air, and with the temporary construction-related impacts, would have less than significant impact.

3.1.4 Biological Resources

Would the Project:

Question	CEQA Determination
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Less than Significant with Mitigation Incorporated
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Less than Significant with Mitigation Incorporated
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less than Significant with Mitigation Incorporated
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 useof native wildlife nursery sites?	Less than Significant Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Less than Significant Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	No Impact

CEQA Significance Determinations for Biological Resources

A Natural Environment Study was prepared by the Caltrans Office of Biological Sciences and Permits to evaluate the effects of the Project on biological resources, including sensitive plants and wildlife species (Caltrans 2023g). A summary of the findings is presented here.

The biological study area (BSA), which is defined as the entire area studied for potential direct and indirect Project impacts, consists of approximately 188.2 acres, and includes a 200-foot buffer around the Project limits and the entire Caltrans ROW.

a) Less than Significant Impact with Mitigation

Special-status Plant Species

Floristic, protocol-level surveys for special-status plants were conducted during the appropriate seasons for detecting each potentially occurring species, in early spring (March 30 and 31, 2022), mid-spring (April 25, 2022), and late summer (July 27 and 28, 2022). These surveys, which covered the entire BSA, detected no special-status plants. Therefore, special-status plants are considered absent from the Project area, and none would be impacted by Phase 1 of the Project.

Phase 2 would have no permanent impacts on special-status plants, based on current conditions; however, Caltrans would re-evaluate biological conditions during the design phase of Phase 2. This evaluation and implementation of Project feature PF-BIO-4, Mark Environmentally Sensitive Areas, would minimize impacts on special-status plants, should plants colonize the BSA prior to implementation of Phase 2. Therefore, impacts of Phase 2 construction on special-status plants would be less than significant.

Special-status Animal Species

Habitat assessments and a review of known locations of occurrence determined that 18 special-status animal species have a moderate or high potential to occur within the Project area. These are the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), salt marsh harvest mouse (*Reithrodontomys raviventris*), California black rail (*Laterallus jamaicensis coturniculus*), California Ridgway's rail (*Rallus obsoletus obsoletus*), northern harrier (*Circus hudsonius*), white-tailed kite (*Elanus leucurus*), Swainson's hawk (*Buteo swainsoni*), San Francisco common yellowthroat (*Geothlypis trichas sinuosa*), San Pablo song sparrow (*Melospiza melodia samuelis*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), tricolored blackbird (*Agelaius tricolor*), California red-legged frog (*Rana draytonii*), Sacramento splittail (*Pogonichthys macrolepidotus*), North American green sturgeon (*Acipenser medistrostris*), Central California Coast steelhead (*Oncorhynchus mykiss*), longfin smelt (*Spirinchus thaleichthys*), and monarch butterfly (*Danaus plexippus*).

Construction activities would involve the demolition of the existing Novato Creek Bridge, which could potentially be used for roosting by the pallid bat and Townsend's big-eared bat. Pallid bat and other, non-special-status bats may roost inside the U.S. 101/SR 37 interchange bridges and the SR 37 bridge over Atherton Avenue, entering through soffit vents, as well as in trees in the BSA. Non-special-status bats could also roost in the Simonds Slough Bridge. Demolition of existing structures, such as the Novato Creek Bridge and Simonds Slough Bridge, and tree removal

would remove roosting habitat for bats and could result in injury or mortality of bats if demolition occurs while bats are present.

AMM-BIO-1, Maternity-season Survey for Roosting Bats, and AMM-BIO-2, Replacement of Lost Bat Roost Habitat, pertaining to the provision of artificial bat roost structures would offset any permanent loss of bat roost habitat in the Novato Creek Bridge. Construction-related disturbance could cause the temporary abandonment of roost sites, and construction that occurs during the bat maternity season (April 1 through August 31) could cause females to abandon their young, thus leading to the loss of individuals. Implementation of AMM-BIO-3, Pre-activity Survey for Roosting Bats, and AMM-BIO-4, Bat Exclusion, would avoid such impacts through pre-construction bat surveys and bat exclusion outside of (or disturbance-free buffers during) the maternity season. Project features would further reduce impacts to bats by minimizing impacts to vegetation that could support roost sites or prey (PF-BIO-10, Vegetation and Tree Removal), minimizing night lighting (PF-BIO-13, Night Lighting), and revegetating temporary impact areas (PF-BIO-11, Landscaping and Revegetation Plan). With implementation of AMM-BIO-1, Maternity-season Survey for Roosting Bats, AMM-BIO-2, Replacement of Lost Bat Roost Habitat AMM-BIO-3, Pre-activity Survey for Roosting Bats, AMM-BIO-4, Bat Exclusion, and Project features, impacts of Phase 1 construction on bats would be less than significant.

Construction activities could result in impacts to special-status fish species and their habitat. Although pile driving is not proposed within the Novato Creek channel, the new bridge piles and the temporary construction trestle piles within the marsh area of Novato Creek would be vibrated in as deep as possible before using an impact pile hammer. Impact pile driving would generate a high level of noise, which could propagate through the water and potentially impact fish behavior and physiology. Temporary increases in turbidity within Novato Creek from demolition of the existing bridge and installation of the new bridge and temporary construction trestle within the marsh area of Novato Creek could have a range of effects on fish behavior, including altered feeding, impaired vision, disrupted migration patterns, and increased stress levels.

In addition, construction of the new Novato Creek Bridge, including installation of the temporary construction trestle, and demolition of the existing bridges would occur over Novato Creek and have the potential to introduce debris and pollutants into the creek. Debris and pollutants could include concrete from the existing bridge and oil and grease from nearby vehicles and construction equipment. A construction or debris containment platform would be used to minimize the potential for debris to enter the waterway.

Existing piles associated with the Novato Creek Bridge would be cut to a depth of 3 feet below the mudline. A series of sheet-pile cofferdams, or similar structure, would be constructed around existing piles within the channel. Installation of the cofferdams around the piles could result in fish stranding. To minimize potential effects on Sacramento splittail, a qualified fisheries biologist would conduct fish rescue and relocation efforts to collect fish located within the cofferdam, as safe and feasible to do so. This would be implemented during dewatering of the area behind the cofferdam.

Project features incorporated into the Project such as PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-8, Erosion Control Matting, PF-BIO-19, In-channel Work Period, and PF-BIO-23, Vibratory Pile Driving, would further reduce potential impacts on special-status fish species through environmental training, using erosion control materials, implementing an in-channel work window, and using vibratory pile-driving methods. Implementation of AMM-BIO-5, Fish Removal and Relocation Plan, and AMM-BIO-6: Cofferdam Installation would further avoid and minimize impacts on special-status fish species. The new Novato Creek Bridge would fully span the Novato Creek channel, avoiding the installation of permanent fill in the channel and resulting in the net addition of aquatic habitat and easing upstream and downstream passage for fish and positively affecting fish habitat.

Construction activities would result in impacts to the federally and state-listed endangered salt marsh harvest mouse and its habitats. There is potential for vegetation removal, grading, movement of heavy equipment, and impacts to suitable habitat by construction personnel to result in the take of harvest mice in the absence of Project features and AMMs. Phase 1 construction would result in the permanent loss of 0.50 acre of tidal salt marsh as a result of increased shading of marsh habitat under the new Novato Creek Bridge. Because the majority of that salt marsh is already located between the two existing spans and the rest is immediately adjacent to the existing bridge, it is unlikely that the increased shading area is heavily used by salt marsh harvest mice.

Project features incorporated into the Project would reduce impacts of Phase 1 construction on salt marsh harvest mice through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-5, Wildlife Exclusion Fencing, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-12, Prevent Inadvertent Entrapment of Animals, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13, Night Lighting, and PF-BIO-14, Agency-approved Biologist. Implementation of AMM-BIO-7, Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring, and AMM-BIO-8, Salt Marsh Harvest Mouse Exclusion Fencing, would

further avoid and minimize impacts to this species. Because salt marsh harvest mice primarily occupy wetland habitats, Project features and MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on salt marsh harvest mice. With implementation of Project features and AMMs, impacts of Phase 1 construction on the salt marsh harvest mouse would be less than significant.

Construction activities would result in disturbance of California Ridgway's rails and California black rails, and their habitats, including brackish marsh and tidal salt marsh. The Project would not result in the direct injury or mortality of individuals; this species is not expected to nest within the Project area itself due to proximity to SR 37, so no direct loss of nests would occur. However, if construction occurs during the breeding season (roughly February 1 through August 31) close enough to active nests, noise and movement of construction personnel and equipment could cause adults to abandon their nests. If any adults were foraging along Novato Creek during construction, construction activities could similarly disturb those birds, possibly causing them to flush and increasing risk of predation.

The Project would result in the permanent loss of 0.50 acre of tidal salt marsh as a result of increased shading of marsh habitat under the new Novato Creek Bridge. Because the majority of that salt marsh is located between the two existing spans and the rest is immediately adjacent to the existing bridge, it is unlikely that the salt marsh habitat lost to shading is heavily used by Ridgway's or black rails. Project features incorporated into the Project would reduce impacts of Phase 1 construction on California Ridgway's rails and California black rails through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-5, Wildlife Exclusion Fencing, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-6, Nesting Bird Surveys and Buffers, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13, Night Lighting, PF-BIO-14, Agency-approved Biologist. Implementation of AMM-BIO-8, Salt Marsh Harvest Mouse Exclusion Fencing, would further avoid and minimize impacts to California Ridgway's rails and California black rails. Because these rails occupy wetland habitats, Project features and MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on these birds.

The tidal salt marsh habitat that would be permanently impacted is immediately adjacent to and between the two existing bridge spans. The loss of this habitat is not expected to have a substantial impact on these species. The long-term benefits to these species' ability to disperse under the new Novato Creek Bridge and causeway to be constructed by the Project would offset the loss of a small amount of low-

quality habitat. Therefore, habitat impacts on these species would not be substantial, and no compensatory mitigation for such impacts would be necessary.

Project construction would result in permanent and temporary impacts to vegetation that supports, or could potentially support, nesting pairs of the northern harrier, white-tailed kite, Swainson's hawk, San Francisco common yellowthroat, San Pablo song sparrow, Bryant's savannah sparrow, and tricolored blackbird, in addition to numerous non-special-status bird species. This vegetation removal and disturbance would result in the loss of nesting, foraging, and roosting habitat, and reduction in food availability. During the avian breeding season (generally February 1 through August 31 for most bird species nesting in the Project vicinity), removal of vegetation, demolition of existing structures such as the Novato Creek Bridge, and replacement of culverts could result in the direct loss or disturbance of nests with eggs and young, and construction activities involving noise and movement of personnel and equipment in close proximity to active nests could cause adults to abandon their eggs and young.

Project features incorporated into the Project would reduce the potential for impacts of Phase 1 construction on nesting birds through PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-7, Construction Site Management Practices, PF-BIO-9, Restore Disturbed Areas, PF-BIO-13, PF-BIO-13: Night Lighting, and PF-BIO-14, Agency-approved Biologist. Implementation of AMM-BIO-10, Swainson's Hawk Pre-construction Surveys and Avoidance, would further avoid and minimize impacts to this species. In addition, Project features, AMMs, and mitigation measures described in Section 2.3.2.4 for wetlands would also help minimize impacts of the Project on wetland foraging habitat for Swainson's hawk, tricolored blackbird, and other species. With implementation of Project features and AMM-BIO-10, Swainson's Hawk Pre-construction Surveys and Avoidance, impacts of Phase 1 construction on Swainson's hawk and other birds would be less than significant.

Construction activities could result in the direct loss and indirect disturbance of California red-legged frogs and their habitat, including freshwater marsh and upland habitat, from trampling by construction personnel or equipment, mortality from dewatering of aquatic habitats where egg masses or larvae may be present, roadkill caused by construction equipment and vehicular use in and around the Project, and degradation of water quality. Individuals that are found during pre-activity surveys and relocated to suitable habitat outside of the BSA may be subjected to physiological stress and greater risk of predation or may undergo increased competition with frogs already present in the area to which they are relocated.

The Project would result in the permanent loss of potential freshwater breeding habitat, as well as the loss of upland dispersal and refugial habitat. Implementation of AMM-BIO-11, California Red-legged Frog Work Window, AMM-BIO-12, California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys, and AMM-BIO-13, California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols, would further avoid and minimize impacts to California red-legged frogs and the northwestern pond turtle; and MM-BIO-2, California Red-legged Frog Compensatory Mitigation, would be implemented to compensate for Project impacts on California red-legged frog habitat. Because California red-legged frogs rely heavily on wetland and aquatic habitats, Project features, AMMs, and mitigation measures described in Section 2.3.2.4 for wetlands would minimize impacts of the Project on this species. With implementation of Project features and these AMMs and mitigation measures, impacts of Phase 1 construction on the California red-legged frog would be less than significant.

As summarized in Section 2.3.5, Threatened and Endangered Species, there is minimal potential for northwestern pond turtles to occur within the BSA in freshwater marsh and fresh aquatic habitats such as Simonds Slough, as well as brackish waters and wetlands along Novato Creek. Nesting in the Project area is highly unlikely because of the absence of high-quality aquatic habitat (freshwater habitat with good basking sites) nearby. Construction activities associated with Phase 1 and Phase 2 Project construction could result in the direct loss and indirect disturbance of northwestern pond turtles and their habitats.

Impacts to vegetation that support nectaring monarch butterflies could impact individuals of this species. Although breeding monarchs are determined to be absent from the BSA due to a lack of suitable host plants (for example, *Asclepias* spp.), individuals may use flowering plants within the BSA as food sources. Permanent and temporary impacts where vegetation clearing would be required as part of construction for staging areas, construction access roads, temporary bridge access areas, and construction of the transition and permanent bridges at Novato Creek could affect potential nectaring habitat for this species. However, Project features (Appendix D) would reduce impacts on monarch butterfly habitat by minimizing impacts to vegetation (PF-BIO-10, Vegetation and Tree Removal) and revegetating temporary impact areas (PF-BIO-9, Restore Disturbed Areas). Therefore, impacts of Phase 1 construction on the monarch butterfly would be less than significant.

In summary, implementation of the following Project features, AMMs, and MMs would reduce and compensate Project impacts on special-status animal species to less than significant:

- PF-BIO-1: Documentation at Project Site

- PF-BIO-2: Work According to Documents
- PF-BIO-3: Worker Environmental Awareness Training
- PF-BIO-4: Mark Environmentally Sensitive Areas
- PF-BIO-5: Wildlife Exclusion Fencing
- PF-BIO-6: Nesting Bird Surveys and Buffers
- PF-BIO-7: Construction Site Management Practices
- PF-BIO-8: Erosion Control Matting
- PF-BIO-9: Restore Disturbed Areas
- PF-BIO-10: Vegetation and Tree Removal
- PF-BIO-11: Landscaping and Revegetation Plan
- PF-BIO-12: Prevent Inadvertent Entrapment of Animals
- PF-BIO-13: Night Lighting
- PF-BIO-14: Agency-approved Biologist
- PF-BIO-15: Construction Noise
- PF-BIO-16: Stop-work Authority
- PF-BIO-17: Discovery of Injured or Dead Special-status Species
- PF-BIO-18: Wildlife Species Relocation
- PF-BIO-19: In-channel Work Period
- PF-BIO-20: Work Period in Dry Weather Only
- PF-BIO-21: Wetland Protection
- PF-BIO-22: Invasive Weed Control
- PF-BIO-23: Vibratory Pile Driving
- PF-BIO-24: Aquatic Invasive Species Control
- PF-WQ-1: Stormwater Pollution Prevention Plan
- PF-WQ-2: Implementation of Construction Site Best Management Practices

Implementation of the following AMMs would further reduce impacts:

- AMM-BIO-1: Maternity-season Survey for Roosting Bats
- AMM-BIO-2: Replacement of Lost Bat Roost Habitat
- AMM-BIO-3: Pre-activity Survey for Roosting Bats
- AMM-BIO-4: Bat Exclusion
- AMM-BIO-5: Fish Removal and Relocation Plan
- AMM-BIO-6: Cofferdam Installation
- AMM-BIO-7: Salt Marsh Harvest Mouse Vegetation Removal, Pre-construction Surveys, and Monitoring

- AMM-BIO-8: Salt Marsh Harvest Mouse Exclusion Fencing
- AMM-BIO-9: California Ridgway's Rail and California Black Rail Pre-construction Surveys and Buffers
- AMM-BIO-10: Swainson's Hawk Pre-construction Surveys and Avoidance
- AMM-BIO-11: California Red-legged Frog Work Window
- AMM-BIO-12: California Red-legged Frog and Northwestern Pond Turtle Pre-construction Surveys
- AMM-BIO-13, California Red-legged Frog and Northwestern Pond Turtle Monitoring Protocols

Implementation of the following MMs would compensate impacts:

- MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters
- MM-BIO-2, California Red-legged Frog Compensatory Mitigation

b, c) Less than Significant Impact with Mitigation

Several sensitive natural communities related to aquatic, wetland, and riparian areas would be impacted by the Project. The Project would result in permanent impacts, either through removal, fill, or shading by the new Novato Creek Bridge, 0.04 acre of open water, 0.50 acre of tidal salt marsh, and 0.24 acre of freshwater marsh. Construction activities would result in permanent impacts to 0.24 acre of freshwater marsh as a result of fill for relocation of two local access roads. In addition, temporary impacts to these habitats, as well as to diked brackish marsh, would occur.

The piles for the existing Novato Creek Bridge would be cut 3 feet below the mudline; piles for the new bridge would result in less fill/fewer structures within aquatic and wetland habitats in Novato Creek than are occupied by piles for the existing bridge, thereby resulting in a net reduction in fill/structures within the creek. Nevertheless, some permanent impacts associated with the new Novato Creek Bridge would occur due to its slightly wider configuration and because the gap between the existing spans would be closed, thereby resulting in shading of 0.50 acre of tidal salt marsh and 0.04 acre of open water habitats (below the new bridge). Shading would result in the loss of vegetation that is currently present within that gap.

Prior to construction, Caltrans would obtain a Section 404 permit from the United States Army Corps of Engineers, a Section 401 Water Quality Certification from the Regional Water Quality Control Board, and a Section 1602 Lake and Streambed Alteration Agreement from the California Department of Fish and Wildlife. In addition to compliance with the conditions of these permits, implementation of Project features such as PF-BIO-3, Worker Environmental Awareness Training, PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-7, Construction Site Management Practices, PF-BIO-9, Restore Disturbed Areas, PF-BIO-11, Landscaping and Revegetation Plan, PF-BIO-19, In-channel Work Period, PF-BIO-20, Work Period in Dry Weather Only, PF-BIO-21, Wetland Protection, PF-BIO-22, Invasive Weed Control, and PF-BIO-24, Aquatic Invasive Species Control, would minimize impacts on sensitive communities through worker environmental awareness training, marking ESAs, implementing construction site management practices to minimize impacts to sensitive habitats, restoring disturbed areas, revegetating temporary impact areas, implementing a work window for in-channel work, working only during dry conditions, avoiding work in wetlands during very high tides, and controlling invasive weeds. Implementation of MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, would provide compensatory mitigation for impacts to wetlands and other waters. With implementation of these Project features and mitigation measures, impacts of the Project on wetlands and other waters would be less than significant.

d) Less than Significant Impact

No particularly important wildlife nursery sites are present in the Project area.

The Project is located within an area characterized by agricultural lands, open space areas dominated by grassland and marshland, and relatively low-density residential land uses. U.S. 101 to the west and the Petaluma River to the east provide major impediments to large-scale, regional wildlife movement in an east-west direction, parallel to the Project section of SR 37.

The Project is located within an area dominated largely by undeveloped or sparsely developed land east of U.S. 101 that extends from Petaluma south to San Rafael. This area includes extensive natural, undeveloped habitats at China Camp State Park, Hamilton Wetlands, well-forested Black Point-Green Point low-density residential area, Rush Creek Preserve, Deer Island Preserve, and extensive wetland complexes along the Petaluma River and the shore of San Francisco Bay. Several animal species move within this area east of U.S. 101, both within their home ranges and via longer-range dispersal events. Both large and small mammals exchange individuals and genes among populations, and their ability to move among populations is therefore important to maintaining regional populations.

Several roads and some developed areas impede the north-south movement through this area. SR 37, for example, impedes animal movement across the Project limits due to traffic disturbance, traffic-related mortality, and lack of vegetative cover on the road's surface. However, many animals likely can disperse over the road, because the three-beam median structure along most of the BSA allows large animals to jump over and small animals to crawl under the structure. In addition, animals can cross under SR 37 beneath the elevated on- and off-ramps at U.S. 101, at the Atherton Avenue Undercrossing, through the Simonds Slough Bridge, and beneath the Novato Creek Bridge.

During construction, the noise and activity of construction personnel and equipment may reduce wildlife movement across SR 37 in the Project area and beneath SR 37 at the Novato Creek Bridge and Simonds Slough Bridge. However, such effects would occur only during construction; and following the completion of construction, the longer span of the Novato Creek Bridge and the raised causeway would facilitate wildlife movement under the bridge, relative to existing conditions. Therefore, impacts on wildlife movement during and after construction would be less than significant.

e) Less than Significant Impact

Nearly all of the Project area is located within the limits of the City of Novato. The City regulates the removal or alteration of trees, and a tree permit is required to remove, prune, or alter a heritage tree (that is, a tree with a diameter of 24 inches or more), or to remove any tree 6 inches or more in diameter located on vacant land.

Tree surveys were completed on August 22, 2022. A total of 57 trees were identified within the BSA and consisted almost exclusively of non-native trees aside from one arroyo willow (*Salix lasiolepis*). Phase 1 would have no permanent impacts on trees. During construction, up to 55 trees would be pruned or trimmed. Phase 2 would have no permanent impacts on trees, based on current conditions; however, Caltrans would re-evaluate biological conditions, including tree locations and impacts, during the design phase of Phase 2. Project features such as PF-BIO-4, Mark Environmentally Sensitive Areas, PF-BIO-10, Vegetation and Tree Removal, PF-BIO-11, Landscaping and Revegetation Plan, and PF-BIO-22, Invasive Weed Control, include marking ESAs to minimize vegetation removal, avoiding and minimizing impacts to trees, replacement of trees, invasive weed control, and conducting tree surveys prior to Phase 2, all of which would minimize impacts to trees and replace those that cannot be avoided. Therefore, with the implementation Project features and new tree surveys during the design of Phase 2, the Project's impacts related to conflicts with local policies or ordinances protecting biological resources would be less than significant.

f) No Impact

There are no existing Habitat Conservation Plans or Natural Community Conservation Plans within the Project area. Therefore, the project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan. There would be no Project impact.

3.1.5 Cultural Resources

Would the Project:

Question	CEQA Determination
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	No Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Less than Significant Impact
c) Disturb any human remains, including those interred outside of formal cemeteries?	Less than Significant Impact

CEQA SIGNIFICANCE DETERMINATIONS FOR CULTURAL RESOURCES

a) No Impact

As summarized in Section 2.1.9, there are no known historical resources present, and no additional historical resources were identified within the Area of Potential Effects; therefore, there would be no impact to historical properties by the Project.

b, c) Less than Significant

Caltrans has surveyed the Build Alternative Project footprint areas of disturbance with Phase I archaeological survey and has identified no new archaeological resources. Some construction methods, such as pile driving for the Novato Creek Bridge, temporary structure, and SR 37 causeway could impact unknown archaeological sites or human remains. In addition, the relocation and elevation of local access roads and construction staging areas could cause damage to unknown archaeological sites. With the implementation of PF-CULT-1, Cease Work upon Unanticipated Discovery of Cultural Resources or Tribal Cultural Resources, PF-CULT-2, Stop Work upon Discovery of Human Remains, and AMM-CULT-1, Cultural Sensitivity Training, work would be halted upon discovery of new archaeological resources or human remains, and an archaeological or tribal specialist would assess the potential resource. With these project features implemented, the Project impacts to archaeological sites and potential human remains are determined to be less than significant.

3.1.6 Energy

Would the Project:

Question	CEQA Determination
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less than Significant Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	No Impact

CEQA SIGNIFICANCE DETERMINATIONS FOR ENERGY

An *Energy Analysis Report Memorandum* was prepared by the Caltrans Office of Environmental Engineering (Caltrans 2024b). A summary of the findings follows.

a) Less than Significant Impact

Greenhouse gases (GHGs) are the most extensively studied byproducts of energy consumption because they are linked to climate change. To assess gasoline and diesel consumed by construction equipment and vehicles, the Road Construction Emissions Model (RCEM), version 9.0.0, provided by the Sacramento Metropolitan Air Quality Management District, was used to quantify carbon dioxide (CO_2) emissions. United States Environmental Protection Agency (USEPA) GHG equivalencies formulas were used to convert GHG and vehicle miles traveled to fuel volumes. It was assumed that diesel would be used by construction vehicles and equipment, and gasoline would be used during workers' commute.

As discussed in Table 2.2.8-2, the total of construction-related diesel and gasoline consumption would be approximately 196,877.64 million British thermal units (MMBtu). As previously discussed, the total energy consumed in California in 2020 was 6,923 trillion British thermal units (Btu). The construction energy consumed by the Project would be approximately 0.003 percent of the total California consumption.

Construction-related activities would be short-term and would not increase SR 37 transportation capacity or otherwise alter vehicle traffic, and therefore do not have the potential to substantially affect energy use.

Operation of the Project would not increase SR 37 transportation capacity or otherwise alter long-term vehicle traffic. Energy consumption during operations would be limited to routine maintenance-related activities that are anticipated to be similar to existing conditions. Therefore, the Project would not result in wasteful,

inefficient, or unnecessary consumption of energy resources during construction and operation. The Project would have a less than significant impact.

b) No Impact

The proposed Project would not result in changes in traffic volumes, vehicle mix, or any other factor that would cause an increase in energy consumption. The Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with a regional, state, or local plan for renewable energy or energy efficiency. Therefore, the Project would not conflict with the regional/ statewide goals on renewable energy or energy efficiency. There would be no impact.

3.1.7 Geology and Soils

Would the Project:

Question	CEQA Determination
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 Impact
ii) Strong seismic ground shaking?	Less than Significant Impact
iii) Seismic-related ground failure, including liquefaction?	Less than Significant Impact
iv) Landslides?	Less than Significant Impact
b) Result in substantial soil erosion or the loss of topsoil?	Less than Significant Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less than Significant Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less than Significant Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	No Impact

CEQA Significance Determinations for Geology and Soils

a) i) <u>No Impact</u>

The Project corridor is not located within an Alquist-Priolo Earthquake Fault Zone nor is it within 1,000 feet of any Holocene or younger-aged fault. Therefore, the Build Alternative is not considered susceptible to surface fault rupture, and there would be no impact (Caltrans 2022a).

a) ii), iii) iv), b, c, d) Less than Significant Impact

As summarized in Section 2.2.3, the Project area is within a region that is seismically active and on soil with the potential to experience lateral spreading and liquefaction during ground shaking. Prior to construction, Caltrans would implement PF-GEO-1, Perform Site-Specific Geotechnical and Engineering Analyses, which would involve a field investigation and laboratory testing to further characterize the site and complete the necessary site-specific engineering analyses (Caltrans 2022a). The results of the field investigation and laboratory testing would inform the final design of the Build Alternative. All construction would comply with Caltrans design standards and seismic code for transportation facilities. Because the Build Alternative proposes to replace an existing facility with a new structure on the same corridor, the Build Alternative would not increase the exposure of people or structures to an increased risk from ground shaking or seismic hazards. Implementation of PF-GEO-1, Perform Site-specific Geotechnical and Engineering Analyses, would minimize potential impacts from exposure of seismic activity.

The fill and sandy soils encountered at shallow depths are saturated and consist of potentially liquefiable silty/clayey sand to clayey gravel with sand. Liquefaction occurs in flat areas. Because the Build Alternative is in an area subject to liquefaction, Caltrans, following implementation of PF-GEO-1, Perform Site-specific Geotechnical and Engineering Analyses, would design the Project in compliance with regulatory building codes, which would minimize the impacts of liquefaction on the causeway.

As summarized in Section 2.2.3, construction activities would cause soil erosion and the loss of top soil. However, these activities would be temporary and would be minimized with the implementation of PF-WQ-2, Implementation of Construction Site Best Management Practices, which would require compliance with the National Pollutant Discharge Elimination System (NPDES) permit, the Construction General Permit, and erosion BMPs. Operation of the Project would not cause soil erosion or loss of top soil.

The Project is located in a flat area, and the hazard of slope instability is low. The Project would not expose peoples or structures to risk from mudslides.

The Project would be designed and constructed in accordance with standard engineering practices, Caltrans standard specifications, current seismic design criteria, and the NPDES permit to minimize impacts from ground shaking, soil erosion, and liquefaction. Therefore, impacts would be less than significant.

e) No Impact

The Project would not construct or modify a septic system or alternative wastewater system. There would be no impact.

f) No Impact

As summarized in Section 2.2.4, the Novato Conglomerate, sensitive for paleontological resources, is located to the north of the Project area and would be avoided (Caltrans 2022b). Therefore, there would be no impact to unique paleontological resource or site or unique geologic feature.

3.1.8 Greenhouse Gas Emissions

Would the Project:

Question	CEQA Determination
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than Significant Impact
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	No Impact

CEQA Significance Determinations for Greenhouse Gas Emissions

A *Construction-Related Greenhouse Gas (GHG) Emissions Analysis Memorandum* was prepared by the Caltrans Office of Environmental Engineering (Caltrans 2024c). The findings are summarized in the following text.

The purpose of the Project is to build resiliency to the effects of projected 2130 sea level rise and stormwater overtopping onto SR 37 and it would not increase the vehicle capacity of the roadway. Because the Project would not increase the number of travel lanes on SR 37, no increase in vehicle miles traveled would occur. While some GHG emissions during the construction period would be unavoidable, no increase in operational GHG emissions is expected.

Construction-generated GHGs include emissions resulting from construction equipment, workers commuting to and from the Project, and traffic delays due to construction of the Project. The emissions would be produced at different rates throughout the Project, depending on the construction-related activities occurring in the three phases of construction. CO_2 is a more important GHG pollutant due to its abundance when compared with other GHGs emitted from construction vehicles and equipment, including methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbon, and black carbon.

a) Less than Significant Impact

Construction-related GHG emissions were calculated using RCEM, version 9.0.0 to quantify CO_2 emissions. Construction of the Project would emit a total quantity of 12,952.01 metric tons of carbon dioxide equivalent (CO_2e).

PF-AQ-2, Construction Equipment Controls, PF-AQ-4, Caltrans Standard Specifications for Air Quality, and PF-AQ-6, Idling, summarized in Appendix D would be implemented as part of the Project to reduce GHG emissions and potential

climate change impacts from the Project. The Project would result in a less than significant impact relating to GHG emissions.

b) No Impact

Plans and policies adopted for the purposes of reducing GHG emissions in California include multiple Senate Bills, Assembly Bills, and Executive Orders (EOs). These policies establish GHG emissions reduction goals, set low-carbon fuel standards, support rapid commercialization of zero-emission vehicles, fund clean vehicle programs, and require climate adaptation planning. The Association of Bay Area Governments and the Metropolitan Transportation Commission developed the Plan Bay Area 2050, a Regional Transportation Plan and Sustainable Communities Strategy for the Bay Area, which includes strategies and policies for reducing GHG emissions (ABAG and MTC 2021).

The Project would comply with applicable state and regional GHG reduction policies and implement emission control measures to minimize or reduce GHG emissions. The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. The Project would not contribute to a long-term increase in GHG emissions. Therefore, the Project would not conflict with applicable plans, policies, or regulations adopted for the purposes of reducing the emissions of GHGs. There would be no impact.

3.1.9 Hazards and Hazardous Materials

Would the Project:

Question	CEQA Determination
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less than Significant Impact
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Less than Significant Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less than Significant Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Less than Significant Impact

CEQA Significance Determinations for Hazards and Hazardous Materials

a, b) <u>Less than Significant Impact</u>

As discussed in Section 2.2.5.2, during construction and earthmoving activities, aerially deposited lead present in the surface and near-surface soils in proximity to the roadway edge would be encountered. Lead can be hazardous to humans because excessive exposure can adversely affect the nervous, circulatory, and reproductive systems; can severely damage the brain and kidneys; and is a probable human carcinogen. Caltrans' construction contractor would prepare a lead compliance plan (and PF-HAZ-2, Lead Compliance Plan) to reduce the risk of exposure of construction workers to lead during construction.

PF-HAZ-3, Asbestos and Lead-based Paint Surveys (described in Appendix D), would require a qualified and licensed inspector to survey each bridge for asbestos. All asbestos-containing material, if found, would be removed by a certified abatement contractor in accordance with local, state, and federal requirements, prior to bridge demolition. If regulated contaminated soils are encountered during the site investigation, Caltrans would use construction contract specifications to define the appropriate management and disposal requirements for the soils to protect the construction workers and the environment, implementing PF-HAZ-5, Hazardous Waste Management, PF-HAZ-6, Aerially Deposited Lead from Gasoline, and PF-HAZ-8, Aerially Deposited Lead Site Investigation Work Plan.

As discussed in Section 2.2.5, soils excavated in areas where the structure foundations would be installed (such as 10 feet below ground and greater) are expected to have low average lead concentrations due to the depths of excavation going below the zone of typical aerially deposited lead influence. Typically, any measurable influence from aerially deposited lead is gone below a depth of 3 feet. However, due to the large area to be affected by Project groundwork, Caltrans would implement PF-HAZ-7, Preliminary Site Investigation, which is an investigation that involves the collection and testing of deeper soils and groundwater sampling to determine the presence of hazardous materials in deeper soils and groundwater. If the site investigation determines the presence of contaminated groundwater, during Project construction, Caltrans would implement AMM-HAZ-1, Dewatering Treatment and Disposal, which would securely contain in a safe and secure manner groundwater that would be sampled and analyzed prior to treatment and disposal. In addition, PF-HAZ-4, Discovery of Unanticipated Asbestos and Hazardous Substances, and PF-HAZ-5, Hazardous Waste Management, would further minimize the potential impact on health and the environment from hazardous substances.

Asbestos could also be present in the aggregate material within the concrete of the existing Novato Creek and Simonds Slough Bridges and the Atherton Avenue Undercrossing. The USEPA's National Emission Standards for Hazardous Air Pollutants requires that existing bridges' concrete be screened for asbestos content before they are demolished. PF-HAZ-3, Asbestos and Lead-based Paint Surveys, requires the completion of a survey to screen for asbestos prior to demolition. Encountering unexpected or unidentified asbestos-containing materials would be an exposure risk for workers and the environment. Implementation of PF-HAZ-4, Discovery of Unanticipated Asbestos and Hazardous Substances, and PF-HAZ-5, Hazardous Waste Management, would minimize potential effects from hazardous materials to the environment and workers.

During construction, wooden posts, guardrails, and yellow thermoplastic and yellow painted traffic stripes would be removed. The treated wood waste, derived from such things as guardrail, would be disposed of at a California disposal site operating under an appropriate permit. Implementation of PF-HAZ-9, Treated Wood Waste, requires the handling, storing, transporting, and disposing of treated wood in compliance with Caltrans Standard Specifications 14-11.14, Treated Wood Waste. In addition, implementation of PF-HAZ-11, Thermoplastic Paint, and PF-HAZ-10, Hazardous Materials Incident Contingency Plan, would further minimize the potential effects of hazardous materials on the environment and construction workers.

With the implementation of the following Project features (summarized in Appendix D) as well as AMM-HAZ-1, Treatment and Disposal (summarized in Appendix E), the impact would be less than significant:

- PF-HAZ-1: Health and Safety Plan
- PF-HAZ-2: Lead Compliance Plan
- PF-HAZ-3: Asbestos and Lead-based Paint Surveys
- PF-HAZ-4: Discovery of Unanticipated Asbestos and Hazardous Substances
- PF-HAZ-5: Hazardous Waste Management
- PF-HAZ-6: Aerially Deposited Lead from Gasoline
- PF-HAZ-7: Preliminary Site Investigations
- PF-HAZ-8: Aerially Deposited Lead Site Investigation Work Plan
- PF-HAZ-9: Treated Wood Waste
- PF-HAZ-10: Hazardous Materials Incident Contingency Plan

c) No Impact

There are no schools located within a 0.25-mile radius of the Project site; therefore, there would be no impact.

d) No Impact

As discussed in Section 2.2.5.2, the California State Water Resources Control Board (SWRCB) GeoTracker database listed no record for hazardous materials sites located within a 1-mile radius of the Project footprint. The EnviroStor database listed hazardous materials sites within a 1-mile radius of the Project area. Therefore, there would be no impact.

e) No Impact

The Project is not located within an airport land use plan or within 2 miles of a public airport; therefore, there would be no impact.

f, g) Less than Significant Impact

Construction and operation of the Project would not significantly interfere with an emergency evacuation or response plan. A Transportation Management Plan (TMP), as summarized in Appendix D, would be prepared prior to the beginning of construction and in consultation with the appropriate agencies to minimize potential impacts to transportation. PF-TRANS-1, Transportation Management Plan, would coordinate with local fire department and emergency response services prior to construction to minimize potential disruption to emergency response services. The TMP would also provide notifications and instructions for rapid response or evacuation in the event of an emergency, such as a wildfire. The TMP would aid in coordinating and providing further safety measures for those accessing SR 37 within the Project corridor during construction. The Project would not exacerbate wildfire risks or expose people or structures to significant risks. Therefore, the Project would have a less than significant impact.

3.1.10 Hydrology and Water Quality

Would the Project:

Question	CEQA Determination
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	Less than Significant Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than Significant Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	Less than Significant Impact
i) result in substantial erosion or siltation on- or off-site;	Less than Significant Impact
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;	Less than Significant Impact
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	Less than Significant Impact
iv) impede or redirect flood flows?	Less than Significant Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Less than Significant Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than Significant Impact

CEQA Significance Determinations for Hydrology and Water Quality

A *Location Hydraulic Study* (WRECO 2023) and a *Water Quality Assessment Report* (HDR 2023) were prepared for this Project. The Project is located in Marin County within Federal Emergency Management Agency Flood Insurance Rate Map panel numbers 06041C0282E, 06041C0283E, and 06041C0284E. The Federal Emergency Management Agency special flood hazard areas crossed by SR 37 in Marin County are Zone AE (10 and 11 feet), and Zone X (unshaded) (WRECO 2023). The Project is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Region 2) and is also located within the Marin County Municipal Separate Storm Sewer Systems (MS4) (HDR 2023). Stormwater in the area drains into the Novato Creek and the Petaluma River, which drains into the San Pablo Bay (HDR 2023).

a, e) Less than Significant Impact

As stated in Section 2.2.2, the Project would comply with state and federal water quality requirements. In addition, the Project would comply with Caltrans' NPDES Permit, issued by the SWRCB, which covers the requirements of the Construction General Permit, and implementation of a year-round program in the state to effectively control stormwater and non-stormwater discharges. Under the Construction General Permit, Caltrans stormwater discharges must meet water quality standards through implementation of temporary (construction) BMPs, to the maximum extent practicable, and other measures as SWRCB determines to be necessary to meet the water quality standards. Permanent BMPs are regulated through the Caltrans NPDES Permit. A Stormwater Pollution Prevention Plan and post-construction stormwater treatment BMPs would also be implemented. These measures would reduce the volume of fluids, concrete material, sediment, and litter discharging into Novato Creek and the Petaluma River. Groundwater extracted during construction would be tested for contaminants. The Project would also be consistent, as applicable, to the requirements of the Marin County and the City of Novato Phase II Small MS4 Permit Order 2013-0001-DWQ. Therefore, with compliance, impacts on surface and groundwater quality during Project construction and operation would be less than significant.

b) Less than Significant Impact

Temporary dewatering activities would occur during the installation of the piles for the Novato Creek Bridge and causeway since the piles would be installed to a maximum depth of up to 150 feet below ground surface. As discussed in Section 2.2.2, Water Quality, groundwater extracted during construction would be tested for contaminants. Clean groundwater would be used for dust control, collected onsite using desilting basins and/or tanks prior to discharging to receiving waters, or transported to a publicly owned treatment facility. With implementation of PF-HAZ-7, Preliminary Site Investigations, soil and groundwater within the Project limits would be examined for hazardous materials. An active treatment system would be used, as necessary and appropriate, to treat contaminated groundwater exposed during excavation activities (PF-HAZ-12, Active Treatment System). Dewatering requirements and design of any necessary active treatment system would be determined prior to construction.

Therefore, the Project would not interfere substantially with groundwater recharge and the Project would not impede sustainable groundwater management of the basin. Impacts would be less than significant.

c, d) Less than Significant Impact

As stated in Section 2.2.2.3, the disturbed surface area for the Build Alternative is anticipated to be more than 1 acre; therefore, prior to commencement of construction activities, a Stormwater Pollution Prevention Plan must be prepared by the contractor and approved by Caltrans, pursuant to Caltrans 2022 Standard Specification 13-3 (PF-WQ-1, Stormwater Pollution Prevention Plan). Several measures would be implemented during construction, such as temporary construction site BMPs, to control and minimize sedimentation, erosion, or the discharge of other pollutants. The temporary construction site BMPs would be deployed for sediment control and material management, and would include fiber rolls, drainage inlet protection, street sweeping, concrete washout, job site sediment control, and erosion control measures (PF-WQ-2, Implementation of Construction Site Best Management Practices). Temporary ESA fencing would be installed to protect the wetland areas (PF-BIO-4, Mark Environmentally Sensitive Areas).

With implementation of PF-HAZ-7, Preliminary Site Investigations, soil and groundwater within the Project limits would be examined for hazardous materials. An active treatment system would be used, as necessary and appropriate, to treat contaminated groundwater exposed during excavation activities (PF-HAZ-12, Active Treatment System).

The Project is anticipated to result in 5.6 acres of net new impervious surface from Phase 1, and 5.4 acres net new impervious surface from Phase 2. Treatment BMPs would be designed and implemented to minimize post-construction water quality impacts by removing pollutants from stormwater runoff before it is discharged to Novato Creek and the Petaluma River. Treatment of the additional runoff would be incorporated into the Build Alternative.

Since SR 37 is bound on most sides by wetlands and waters, which are protected Environmentally Sensitive Areas, on-site treatment may be limited due to the narrow ROW. If the Project cannot treat the entirety of the new impervious surface on-site, alternative stormwater treatment compliance (off-site treatment) would be required. Alternative stormwater treatment compliance locations would need to be coordinated between Caltrans and local agencies and municipalities. With implementation of AMM-WQ-1, Low-impact Development Controls, operation of the Project is not anticipated to result in significant impacts to water quality or stormwater runoff; therefore, impacts would be less than significant.

The Project is not located within a tsunami hazard area; although the Project area does have a history of flooding, the Project does not risk release of pollutants due to Project inundation. Therefore, impacts would be less than significant.

3.1.11 Land Use and Planning

Would the Project:

Question	CEQA Determination
a) Physically divide an established community?	Less than Significant Impact
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	No Impact

CEQA Significance Determinations for Land Use and Planning

a) Less than Significant Impact

The Project would not physically divide an established community because traffic access would be maintained on local roads. During Phase 1, traffic would be routed to local roads during the temporary two weekend closure of SR 37. However, during construction Phase 2, the on- and off-ramps would be temporarily closed. Although this closure would require the use of a detour route (Figure 1-9), it would not physically divide a community because the communities north and south of the corridor, at the eastern limit, are connected by Atherton Avenue. This local road may experience delays due to construction activities; the local roads would remain open for through traffic without any temporary obstruction to community connectivity. Therefore, the Project would have a less than significant impact on established communities.

b) No Impact

As discussed in Section 2.1, Human Environment, the Project would not conflict with the Caltrans District 4 Bike Plan (Caltrans 2018), City of Novato General Plan 2035 (City of Novato 2020), San Francisco Bay Plan (BCDC 2020), Plan Bay Area 2050 (ABAG and MTC 2021), and the Marin Countywide Plan (Marin County 2007). There would be no impact.

3.1.12 Mineral Resources

Would the Project:

Question	CEQA Determination
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	No Impact
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	No Impact

CEQA Significance Determinations for Mineral Resources

a, b) No Impact

The Project would not result in the loss of availability of a known mineral resource or result in the loss of availability of a locally important mineral resource recovery site because there are no documented mineral resources within the Project limits (Marin County 2022a). Therefore, no impacts on mineral resources would result from the Project.

3.1.13 Noise

Would the Project result in:

Question	CEQA Determination
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?	Less than Significant Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	Less than Significant Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No Impact

CEQA Significance Determinations for Noise

As summarized in Section 2.2.7, the proposed Project area is located at the western terminus of the SR 37 corridor, between U.S. 101 and Atherton Avenue. Due to the reliability constraints of the Traffic Noise Model, version 2.5 to accurately calculate noise levels at great distances from the roadway, Caltrans typically limits noise assessments to approximately 500 feet of the roadway source (Caltrans 2020b). Noise sensitive land uses within the Project area include single and multi-family residences, recreational outdoor areas, and commercial land uses. The Project area also includes undeveloped parcels of land. Future planned development, the Ronsheimer Survivors Trust TAM Energy Storage Project (P3932) located at 495 Bel Marin Keys Boulevard in unincorporated Marin County, is within 500 feet of the Project. This receptor would not be considered noise-sensitive as the planned project is proposing a lithium-ion battery energy storage facility. Associated equipment would include a substation, water storage tanks, and two modular structures.

No noise sensitive receptors are located within 50 feet of the Project corridor. Construction activities, near the eastern end of the corridor, would be within 400 feet of westbound SR 37 (residences) and within 200 feet of eastbound SR 37 (golf course), while other sensitive receptors (such as the residences at the Bel Marin Keys) would be more than 1,700 feet from the SR 37 alignment.

The City of Novato does not have specific noise ordinance requirements for transportation noise[3] within the city limits. However, under CEQA, the baseline

[3] City of Novato does have noise requirements governing construction activities.

(existing) noise level is used as a comparison to the anticipated project noise level under the Build Alternative. The assessment of Project noise impacts entails identifying the physical area and setting where the potential noise impact could occur and then determining how substantial and perceptible any noise increase would be in the noise impact area. With respect to the community noise assessment, changes in noise levels of less than 3 A-weighted decibels (dBA) are generally not discernable to most people, while changes greater than 5 dBA are readily noticeable and would be considered a significant increase (Caltrans 2020b).

Section 19.22.070 (Noise and Construction Hours) of the City of Novato's Municipal Code provides allowable exterior noise levels for noise sensitive land uses within the city (Table 3.1.13-1). The following are exceptions to the City's noise level requirements:

- Authorized construction activities, including warming-up or servicing of equipment, and any preparation for construction between 7 a.m. and 6 p.m. on weekdays and between 10 a.m. and 5 p.m. on Saturdays. No construction is allowed on Sundays or official federal national holidays, except as otherwise authorized herein by the Community Development Director.

- Authorized grading activities and equipment operations between 7 a.m. to 6 p.m. weekdays only, when City inspectors are available.

- Other construction activities as authorized in writing by the Community Development Director.

Table 3.1.13-1. Allowable Exterior Noise Levels

Type of Land Use	Allowable Exterior Levels[a] Time Interval	Allowable Exterior Levels[a] Maximum Noise Level[b]
Residential[c]	10 p.m. to 6 a.m.	45 dBA
Residential[c]	6 a.m. to 10 p.m.	60 dBA
Commercial[d]	10 p.m. to 6 a.m.	60 dBA
Commercial[d]	6 a.m. to 10 p.m.	70 dBA
Industrial or manufacturing[d]	Any time	70 dBA

Source: City of Novato 2023

[a] Each of the *noise* limits specified in the table shall be reduced by 5 dBA for impulse or simple tone *noises*. If the ambient *noise* exceeds the resulting standard, the ambient shall be the standard.

[b] Maximum *noise* levels shall not be exceeded for an aggregate period of more than 3 minutes within a 1-hour time period or by more than 20 dBA at any time.

[c] Residential standards apply to sensitive receptors such as schools, hospitals, libraries, group care facilities, and convalescent homes. These uses may require special mitigation.

[d] Commercial standards apply to Mixed Use Districts.

Section 6.70.030 (Enumerated noises) of the Marin County Municipal Code provides a limitation on construction activity within the County. Construction activities are limited to Monday through Friday from 7 a.m. to 6 p.m. and Saturday from 10 a.m. to 5 p.m., and construction is prohibited on Sunday and holidays. Loud noise-generating construction-related equipment (such as backhoes, generators, or jackhammers) can be operated at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m., Monday through Friday only. Exceptions are made for construction projects initiated by city, county, state, or other public agencies, or other public utilities

a) Less than Significant Impact

Construction

As discussed in Section 2.2.7.3, short-term noise levels would result from construction methods such as pile driving, which would be temporarily higher than existing ambient noise levels. Most construction equipment would generate average noise levels ranging from 82 to 88 dBA hourly equivalent sound level ($L_{eq[h]}$) at 50 feet, without pile driving. Maximum instantaneous noise levels would range from 84 to 90 dBA maximum sound level (L_{max}) at 50 feet without pile driving and up to 101 dBA L_{max} at 50 feet with pile driving. Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (that is, reduce) at a rate of 6 dBA.

Under Phase 1, residences at the Bel Marin Keys would be more than 1,700 feet from the construction activities on the Navato Creek Bridge. The maximum instantaneous noise levels would range from 84 to 90 dBA L_{max} at 50 feet without pile driving, and up to 101 dBA L_{max} at 50 feet with pile driving. Taking into consideration the doubling of distance, noise attenuates by 6 dBA, the average noise level without pile driving that would be experienced at the nearest residential land use located more than 1,700 feet from the Navato Creek Bridge would be less than 60 dBA $L_{eq[h]}$, which is below the 86 dBA L_{max} required by the Caltrans Specification. At the residential land uses, located over 1,700 feet east of the Navato Creek Bridge, pile-driving noise would be less than 71 dBA L_{max}, which is below the 86 dBA L_{max} required by the Caltrans Specification.

Similar to Phase 1, under Phase 2, maximum instantaneous noise levels would range from 84 to 90 dBA L_{max} at 50 feet without pile driving, and up to 101 dBA L_{max} at 50 feet with pile driving. Construction near the eastern end of the corridor would be within 400 feet of westbound SR 37 (residences) and within 200 feet of eastbound SR 37 (golf course). Taking into consideration the doubling of distance, noise attenuates by 6 dBA, the average noise level without pile driving that would be

experienced at the nearest noise-sensitive land use (golf course) 200 feet from the eastbound SR 37 would be 82 dBA $L_{eq[h]}$, which is below the 86 dBA L_{max} required by the Caltrans Specification. At the golf course, construction noise levels with pile-driving noise would be 89 dBA L_{max}, which is above the 86 dBA L_{max} required by the Caltrans Specification. However, compliance with the construction hours specified by the City's Municipal Code and Caltrans Standard Specifications, Section 14-8.02, would be implemented to minimize construction noise impacts on sensitive land uses adjacent to the Project site. The noise level from the contractor's operations between the hours of 9 p.m. and 6 a.m. should not exceed 86 dBA L_{max} at a distance of 50 feet. PF-NOI-1, Caltrans Standard Specifications for Noise, PF-NOI-2, Construction Equipment Operations, and AMM-NOI-1, Pile Driving, would be implemented to minimize construction noise impacts on sensitive land uses adjacent to the Project site. The Project would have a less than significant impact.

Operation

Permanent operational noise would be generated from vehicular traffic using the new causeway. As discussed in Section 2.2.7.3, noise levels would increase by up to 2 dBA over existing conditions with implementation of the Project (Phase 1 and 2). As previously stated, changes in noise levels of less than 3 dBA are generally not discernable to most people. Changes in traffic noise levels with the proposed Project in comparison to the existing conditions would not cause a discernable change in the ambient noise environment. Therefore, noise impacts from the Project would be less than significant.

b) Less than Significant Impact

Construction activities with the greatest potential of generating perceptible vibration levels would include the removal of pavement and soil, the dropping of heavy objects, the movement of heavy tracked equipment, and pile driving. Vibration levels are highest close to the source and then attenuate with increasing distance depending on soil conditions. Caltrans identifies a vibration limit of 0.5 inches per second (in/sec) peak particle velocity (PPV) as the threshold at which there is a potential risk of damage to new residential and modern commercial/industrial structures, 0.3 in/sec PPV for older residential structures, and a conservative limit of 0.25 in/sec PPV for historic and some old buildings.

As stated in Section 2.2.7.3, the nearest building to the construction activities would be over 200 feet from pile-driving activities and heavy construction equipment. Vibration levels would be less than 0.12 in/sec PPV at all existing structures. The Caltrans vibration thresholds for new residential, modern commercial and older residential structures are not expected to be exceeded at any existing structure, even

during pile driving. Vibration impacts from construction of the proposed Project would have a less than significant impact.

c) No Impact

The Project area is not located within the vicinity of a private airstrip or an airport land use plan or within 2 miles of a public airport or public use airport. Therefore, implementation of the Project would not expose people residing or working in the Project area to excessive noise levels. There would be no impact.

3.1.14 Population and Housing

Would the Project:

Question	CEQA Determination
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact

CEQA Significance Determinations for Population and Housing

a, b) No Impact

The Project would not induce substantial unplanned population growth in an area, either directly or indirectly, because the Project would not propose new homes or businesses, nor would it increase vehicular capacity on SR 37. The Project would not displace existing people or housing and, thus, would not necessitate the construction of replacement housing elsewhere. There would be no impact to population and housing.

3.1.15 Public Services

Would the Project:

Question	CEQA Determination
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, theconstruction of which could cause significantenvironmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire protection?	Less than Significant Impact
Police protection?	Less than Significant Impact
Schools?	No Impact
Parks?	No Impact
Other public facilities?	No Impact

CEQA SIGNIFICANCE DETERMINATIONS FOR PUBLIC SERVICES

a) <u>Less than Significant Impact</u>

The Project would not result in the substantial alteration of government facilities or need for new government facilities, such as fire and police protection, schools, parks, or other public facilities. The Project would not result in a land use or facility that would directly or indirectly induce population and employment growth within the City of Novato. Therefore, the Project would have no impact on schools, parks, or other public facilities.

Construction activities would cause traffic delays of up to 15 minutes. During Phase 1 construction, there would be two weekend road closures of SR 37. The eastbound and westbound proposed detour routes are shown on Figure 1-9. For both construction phases, weekend work would occur in the evening, outside of the traffic peak times. A TMP (PF-TRANS-1, Transportation Management Plan) would be implemented during construction, which would require coordination with local fire department and emergency response service providers to minimize disruption to emergency response times. The TMP would also provide notifications and instructions for rapid response or evacuation Temporary rerouting of traffic lanes on SR 37 and traffic detour during construction of Phase 2 would be necessary to accommodate construction activities as discussed in Chapter 1. In addition, traffic detours would be necessary during the on- and off-ramp closures. Mitigation Measure TRANS-1, Prepare Traffic Analysis, would be implemented and would require Caltrans to prepare a traffic analysis during the Phase 2 design phase. The

mitigation measure would identify detour routes that minimize impacts on access and require Caltrans to coordinate with local agencies and emergency service providers on traffic detours. Caltrans would also develop a TMP for Phase 2 under PF-TRANS-1, Transportation Management Plan, to minimize traffic delays and communicate changes in access in circulation. Therefore, the impact would be less than significant on the performance of public services.

3.1.16 Recreation

Would the Project:

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

CEQA Significance Determinations for Recreation

There are no recreational facilities within the Project limits. The nearest public park is the Deer Island Preserve and Open Space, approximately 0.25 mile north of the Project limits. Stone Tree Golf Club (privately owned) is south of the Project area, near Atherton Avenue. Vince Mulroy County Park is 0.4 mile south of the Project limits. Black Point Boat Launch (a County public park) is approximately 0.75 mile east of the Project. The San Francisco Bay Trail is a 0.65-mile Class I bike facility is located near the western Project terminus adjacent to the SMART rail tracks (Figure 1-6).

a, b) No Impact

The Project would not increase the use of existing neighborhood or regional parks or other recreational facilities, nor does it include recreational facilities or require the construction or expansion of recreational facilities. There would be no impact.

3.1.17 Transportation

Would the Project:

Question	CEQA Determination
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	No Impact
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Less than Significant Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No Impact
d) Result in inadequate emergency access?	Less than Significant Impact with Mitigation Incorporated

CEQA SIGNIFICANCE DETERMINATIONS FOR TRANSPORTATION

a, c) No Impact

The Project would not conflict with the City of Novato General Plan 2035 (City of Novato 2020) adopted on October 27, 2020, nor any ordinance, policy, or congestion management program. The Project would adhere with Director's Policy 37, Complete Streets (Caltrans 2021b). Director's Policy 37 requires that all Caltrans transportation projects provide "complete streets," defined as comfortable, convenient, and connected complete streets facilities for people walking, biking, and taking transit or passenger rail. The new roadway would be similar to the existing roadway but elevated, wider, and with a barrier-separated bike and pedestrian path at completion; and it would not incorporate design features that would substantially increase hazards or introduce incompatible uses on SR 37. The bicycle and pedestrian pathway would be required to comply with the Americans with Disabilities Act guidelines.

The City of Novato Bicycle/Pedestrian Plan provides recommendations for bicycle and pedestrian improvements to increase active transportation in Novato (City of Novato 2015). The plan includes a Class I Bike path along SR 37 from the existing San Francisco Bay Trail, parallel to U.S. 101, to Atherton Avenue. The new planned Class I Bike path would be part of the San Francisco Bay Trail Project (ABAG 2005). The bicycle and pedestrian facilities added as part of this Project would conform with local and regional plans for this corridor.

The proposed Project does not conflict with any plans, ordinances, or policies related to circulation systems. The Project does not increase hazards or introduce incompatible uses. There would be no impact.

b) Less than Significant Impact

The Project would not conflict with or be inconsistent with CEQA Guidelines Section 1506.3, subdivision (b). Although the Project would require the use of a detour route during construction, this would be temporary. The closure would be for SR 37 traffic during Phase 1 construction for two weekends and for Phase 2 construction. The Project would not increase vehicular capacity on SR 37, nor would it permanently alter the circulation system and would not increase vehicle miles traveled. It would, however, add designated bicycle and pedestrian facilities where they are currently non-existent. Therefore, the Project would have a less than significant impact.

d) Less than Significant Impact with Mitigation Incorporated

The Project could result in inadequate emergency access during construction. At Project completion, the causeway would have the same on- and off-ramps for access and wider shoulders for use during an emergency response.

Phase 1 would maintain traffic on SR 37 throughout most of the construction period. Construction of Phase 1 would cause traffic delays of up to 15 minutes with current traffic volumes. Periodic disruption to traffic would occur when lane closures are necessary. Nighttime construction work would also be required.

During construction of Phase 1, two weekend closures would be required for constructing the median and allowing time for the concrete deck pours to cure. For westbound SR 37 traffic, the detour route is 6.5 miles and would add 9 minutes of travel time utilizing Harbor Drive to Atherton Avenue to U.S. 101. For eastbound SR 37 traffic from U.S. 101, the connectors will be closed. Traffic would be directed to use the Atherton Avenue interchange to connect to Harbor Drive. The detour route is 6.1 miles and would add 8 minutes of travel time (Caltrans 2023b). Aside from the potential temporary detours, lanes would be rerouted within SR 37 causing minor traffic delays. Access for emergency responders would be maintained or rerouted during the two weekend closures throughout the length of construction and Caltrans would coordinate closely with emergency responders and California Highway Patrol.

Construction of Phase 2 would cause traffic delays of up to 15 minutes under current traffic volumes on SR 37, not counting the additional travel time necessitated by the detour routes during the ramp closures. Temporary lane closures and rerouting of traffic lanes within the Project area would be necessary to accommodate construction activities.

During Phase 2 construction, the on- and off-ramps would be temporarily closed requiring detours for residences, local businesses and oversized trucks. Ramp

closures would increase travel time for emergency service providers requiring use of the ramps, which would result in a potential significant impact.

Mitigation Measure TRANS-1, Prepare Traffic Analysis, will require Caltrans to prepare a traffic analysis, such as a Traffic Operation Analysis Report, during the Phase 2 design phase. The traffic analysis will evaluate construction impacts on access and circulation. The mitigation measure will identify detour routes that minimize impacts on access and require Caltrans to coordinate with local agencies and emergency service providers on traffic detours. Caltrans will also develop a TMP under PF-TRANS-1, Transportation Management Plan, for Phase 2 to minimize traffic delays and will communicate changes in access and circulation to local residences and businesses, and regional travelers.

The existing local access roads and the surrounding area are projected to flood during a 10-year storm surge event and may be permanently inundated around the year 2050 with projected roadway flooding depths ranging up to 5 feet (Caltrans 2021e). Therefore, access to the local roads from SR 37 would no longer be necessary.

3.1.18 Tribal Cultural Resources

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

Question	CEQA Determination
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	No Impact
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Less than Significant Impact

CEQA Significance Determinations for Tribal Cultural Resources

a) No Impact

There are no known listed or eligible for listing in the California Register of Historical Resources or local register of historical resources in the Area of Potential Effects (Caltrans 2023d). Therefore, the Project would have no impact on tribal cultural resources.

b) Less than Significant Impact

Caltrans contacted the Native American Heritage Commission on February 18, 2021, requesting that they conduct a search of their Sacred Lands File to determine if there were known significant sites within or near the Area of Potential Effects for the proposed Project. A positive finding of Native American cultural resources within the Project area was reported from the Sacred Lands File records search on July 15, 2021, with the suggestion of contacting the Federated Indians of Graton Rancheria.

The Native American Heritage Commission list of eight interested Native American individuals, representing eight tribes, was used to email Section 106 of the National Historic Preservation Act and Assembly Bill 52 consultation letters inviting participation in efforts to identify archaeological and Native American resources along with initial Project information and maps on October 1, 2021. Caltrans contacted the following eight tribes: Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria of Pomo Indians, Federated Indians of Graton Rancheria, Guidiville

Indian Rancheria, Lytton Rancheria, Middletown Rancheria, Mishewal-Wappo Tribe of Alexander Valley, and Pinole Pomo Nation.

On October 5, 2021, an email response from Brenda Tomaras on behalf of Chairperson Mejia of Lytton Rancheria stated no issues with the Project. By email, Federated Indians of Graton Rancheria Tribal Historic Preservation Officer Buffy McQuillen requested formal consultation on October 5, 2021. The Office of Cultural Resource Studies (Britt Schlosshardt and Kathryn Rose) met with Ms. Buffy McQuillen on Friday, February 11, 2022, at the SR 121/37 intersection to discuss this Project, specifically the bridge components. After explaining the Project in more detail, Ms. McQuillen requested that Caltrans test for the presence of cultural resources at the proposed Novato Creek and Simonds Slough areas within the Project area. On May 1, 2023 Caltrans and members and associates of the Federated Indians of Graton Rancheria (FIGR) met via Zoom to discuss project changes necessitating mechanical coring to test for submerged sensitivity at locations beyond the original Novato Creek Bridge area. The Extended Phase I proposal was provided to FIGR Tribal Historic Preservation Officer Buffy McQuillen on May 12, 2023 for review. On June 15, 2023 at the FIGR/Caltrans quarterly meeting, Ms. McQuillen had two questions about the Extended Phase I. An email response to her questions was sent on June 29, 2023. A follow-up email regarding a separate issue regarding the Extended Phase I and tribal monitoring was sent to Ms. McQuillen on July 3, 2023. Only July 14, 2023 and July 18, 2023 at the conclusion of testing in the field and subsequent lab work, FIGR was notified of the results. No response has been received to date and consultation is ongoing. No other responses have been received from other tribes to date. Based on the results of the studies, Caltrans has determined a Finding of No Historic Properties Affected is appropriate for this undertaking because there are no historic properties within the Area of Potential Effect.

Based on the Sacred Lands File record and tribal consultation, there is the potential for a California Native American tribal resource to be discovered during construction. PF-CULT-1, Cease Work upon Unanticipated Discovery of Cultural Resources or Tribal Cultural Resources, PF-CULT-2, Stop Work upon Discovery of Human Remains, and AMM-CULT-1, Cultural Sensitivity Training, would reduce potential impacts by stopping work and requiring consultation with a cultural or tribal resources specialist upon discovery of a new potential resource. Therefore, the impact would be less than significant.

Implementation of the following AMM would further reduce impacts:

AMM-TCR-1: Tribal Monitoring Area. Caltrans would establish and implement tribal monitoring areas on the Project. Caltrans would work with the Federated Indians

Graton Rancheria (FIGR) to develop and implement a construction training monitoring and discovery plan for potential tribal cultural resources in the Project construction area. Also, a tribal representative would monitor job site activities within the tribal monitoring areas to reduce the Project's impacts to the resources within the Project limits. No work would be conducted within the tribal monitoring areas unless the tribal monitor is present or otherwise given explicit authorization from Caltrans' Office of Cultural Resource Studies.

3.1.19 Utilities and Service Systems

Would the Project:

Question	CEQA Determination
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Less than significant Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	No Impact
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	No Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	No Impact

CEQA Significance Determinations for Utilities and Service Systems

Utility providers along the Project corridor include Pacific Gas & Electric Company (PG&E), Comcast, and Marin Municipal Water District for electricity, natural gas, phone, internet, and water. The Project area is within a suburban and rural environment in Marin County where existing utility infrastructure is already in place. As described in Section 2.1.6, existing utilities include a 12-kilovolt PG&E overhead electrical line, an underground PG&E natural gas line, an underground Comcast fiber optic line, and a Marin Municipal Water District underground water line. The PG&E electric overhead lines and poles are within Caltrans ROW and would be relocated within Caltrans ROW prior to construction. The existing natural gas lines, fiber optic cables and water lines would either be relocated or would be protected in place. In addition, 19 culverts would be replaced and 1 culvert would be extended as part of the Project (refer to Table 1-2 in Chapter 1 for details about these features).

a) Less than Significant Impact

Construction of the Build Alternative would generate minor amounts of wastewater and would adhere to the Section 401 Water Quality Certification Permit waste discharge requirements. Utilities would be temporarily relocated or protected in place during construction. Caltrans would notify utility owners of the Project construction schedule by implementing PF-UTIL-1, Notify Utility Owners of Construction Schedule to Protect Utilities. The relocation of utilities in the Project site would not result in access limitations. The Project would replace or extend 20 culverts as summarized in Table 1-2 in Chapter 1. Under Phase 1, 17 culverts would be replaced, and one culvert would be extended. Under Phase 2, one culvert would be replaced and another culvert would be removed. The culvert replacements would improve stormwater conveyance. Construction activities would not result in significant environmental impacts on a protected resource or induce population growth.

The Project would not directly increase the number of residents in the area because residential land uses are not proposed; therefore, no new or expanded utility entitlements would be needed to serve the local community near the Project. The impact would be less than significant.

b, c) No Impact

The Project would not directly increase the number of residents in the area because residential land uses are not proposed. The Project would not increase the demand for additional water supplies or wastewater treatment facilities. There would be no impact.

d, e) No Impact

The proposed Project would not generate excessive demand for potable water supplies or services of a wastewater treatment provider. Furthermore, solid waste created from the Project would be removed from the construction work areas and recycled or properly disposed of off-site. Where possible, materials from the site would be reused on the Project site or elsewhere. The Project would comply with the SWRCB's Trash Provisions, and local statutes and regulations related to solid waste. The Project would not result in any substantial demands for solid waste disposal and would comply with federal, state, and local statutes regarding the disposal of solid waste. Implementation of PF-UTIL-2, Trash Management, would require the proper disposal of construction trash. Therefore, there would be no impact.

3.1.20 Wildfire

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

Question	CEQA Determination
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Less than Significant Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less than Significant Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Less than Significant Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Less than Significant Impact

CEQA Significance Determinations for Wildfire

The Project is located mostly within a Local Responsibility Area for the City of Novato; the intersection of Atherton Avenue and SR 37 north to the Marin/Sonoma County line at the Petaluma River is within a State Responsibility Area and is not within a High Fire Hazard Severity Zone (CAL FIRE 2022 and 2023). The Novato Fire District provides services including fire suppression, wildland fire suppression, search and rescue, water rescue, vehicle extrication, and emergency services to unincorporated and incorporated Novato, including the Project corridor (Fire Safe Marin 2023; Novato Fire District 2023a).

The Marin County Fire Department provides fire suppression, rescue, and emergency services within the Project corridor (Marin County 2022b). The Marin County Fire Service created the Mt. Tamalpais Threat Zone Plan (MTZ Plan) for wildland urban interface fires on and around Mt. Tamalpais in 2005 (Marin County 2023b). The goal of the MTZ Plan was to define roles, responsibilities, authorities, and a framework for organization, including maps that defined areas to include Structure Protection Zones and evacuation routes (Marin County 2023b). The MTZ Plan was expanded in 2008 to include all of the wildland urban interface areas in Marin County, including additional maps for expanded areas, and the Project is not located within a designated Structure Protection Evacuation Zone or Wildland Urban Interface Zone (Marin County 2023b). However, the Project does fall within a

designated evacuation zone as identified by the Novato Fire District and is identified as an evacuation route (Novato Fire District 2023b).

a, b, c, d) Less than Significant Impact

The Project would not substantially impair an adopted emergency response plan or emergency evacuation plan. As noted in Chapter 1, during construction of Phase 1 and Phase 2, traffic detours would be necessary for SR 37 bridge construction and during the on- and off-ramp closures. Ramp closures and construction activities would cause traffic delay. Implementation of MM-TRANS-1, Prepare Traffic Analysis, will inform the Phase 2 Transportation Management Plan (PF-TRANS-1) to identify access for emergency responders throughout construction during Phase 2.

Temporary rerouting of traffic lanes within the Project area would be necessary to accommodate construction activities. PF-TRANS-1, Transportation Management Plan, as discussed in Section 3.1.17 and summarized in Appendix D, would be prepared prior to the beginning of construction, for both Phase 1 and Phase 2 and in consultation with the appropriate agencies to avoid or minimize potential impacts to transportation. The TMP would also provide notifications and instructions for rapid response or evacuation in the event of an emergency, such as a wildfire. The TMP would aid in coordinating and providing further safety measures for those accessing SR 37 within the Project corridor during construction. In the event of a wildfire, the emergency evacuation plan from the TMP would be implemented. The Project would not exacerbate wildfire risks or expose people or structures to significant risks. Therefore, the Project would have a less than significant impact.

3.1.21 Mandatory Findings of Significance

Question	CEQA Determination
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?	Biology: Less than Significant Impact with Mitigation Incorporated Visual/Aesthetics: Significant Impact
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)?	Less than Significant Impact with Mitigation Incorporated
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Transportation: Less than Significant Impact with Mitigation Incorporated

CEQA SIGNIFICANCE DETERMINATIONS FOR MANDATORY FINDINGS OF SIGNIFICANCE

a) <u>Less than Significant Impact with Mitigation Incorporated and Significant Impact</u>

As discussed in the preceding sections, the Project would result in significant impacts on biological and visual (aesthetic) resources.

For biological resources, habitat assessments and a review of known locations of occurrence within the BSA determined that 18 special-status animal species have a moderate or high potential to occur within the Project area. These are the pallid bat, Townsend's big-eared bat, salt marsh harvest mouse, California black rail, California Ridgway's rail, northern harrier, white-tailed kite, Swainson's hawk, San Francisco common yellowthroat, San Pablo song sparrow, Bryant's savannah sparrow, tricolored blackbird, California red-legged frog, Sacramento splittail, North American green sturgeon, Central California Coast steelhead, longfin smelt, and monarch butterfly.

As discussed in Section 2.3.2, the BSA is within a low-lying area crossed by Novato Creek and Simonds Slough, with high groundwater elevations. As a result, wetlands and other waters are present in several areas within the BSA. Habitat types within the BSA that are considered waters of the U.S. and state are diked brackish marsh, freshwater marsh, open water, seasonal wetland, and tidal salt marsh.

Construction activities and its impacts on species habitat would have the potential to adversely affect the California red-legged frog, the salt marsh harvest mouse, the California Ridgeway's rail and wetlands and open waters. As discussed in Section 3.1.4, the Project would result in permanent impacts to 0.50 acre of tidal salt marsh, 0.04 acre open water, and permanent impacts to 0.24 acre of freshwater marsh as a result of fill for relocation of two local access roads.

Through implementation of biology Project features (Appendix D), AMMs and mitigation measures, such as MM-BIO-1, Compensatory Mitigation for Wetlands and Other Waters, and MM-BIO-2, California Red-Legged Frog Compensatory Mitigation (Appendix E), the Project would have a less than significant impact.

For visual/aesthetic resources, the Project would substantially degrade the existing visual character or quality of public views of the site and its surroundings.

During operation, and as summarized in Section 2.1.8, the views from Montego Park in Bel Marin Keys looking northwest toward the Project area would substantially change. With the Project, the SR 37 causeway would become the dominant visual feature from the park. The elevated roadway would obstruct views of the rolling hills and mountains to the north. Therefore, the Project would result in a potentially significant impact. Implementation of AMM-AES-1, Restore Disturbed Areas, AMM-AES-2, Design Contours to Mimic Natural Terrain, AMM-AES-3, Lighting, AMM-AES-4, Screen Construction Area, and AMM-AES-5, Bridge Design Enhancement, would reduce this impact, but not to a less than significant level. This impact would be significant.

b) Less than Significant Impact with Mitigation Incorporated

As discussed in Chapter 2.4, the Project would have a minimal considerable contribution to a cumulative impact on biological resources, aesthetics and traffic. All potential impacts on biological resources and traffic would be minimized through the proposed Project features, AMMs, and mitigation measures. The Project would have a significant and unavoidable impact on the quality of the public view from Montego Park. However, the Project would not have a considerable contribution to a cumulative impact on visual because as discussed in Section 2.4 the cumulative projects are outside of the viewshed from Montego Park.

Therefore, this impact would be less than significant with mitigation incorporated.

c) Less than Significant Impact with Mitigation Incorporated

Construction activities would temporarily increase criteria pollutant emissions and ambient noise levels. These impacts would be temporary, and the Project

incorporates Project features and AMMs to minimize potentially adverse effects to humans resulting from construction activities. Therefore, the Project would not have a substantial direct or indirect impact on the human environment, and impacts would be less than significant.

During both phases of construction, lane closures, nighttime work, and detours would add significant time to travelers' use of SR 37 to reach their destinations, ranging from 8 minutes to 15 minutes depending on the location of construction work. Construction of Phase 2 would involve closure of the on- and off-ramps off SR 37.

Because of these potential impacts during construction, MM-TRANS-1, Prepare Traffic Analysis, will be implemented. A second traffic analysis will be prepared for Phase 2 during the design phase. This traffic analysis will include a more accurate reflection of current traffic, anticipated detours, and impacts. Therefore, the Project would have a less than significant impact with mitigation incorporated on traffic.

3.2 Wildfire

3.2.1 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 (CAL FIRE) 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.

3.2.2 Affected Environment

The Project is located at the western terminus of the SR 37 corridor, from U.S. 101 to Atherton Avenue, located in the City of Novato in Marin County. The City of Novato is on the western side of San Pablo Bay, south of Petaluma and north of San Rafael. Marin County's mix of weather, diverse vegetation and fuel characteristics, complex topography and land use and development patterns contribute to its unique fire environment (Marin County Fire Department 2020). Marin County has experienced many wildland fires; the most recent was the August 2020 Woodward Fire, resulting from a rare dry lightning. The Woodward Fire was contained by early October 2020 and burned over 4,000 acres (Marin County Fire Department 2020).

The Project is located in an area zoned for Agricultural Residential Planned and Open Space (Marin County 2023a; City of Novato 2019). Surrounding uses include developed residential, conservation lands, and light industrial/office areas in incorporated Novato and unincorporated Marin County. The topography of the Project site is mostly flat with surrounding ridges and open space; the Project is in the City of Novato, between the communities of Bel Marin Keys and Black Point-Green Point. Most of the Project area is located within a Local Responsibility Area for the City of Novato and the intersection of Atherton Avenue and SR 37 is within a State Responsibility Area designated as a high fire hazard severity zone (CAL FIRE 2022 and 2023). The area to the north of the intersection of Atherton Avenue and SR 37, north to the Marin/Sonoma County line at the Petaluma River, is designated as a moderate and high fire hazard severity zones (CAL FIRE 2022) (Figure 3.2-1).

3.2.3 Environmental Consequences

BUILD ALTERNATIVE

Construction

Project construction would use heavy construction equipment in and around vegetated areas, which could increase the potential for wildfire ignition. Light equipment would also be used to relocate existing aboveground and underground utilities. During construction, the Project would implement fire prevention practices as

required by AMM-WF-1, Implement Fire Prevention Practices during Construction, to reduce the potential for wildfires to occur in the Project area.

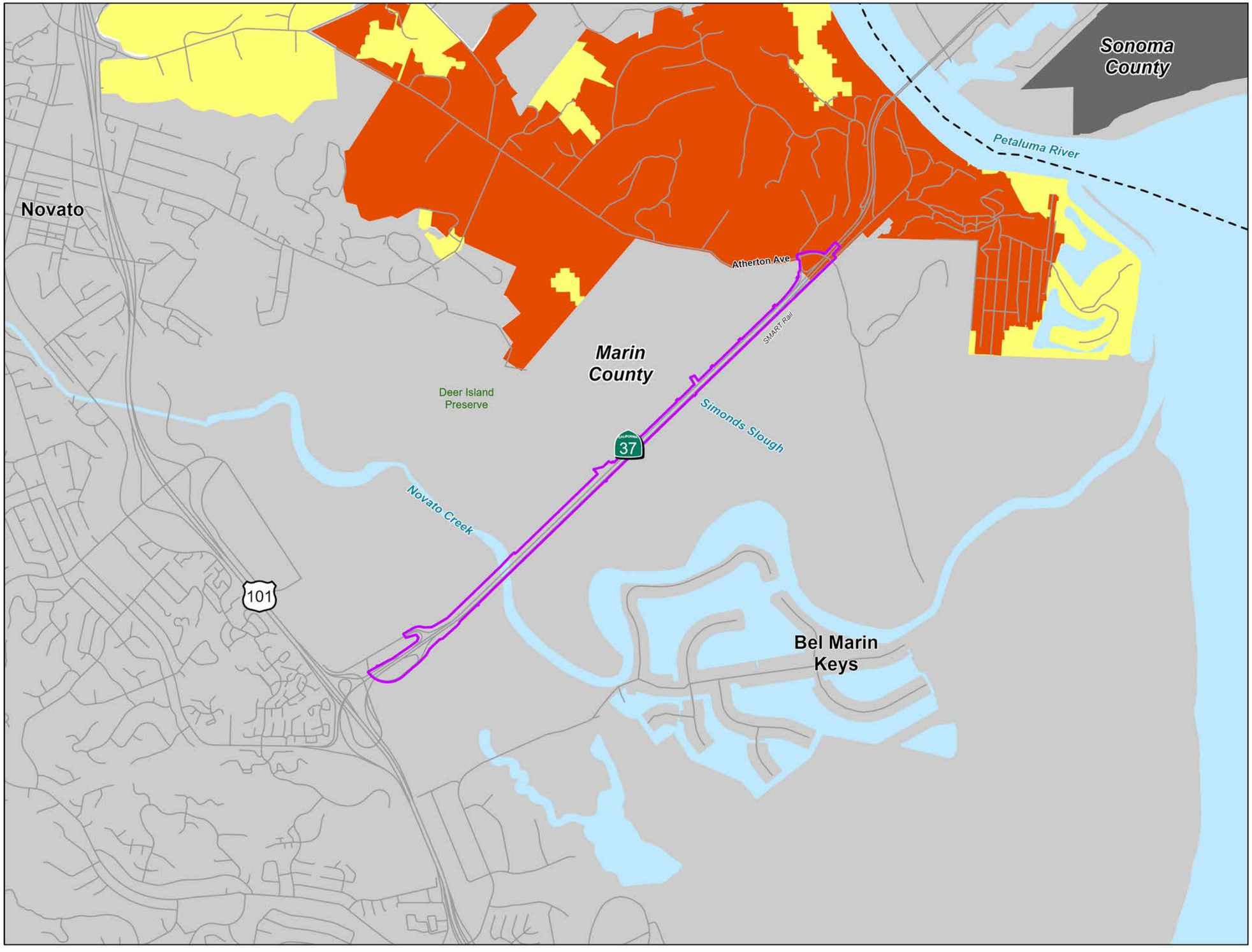
The Marin County Emergency Operational Plan identifies SR 37 as a major transportation artery (Marin County 2014). SR 37 within the Project limits is a dedicated evacuation route (Novato Fire 2022b).

During construction of Phase 1, two weekend closures would be required for constructing the median on the new bridge. As discussed in Section 2.1.7, signed detour routes would direct westbound SR 37 vehicles to Harbor Drive, then right on Atherton Avenue to access U.S. 101 (Figure 1-9). The detour is expected to be at least 6.5 miles and add 9 minutes of travel time. For eastbound SR 37 traffic from U.S. 101, the connectors would be closed. Traffic would be directed to use the Atherton Avenue interchange to connect to Harbor Drive. The detour is expected to be at least 6.1 miles and add 8 minutes of travel time.

TMPs would be developed during the design of Phases 1 and 2. The TMP would describe a Regional Detour Plan and a Local Detour Plan. The Regional Detour Plan would be wide-reaching and could include the Golden Gate Bridge, the Richmond-San Rafael Bridge, the SF-Oakland Bay Bridge, the Carquinez Bridge, and the Benicia-Martinez Bridge. The Local Detour Plan would include U.S. 101, Harbor Drive, and Atherton Avenue.

Nighttime construction work would also be required. Delays during the overnight closures would be up to 15 minutes. Implementation of PF-TRANS-1, Transportation Management Plan, would involve coordination with local agencies, including emergency responders.

Under Phase 2, traffic detours would be necessary during the on- and off-ramp closures. Nighttime and weekend construction work would be required; however, any weekend work would occur in the evening or outside of the peak traffic times. As discussed in Section 2.1.7, to minimize delays and disruptions, PF-TRANS-1, Transportation Management Plan, would be prepared. The TMP would be prepared in accordance with Caltrans guidelines and would address public and motorist information, incident management, construction strategies, demand management, and alternate routes (detours). The TMP would include requirements to coordinate with local agencies and California Highway Patrol to notify businesses and local residents.



Legend

- Project Area
- County Boundary
- Road
- Federal Responsibility Area
- Local Responsibility Area

Fire Hazard Severity Zones in State Responsibility Area (SRA)

- High
- Moderate

Data Source:
Caltrans April 2023
Marin County GIS
CAL FIRE Fire Hazard Severity Zones
(Marin fhszs06_3_21)

0 500 1000 1500 2000
Feet

Figure 3.2-1
Fire Hazard Severity Zones
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Construction activities during Phase 2 would increase travel times in the Project area. Implementation of MM-TRANS-1, Prepare Traffic Analysis, will require Caltrans to conduct a traffic analysis during the design of Phase 2 to determine travel delays, detour routes, and future traffic volumes. Implementation of PF-TRANS-1, Transportation Management Plan, and MM-TRANS-1, Prepare Traffic Analysis, would reduce delays and prioritize emergency response on SR 37 in the event of a wildfire.

Operation

Caltrans would restore the disturbed areas to pre-construction conditions in accordance with applicable permits and Caltrans best management practices with implementation of AMM-AES-1, Restore Disturbed Areas (as summarized in Appendix E). Operation of the causeway would serve the same vehicular capacity. During operation, the Build Alternative would have 12-foot-wide shoulders improving accessibility and mobility across SR 37 for emergency service responders during a wildfire. Therefore, operation of the Project would not exacerbate wildfire risks in the Project area.

NO-BUILD ALTERNATIVE

Construction and Operation

The No-Build Alternative would not introduce construction activities and equipment that with the potential to ignite a wildfire to the Project area. However, in the long term, it would not provide an additional 12-foot-wide shoulder that could be used by emergency responders to access the area and residents evacuating from a potential fire in the designated moderate and high severity zones.

3.2.4 Avoidance, Minimization, and/or Mitigation Measures

Caltrans would implement the following AMM to reduce potential wildfire impacts during construction:

- **AMM-WF-1: Implement Fire Prevention Practices during Construction**. Caltrans would implement the following fire prevention practices into the Project construction specifications prior to construction:
    - Internal combustion engines, stationary and mobile, would be equipped with spark arrestors. Spark arrestors would be in good working order.
    - Contractor would keep all construction sites and staging areas free of grass, brush, and other flammable materials.
    - Personnel would be trained in the practices of the fire safety plan relevant to their duties.

- Construction and maintenance personnel would be trained and equipped to extinguish small fires.
- Work crews would have fire-extinguishing equipment on hand, as well as emergency numbers and cell phone or other means of contacting the fire department.
- Smoking would be prohibited while operating equipment and would be limited to paved or graveled areas or areas cleared of all vegetation. Smoking would be prohibited within 30 feet of any combustible material storage area (including fuels, gases, and solvents). Smoking would be prohibited in any location during a Red Flag Warning issued by the National Weather Service for the Project area.

3.3 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth's climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to GHG emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia, or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to GHG emissions generated from the production and use of fossil fuels.

Human activities generate GHGs consisting primarily of CO_2, CH_4, N_2O, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons. CO_2 is the most abundant GHG; while it is a naturally occurring and necessary component of Earth’s atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2 that is the main driver of climate change. In the United States and in California, transportation is the largest source of GHG emissions, mostly CO_2.

The impacts of climate change are already being observed in the form of SLR, drought, extended and severe fire seasons, and historic flooding from changing storm patterns. The most important strategy to address climate change is to reduce GHG emissions. Additional strategies are necessary to mitigate and adapt to these impacts. In the context of climate change, “mitigation” involves actions to reduce GHG emissions to lessen adverse impacts that are likely to occur. “Adaptation” is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

3.3.1 Regulatory Setting

For a full list of laws, regulations, and guidance related to climate change (GHGs and adaptation), please refer to Caltrans’ Standard Environmental Reference, Chapter 16, Climate Change.

3.3.1.1 FEDERAL

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

The 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. In January 2023, the White House Council on Environmental Quality issued updated and expanded interim National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (88 *Federal Register* Reg. 1196), in accordance with EO 14057, *Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability* (86 *Federal Register* 70935 [December 13, 2021]) and EO 14008, *Tackling the Climate Crisis at Home and Abroad*. The Council on Environmental Quality guidance does not establish numeric thresholds of significance, but it emphasizes quantifying reasonably foreseeable lifetime direct and indirect emissions whenever possible. This guidance also emphasizes resilience and environmental justice in project-level climate change and GHG analyses.

The 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 2023). 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.

Early efforts by the federal government to improve fuel economy and energy efficiency to address climate change and its associated effects include The Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Economy (CAFÉ) standards. The United States Department of Transportation’s (U.S. DOT’s) National Highway Traffic and Safety Administration (NHTSA) sets and enforces the CAFÉ standards for on-road motor vehicles sold in the United States.

The USEPA calculates average fuel economy levels for manufacturers, and also sets related GHG emissions standards for vehicles under the Clean Air Act. Raising CAFÉ standards leads automakers to create a more fuel-efficient fleet, which improves our nation’s energy security, saves consumers money at the pump, and reduces GHG emissions (U.S. DOT 2014). These standards are periodically updated and published through the federal rulemaking process.

3.3.1.2 STATE

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and EOs.

In 2005, EO S-3-05 initially set a goal to reduce California's GHG emissions to 80 percent below year 1990 levels by 2050, with interim reduction targets. Later EOs and Assembly and Senate bills refined interim targets and codified the emissions reduction goals and strategies. The California Air Resources Board (CARB) was directed to create a climate change scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Ongoing GHG emissions reduction was also mandated in Health and Safety Code Section 38551(b). In 2022, the California Climate Crisis Act was passed, establishing state policy to reduce statewide human-caused GHG emissions by 85 percent below 1990 levels, achieve net zero GHG emissions by 2045, and achieve and maintain negative emissions thereafter.

Beyond GHG reduction, the state maintains a climate adaptation strategy to address the full range of climate change stressors and passed legislation requiring state agencies to consider protection and management of natural and working lands as an important strategy in meeting the state's GHG reduction goals.

3.3.2 Environmental Setting

SR 37 corridor runs along the northern shore of the San Pablo Bay connecting Solano, Napa, Sonoma, and Marin Counties. The surrounding Project area land uses consist of open space, community facilities, light industrial/office, business and professional office, conservation lands, and low-density rural residential land uses. Open space dominates, with the nearest residences at Bel Marin Keys roughly 0.25 mile to the southeast, outside of Novato's city limits. Highway flooding from stormwater overtopping occurs during winter rain and high tide events, causing delays and highway closures.

Plan Bay Area 2050 guides transportation development in the project area. The BAAQMD's 2017 Clean Air Plan, Spare the Air, Cool the Climate, addresses GHGs in the project region. Marin County has adopted the Unincorporated Area Climate Action Plan 2030 and the Marin Countywide Plan to address climate change and energy use within the County level. The City of Novato has also adopted their own Climate Action Plan and General Plan which incorporate sustainability and energy use plans to address GHGs on a local level.

3.3.2.1 GREENHOUSE GAS INVENTORIES

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time, such as a calendar year.

Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. USEPA is responsible for documenting GHG emissions nationwide, and the CARB does so for the state, as required by Health and Safety Code Section 39607.4. Cities and other local jurisdictions may also conduct local GHG inventories to inform their GHG reduction or climate action plans.

National Greenhouse Gas Inventory

The annual GHG inventory submitted by the USEPA to the United Nations provides a comprehensive accounting of all human-produced sources of GHGs in the United States. Total GHG emissions from all sectors in 2021 were 5,586 million metric tons, factoring in deductions for carbon sequestration in the land sector. (Land Use, Land Use Change, and Forestry provide a carbon sink equivalent to 12 percent of total United States emissions in 2021 [USEPA 2023a].) Although total GHG emissions in 2021 were 17 percent below 2005 levels, they increased by 6 percent over 2020 levels. Of these, 79.4 percent were CO_2, 11.5 percent were CH_4, and 6.2 percent were N_2O; the balance consisted of fluorinated gases. From 1990 to 2021, CO_2 emissions decreased by only 2 percent (USEPA 2023a).

The transportation sector's share of total GHG emissions increased to 28 percent in 2021 and remains the largest contributing factor (Figure 3.3-1). Transportation fossil fuel combustion accounted for 92 percent of all CO_2 emissions for 2021. This is an increase of 7 percent over 2020, largely due to the rebound in economic activity following COVID-19 pandemic (USEPA 2023c).

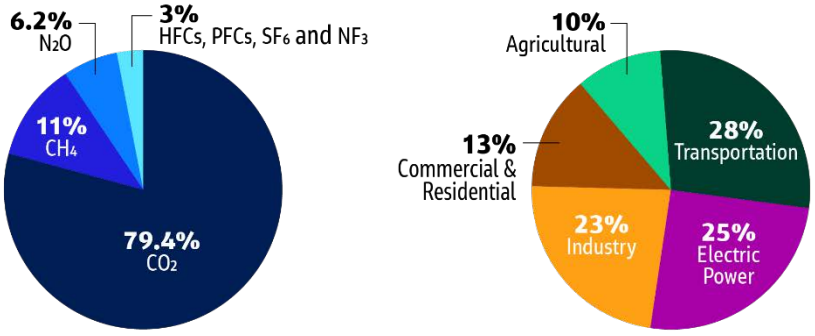


Figure 3.3-1. United States 2021 Greenhouse Gas Emissions

State Greenhouse Gas Inventory

CARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year (Figure 3.3-2). It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. Overall statewide GHG emissions declined from 2000 to 2020 despite growth in population and state economic output (Figure 3.3-3).

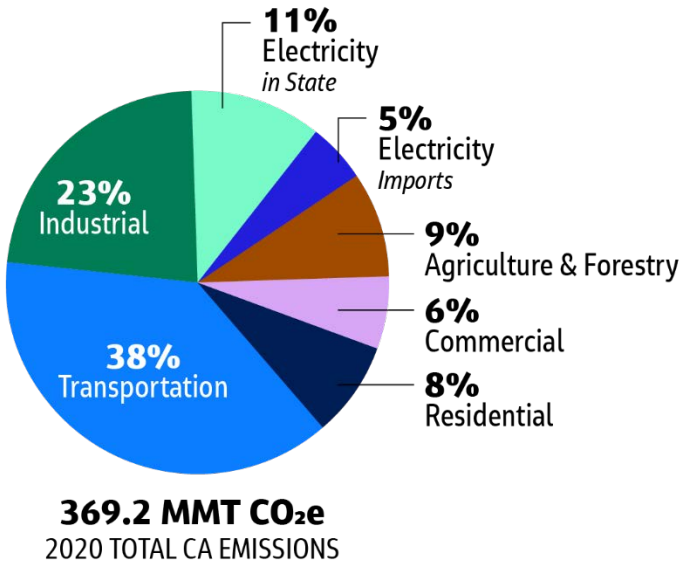


Figure 3.3-2. California 2020 Greenhouse Gas Emissions by Economic Sector
Source: CARB 2022a

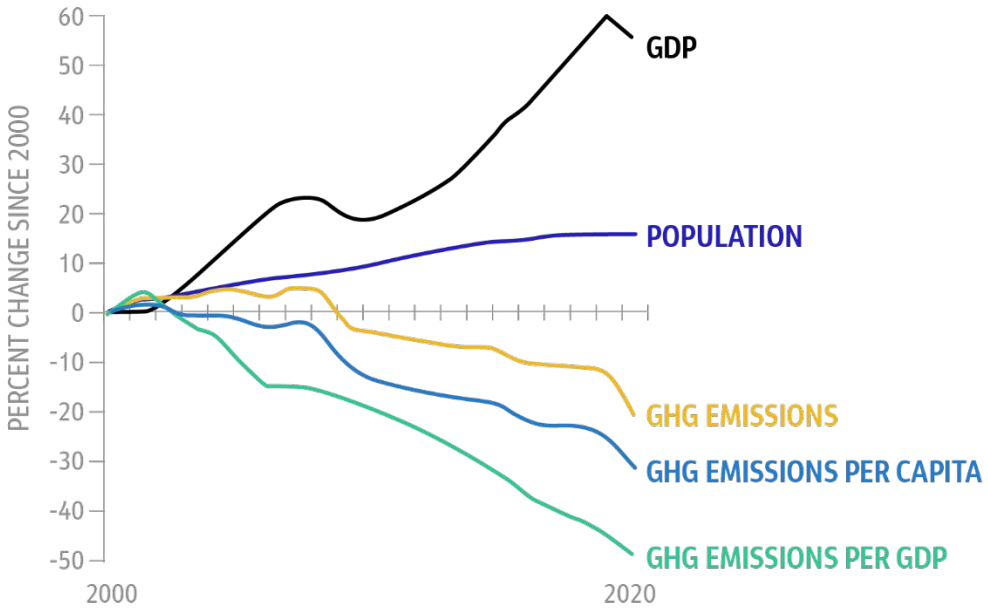


Figure 3.3-3. Change in California Gross Domestic Product, Population, and Greenhouse Gas Emissions since 2000
Source: CARB 2022a

Assembly Bill (AB) 32 required CARB 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. The AB 52 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. CARB adopted the first scoping plan in 2008. The second updated plan, California's 2017 Climate Change Scoping Plan, adopted on December 14, 2017, reflects the 2030 target established in Executive Order B-30-15 and Senate Bill (SB) 32. The 2022 Scoping Plan for Achieving Carbon Neutrality, adopted September 2022, assesses progress toward the statutory 2030 reduction goal and defines a path to reduce human-caused emissions to 95 percent below 1990 levels and achieve carbon neutrality no later than 2045, in accordance with AB 1279 (CARB 2022b).

Regional Plans

As required by *The Sustainable Communities and Climate Protection Act* of 2008, CARB sets regional GHG reduction targets for California's 18 metropolitan planning organizations to achieve through planning future projects that will cumulatively achieve those goals, and reporting how they will be met in the Regional Transportation Plan/Sustainable Communities Strategy. Targets are set at a percent

reduction of passenger vehicle GHG emissions per person from 2005 levels. The proposed Project is included in the Regional Transportation Plan/Sustainable Communities Strategy for Metropolitan Transportation Commission, Plan Bay Area 2050. The regional reduction target for Metropolitan Transportation Commission is 19 percent by 2035 (CARB 2023f). Examples of policies related to GHGs and sustainability are listed in Table 3.3-1.

Table 3.3-1. Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
City of Novato Climate Change Action Plan (adopted 2009)	• Reduce emissions from the energy sector through energy efficiency and conservation efforts within municipal and community operations. • Reduce emissions associated with energy generation through promotion and support of renewable energy generation and use. • Reduce emissions from the built environment through "green building" and urban design principles that minimize the urban heat island effect and reduce energy consumption. • Reduce emissions from water and wastewater sources by increasing water conservation. • Reduce emissions from transportation sources by promoting use of alternative fuels and efficient use of traditional automobiles. • Reduce emissions by decreasing VMT within the City through strategic Land Use and Design. • Reduce emissions from transportation sources through promotion of non-vehicular modes of travel. • Reduce emissions from waste sources. • The Climate Change Action Plan will be implemented to reduce Novato's greenhouse gas emissions by a minimum of 15% from the 2005 baseline by 2020 and by a minimum of 40% by 2035.
City of Novato General Plan 2035 (last comprehensively updated in 1996)	• Green building, energy efficiency, and renewable energy to address the energy use and consumption of natural resources to construct, renovate, operate and maintain buildings • Land use and transportation to identify more efficient ways to utilize land and move about • Waste reduction, recycling, and Zero Waste to divert and/or eliminate all materials from landfill • Water conservation • Natural systems to absorb or sequester greenhouse gases • Adaptation to prepare for inevitable climate change impacts including SLR

Title	GHG Reduction Policies or Strategies
Marin County Unincorporated Area Climate Action Plan 2030 (adopted December 2020)	• Low Carbon Transportation Actions • Renewable Energy and Electrification Actions • Energy Efficiency Actions • Waste Reduction Actions • Water Conservation Actions • Consumption Based Emissions Strategies • Adaptation Actions • Community Engagement Actions
Marin Countywide Plan (Adopted November 6, 2007)	• Decreased Energy Use • Implementing Programs • Increased Renewable Resource Use • Adopt Green Building Standards
Bay Area Air Quality Management District Final 2017 Clean Air Plan (Adopted April 19, 2017)	• Reduce emissions of super-GHGs with high GWP, such as methane • Reduce demand for fossil fuels • Decarbonize our energy system
Plan Bay Area 2050 (Adopted October 21, 2021)	• Reduce Climate Emissions by: o Expanding commute trip reduction programs at major employers. o Expanding transportation demand management initiatives. o Expanding clean vehicle initiatives.

Note:
GWP = global warming potential

3.3.3 Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the State Highway System (operational emissions) and those produced during construction. The primary GHGs produced by the transportation sector are CO2, CH4, N2O, and hydrofluorocarbons. CO2 emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of CH4 and N2O. A small amount of hydrofluorocarbon emissions related to refrigeration is also included in the transportation sector. (GHGs differ in how much heat each traps in the atmosphere, called global warming potential, or GWP. CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2, using a metric called “carbon dioxide equivalent,” or CO_2e. The GWP of CO_2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO_2.)

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Public Resources Code, § 21083(b)(2)). As the California Supreme Court explained, “because of the global

scale of climate change, any one project's contribution is unlikely to be significant by itself." (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512). In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects, although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant impact on the environment.

OPERATIONAL EMISSIONS

The purpose of the proposed Project is to build resiliency to the effects of projected 2130 SLR and stormwater overtopping onto SR 37 and would not increase the vehicle capacity of the roadway. This type of project generally causes minimal or no increase in operational GHG emissions. Because the Project would not increase the number of travel lanes on SR 37, no increase in VMT would occur. While some GHG emissions during the construction period would be unavoidable, there would be no increase in operational GHG emissions.

CONSTRUCTION EMISSIONS

Construction GHG emissions would result from material processing and transportation, on-site construction equipment, and traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. Although construction GHG emissions are only produced for a short time, they have long-term effects in the atmosphere; thus, they cannot be considered "temporary" in the same way criteria pollutants that subside after construction is completed are considered.

Use of long-life pavement, improved traffic management plans, and changes in materials, can also help offset emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

A *Construction-Related Greenhouse Gas (GHG) Emissions Analysis Memorandum* was completed for the Project in January 2024 (Caltrans 2024c). The construction-related GHG emissions were calculated using the RCEM, version 9.0.0, provided by the Sacramento Metropolitan Air Quality Management District. Total GHG emissions are presented as CO_2e by multiplying each GHG by their GWP. GWP is a measure

of how much energy the emissions of 1 ton of a GHG will absorb over a given period of time, relative to the emissions of 1 ton of CO_2. Construction of the Project would emit a total quantity of 12,952.01 metric tons of CO_2e, as shown in Table 3.3-2.

Table 3.3-2. Summary of Construction-related Greenhouse Gas Emissions

Build Alternative	GHG Emissions CO_2 (tons)	GHG Emissions CH_4 (tons)	GHG Emissions N_2O (tons)	Project Total CO_2e[1] (metric tons)
Phase 1 Total Emissions	3,994.95	0.82	0.16	3,687.33
Phase 2 Total Emissions	10,116.82	0.32	0.29	9,264.68
Total Project Emissions				**12,952.01**

Note:
[1] Gases are converted to CO_2e by multiplying by their GWP. Specifically, GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of CO_2.

All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7-1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all CARB emission reduction regulations. Section 14-9.02, Air Pollution Control, 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. PF-AQ-2, Construction Equipment Controls, PF-AQ-4, Caltrans Standard Specifications for Air Quality, and PF-AQ-6, Idling (summarized in Appendix D), would be implemented as part of the Project to reduce GHG emissions.

3.3.4 CEQA Conclusion

While the proposed Project would result in GHG emissions during construction, the Project would not result in any increase in operational GHG emissions because it is not increasing vehicular capacity on SR 37. The proposed Project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With implementation of PF-AQ-2, Construction Equipment Controls, PF-AQ-4, Caltrans Standard Specifications for Air Quality, and PF-AQ-6, Idling, the impact would be less than significant.

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

3.3.5 Greenhouse Gas Reduction Strategies

3.3.5.1 STATEWIDE EFFORTS

In response to AB 32, California is implementing measures to achieve emission reductions of GHGs that cause climate change. Climate change programs in California are effectively reducing GHG emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors, to take California into a sustainable, low-carbon and cleaner future, while maintaining a robust economy (CARB 2023e).

Major sectors of the California economy, including transportation, will need to reduce emissions to meet 2030 and 2050 GHG emissions targets. The Governor's Office of Planning and Research identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the state's energy mix to at least 50 percent by 2030; (2) reducing petroleum use by up to 50 percent by 2030; (3) increasing the energy efficiency of existing buildings by 50 percent by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits (OPR 2015). OPR later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with Executive Order B-55-18 and AB 1279 (OPR 2022).

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 VMT. Reducing today's petroleum use in cars and trucks by 50 percent is a key state goal for reducing greenhouse gas emissions by 2030 (California Environmental Protection Agency 2022).

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.

Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It instructs state agencies to use existing authorities and resources to identify and implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation

activities in ways that serve all communities and in particular low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2022) released *Natural and Working Lands Climate Smart Strategy*.

3.3.5.2 CALTRANS ACTIVITIES

Caltrans continues to be involved on the Governor's Climate Action Team as the CARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Executive Order B-30-15, issued in April 2015, and SB 32 (2016), set 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.

3.3.5.3 CLIMATE ACTION PLAN FOR TRANSPORTATION INFRASTRUCTURE

The California Action Plan for Transportation Infrastructure (CAPTI) builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing GHG emissions in transportation, which account for more than 40 percent of all polluting emissions, to reach the state's climate goals. Under CAPTI, where feasible and within existing funding program structures, the state will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

3.3.5.4 CALIFORNIA TRANSPORTATION PLAN

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The California Transportation Plan 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide GHG emissions reduction targets and increase resilience to climate change. It demonstrates how GHG emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

3.3.5.5 CALTRANS STRATEGIC PLAN

The *Caltrans 2020–2024 Strategic Plan* includes goals of stewardship, climate action, and equity. Climate action strategies include developing and implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a VMT monitoring and reduction

program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021c).

3.3.5.6 Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 Climate Change (June 22, 2012) established a Department policy to ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. *Caltrans Greenhouse Gas Emissions and Mitigation Report* (Caltrans 2020d) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce GHG emissions and identifies additional opportunities for further reducing GHG emissions from Department-controlled emission sources, in support of Departmental and state goals.

3.3.5.7 Project-Level Greenhouse Gas Reduction Strategies

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

As previously discussed, PF-AQ-2, Construction Equipment Controls, PF-AQ-4, Caltrans Standard Specifications for Air Quality, and PF-AQ-6, Idling (summarized in Appendix D), would be implemented as part of the Project to reduce GHG emissions. In addition, the contractor would implement Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7-1.02C, Emissions Reduction, which requires contractors to comply with all laws applicable to the Project and to comply with all CARB emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, which reduce construction vehicle emissions also help reduce GHG emissions.

3.3.5.8 Adaptation

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.

3.3.5.9 FEDERAL EFFORTS

Under NEPA Assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance. Caltrans practices generally align with the 2023 CEQ interim Guidance on Consideration of Greenhouse Gas Emissions and Climate Change, which offers recommendations for additional ways of evaluating project effects related to GHG emissions and climate change. These recommendations are not regulatory requirements.

The *Fifth National Climate Assessment*, published in 2023, presents the most recent science and "analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; [It] analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years … to support informed decision-making across the United States." Building on previous assessments, it continues to advance "an inclusive, diverse, and sustained process for assessing and communicating scientific knowledge on the impacts, risks, and vulnerabilities associated with a changing global climate" (U.S. Global Change Research Program 2023).

U.S. DOT recognizes the transportation sector's major contribution of GHGs that cause climate change and has made climate action one of the department's top priorities (U.S. DOT 2023). FHWA's policy is 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 fosters resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2022).

The National Oceanic and Atmospheric Administration provides SLR projections for all U.S. coastal waters to help communities and decision makers assess their risk from SLR. Updated projections through 2150 were released in 2022 in a report and online tool (NOAA 2022).

3.3.5.10 STATE EFFORTS

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of state policies and tools have been developed to guide adaptation efforts.

California's Fourth Climate Change Assessment (Fourth Assessment) (2018) is the state's effort to "translate the state of climate science into useful information for action." It provides information that will help decision makers across sectors and at state, regional, and local scales protect and build the resilience of the state's people, infrastructure, natural systems, working lands, and waters. The state's approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce GHG emissions by 2021 or sooner, the state is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77 percent increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67 percent of Southern California beaches and inundation of billions of dollars' worth of residential and commercial buildings due to SLR (State of California 2018).

To help actors throughout the state address the findings of California's Fourth Climate Change Assessment, AB 2800's multidisciplinary Climate-Safe Infrastructure Working Group published *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. This report provides guidance on assessing risk in the face of inherent uncertainties still posed by the best available climate change science. It also examines how state agencies can use infrastructure planning, design, and implementation processes to respond to the observed and anticipated climate change impacts (Climate-Safe Infrastructure Working Group 2018).

EO S-13-08, issued in 2008, directed state agencies to consider SLR scenarios for 2050 and 2100 during planning to assess project vulnerabilities, reduce risks, and increase resilience to SLR. It gave rise to the 2009 *California Climate Adaptation Strategy*, the Safeguarding California Plan, and a series of technical reports on statewide SLR projections and risks, including the *State of California Sea-Level Rise Guidance 2018 Update* (Sea Level Rise Guidance). The reports addressed the full range of climate change impacts and recommended adaptation strategies. The current *California Climate Adaptation Strategy* incorporates key elements of the latest sector-specific plans such as the *Natural and Working Lands Climate Smart Strategy*, *Wildfire and Forest Resilience Action Plan*, *Water Resilience Portfolio,* and the CAPTI (described above). Priorities in the 2023 *California Climate Adaptation Strategy* include acting in partnership with California Native American Tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, implementing nature-based climate solutions, using best available climate

science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2023).

EO B-30-15 recognizes that effects of climate change threaten California's infrastructure and requires state agencies to factor climate change into all planning and investment decisions. Under this EO, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* to encourage a uniform and systematic approach to building resilience.

SB 1 Coastal Resources: Sea Level Rise (Atkins 2021) established statewide goals to "anticipate, assess, plan for, and, to the extent feasible, avoid, minimize, and mitigate the adverse environmental and economic effects of sea level rise within the coastal zone." As the legislation directed, the Ocean Protection Council collaborated with 17 state planning and coastal management agencies to develop the *State Agency Sea-Level Rise Action Plan for California* in February 2022. This plan promotes coordinated actions by state agencies to enhance California's resilience to the impacts of SLR (California Ocean Protection Council 2022).

3.3.5.11 Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans completed climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and SLR.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide analysis of at-risk assets and development of Adaptation Priority Reports as a method to make capital programming decisions to address identified risks.

Caltrans Sustainability Programs

The Director's Office of Equity, Sustainability, and Tribal Affairs supports implementation of sustainable practices at Caltrans. The Sustainability Roadmap is a periodic progress report and plan for meeting the Governor's sustainability goals related to EOs B-16-12, B-18-12, and B-30-15. The Roadmap includes designing new buildings for climate change resilience and zero-net energy, and replacing fleet vehicles with zero-emission vehicles (Caltrans 2023c).

3.3.5.12 PROJECT ADAPTATION ANALYSIS

This section discusses the resiliency of the Project to future climate changes effects.

Sea Level Rise

The proposed Project is located outside the Coastal Zone and is not within the Shoreline Band regulated by the San Francisco Bay Conservation and Development Commission. However, according to the Cal-Adapt SLR model, the Project area is vulnerable to future sea rise scenarios (Cal-Adapt 2023), refer to Figure 3.3-4. The roadway within the Project limits is relatively low-lying, highway flooding from stormwater overtopping occurs during winter rain and high tide events causing delays and highway closures. As discussed in Chapter 1, the SR 37 corridor has been the subject of several long-term studies related to SLR. According to the projections in the *SR 37 Transportation and Sea Level Rise Corridor Improvement Plan*, the Project area is vulnerable to SLR primarily due to its low elevation and reliance on levees and berms, which provide flood protection for the highway. The projection year used in the analysis is year 2130 given an estimated 75-year lifespan of the causeway and Project completion by 2050.

As stated in Section 2.2.1, the Project site is located within the tidal zone of the San Pablo Bay. Future 2130 SLR projections are expected to be approximately 10 feet. Under the 2130 SLR scenario with projected 10 feet SLR, the backwater dominance of sea level extends well upstream of the Project area. As such, the interim year 2050 SLR scenario was investigated to identify potential Project impacts in consideration of future SLR. Under the interim year, 2050 SLR, with a 100-year storm event, the maximum water surface elevations in the Project area is 11.06 feet (North American Vertical Datum of 1988 [NAVD 88]) (WRECO 2023).

Figure 3.3-4 depicts maximum inundation depth during a likely 100-year storm, coupled with 4.6 feet of SLR.

The Ocean Protection Council Sea-Level Rise Guidance was used to estimate projected SLR for the Project. The nearest tide gage to the Project site included in the Sea Level Rise Guidance is located at San Francisco. The anticipated service life of the Project's causeways is to year 2130. According to the Sea Level Rise Guidance and Highway Design Manual Topic 883.2(3) "Sea-Level Rise," Medium-High Risk Aversion is determined to be appropriate for SR 37. Assuming high emissions in the future, Table 13 of the Sea Level Rise Guidance (see Table 3-3.3) estimates 10.0 feet of projected SLR for year 2130.

Table 3.3-3. Project Sea Level Rise (in feet) for San Francisco

Emissions Rate	**Projected Year**	**Median** *50% probability sea-level rise meets or exceeds…*	**Likely Range** *66% probability sea-level rise is between…*	**Likely Range** *66% probability sea-level rise is between…* (Low Risk Aversion)	**1-in-20 Chance** *5% probability sea-level rise meets or exceeds…*	**1-in-200 Chance** *0.5% probability sea-level rise meets or exceeds…* (Medium-High Risk Aversion)	**H++ scenario** ***single scenario** (Extreme Risk Aversion)
High	2030	0.4	0.3	0.5	0.6	0.8	1.0
High	2040	0.6	0.5	0.8	1.0	1.3	1.8
High	2050	0.9	0.6	1.1	1.4	1.9	2.7
Low	2060	1.0	0.6	1.3	1.6	2.4	Not applicable
High	2060	1.1	0.8	1.5	1.8	2.6	3.9
Low	2070	1.1	0.8	1.5	1.9	3.1	Not applicable
High	2070	1.4	1.0	1.9	2.4	3.5	5.2
Low	2080	1.3	0.9	1.8	2.3	3.9	Not applicable
High	2080	1.7	1.2	2.4	3.0	4.5	6.6
Low	2090	1.4	1.0	2.1	2.8	4.7	Not applicable
High	2090	2.1	1.4	2.9	3.6	5.6	8.3
Low	2100	1.6	1.0	2.4	3.2	5.7	Not applicable
High	2100	2.5	1.6	3.4	4.4	6.9	10.2
Low	2110*	1.7	1.2	2.5	3.4	6.3	Not applicable
High	2110*	2.6	1.9	3.5	4.5	7.3	11.9
Low	2120	1.9	1.2	2.8	3.9	7.4	Not applicable
High	2120	3	2.2	4.1	5.2	8.6	14.2
Low	2130	2.1	1.3	3.1	4.4	8.5	Not applicable

Emissions Rate	**Projected Year**	**Median** *50% probability sea-level rise meets or exceeds…*	**Likely Range** *66% probability sea-level rise is between…*	**Likely Range** *66% probability sea-level rise is between…* (Low Risk Aversion)	**1-in-20 Chance** *5% probability sea-level rise meets or exceeds…*	**1-in-200 Chance** *0.5% probability sea-level rise meets or exceeds…* (Medium-High Risk Aversion)	**H++ scenario** ***single scenario** (Extreme Risk Aversion)
High	2130	3.3	2.4	4.6	6.0	10.0	16.6
Low	2140	2.2	1.3	3.4	4.9	9.7	Not applicable
High	2140	3.7	2.6	5.2	6.8	11.4	19.1
Low	2150	2.4	1.3	3.8	5	11.0	Not applicable
High	2150	4.1	2.8	5.8	7.7	13.0	21.9

Source: California Natural Resources Agency and California Ocean Protection Council 2018

* Most of the available climate model experiments do not extend beyond 2100. The resulting reduction in model availability causes a small dip in projections between 2100 and 2110, as well as a shift in uncertainty estimates (see Kopp et al. 2014). Use of 2110 projections should be done with caution and with acknowledgement of increased uncertainty around these projections.

The purpose of this Project is to build resiliency to the effects of projected 2130 SLR and stormwater overtopping onto SR 37. Currently, the low-lying roadway relies on levees and berms which were not originally designed to protect the road, but to reclaim the area for agricultural use. Caltrans conducted field surveys that identified several low spots in the existing levee system making portions of the roadway more vulnerable to immediate short-term flooding from stormwater overtopping and future SLR. Caltrans does not have a role in managing or maintaining the levees responsible for protecting SR 37.

The *State Route 37 Corridor Planning and Environmental Linkages (PEL) Study* gathered preliminary data and considered conceptual level of design, traffic analyses, and evaluation of environmental impacts (Caltrans 2022c). The SR 37 PEL Study examined ten alternatives for the entire SR 37 corridor, established a long-term transportation vision for the corridor, and set the stage for focused, future projects that would be resilient under the projected 2130 SLR. The SR 37 PEL Study Team identified the existing SR 37 corridor as a causeway and the preferred corridor for SR 37 because it would have the least impact on transportation and land use, facilitate adaptation to SLR, and would not interrupt terrestrial or aquatic wildlife migration. Refer to Section 1.1.2, Relationship to the SR 37 PEL Study, for a summary of the relationship of the SR 37 PEL Study and this Project.

Section 1.5, Alternatives Considered but Eliminated from Further Discussion Prior to Draft EIR/EA, summarizes the build alternatives that were considered for the Project. Several of the build alternatives were eliminated because they would not build resiliency to the effects of projected 2130 SLR.

Based on the considerations discussed previously, the Project has been designed to adapt to the projected effects of climate change. Accordingly, the Project proposes to construct a causeway at an elevation of 35 feet (NAVD 88) from U.S. 101 to Atherton Avenue on SR 37. The proposed elevation of the causeway would allow for continued regional connectivity and mobility along SR 37.

Precipitation and Flooding

Reference was made to the Federal Emergency Management Agency Flood Insurance Rate Map numbers 06041C0282E, 06041C0283E, and 06041C02284E dated March 16, 2016, that encompasses the Project. Based on this Flood Insurance Rate Map, the proposed Project work is within a base floodplain.

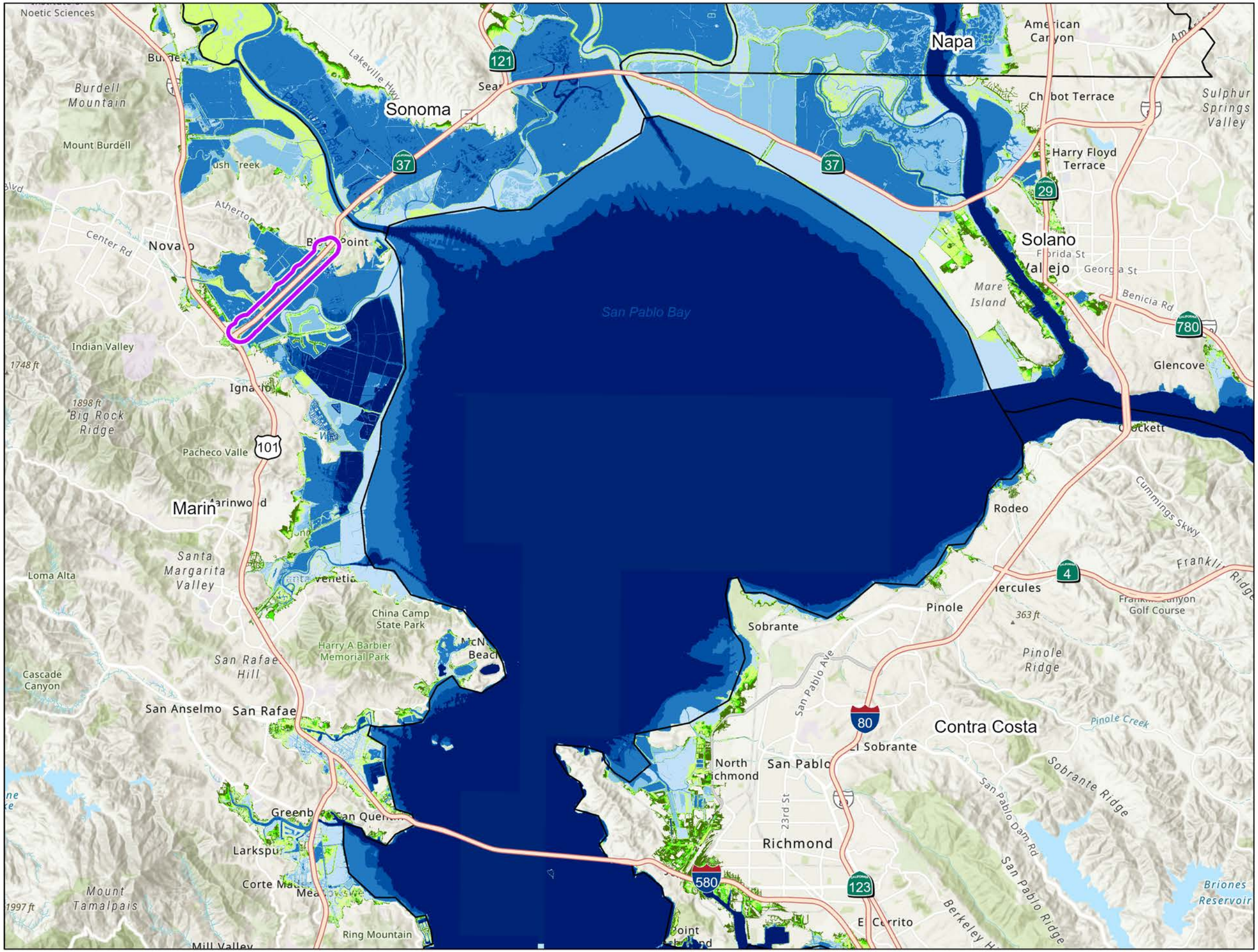


Figure 3.3-4
Maximum Inundation Depth during a Likely 100-year Storm and 4.6-foot Sea Level Rise
State Route 37 Flood Reduction Project
EA 04-4Q320, MRN-37-PM R11.2 to PM 13.8
Marin County, California

Within the Project limits, there is a Special Flood Hazard Area Zone AE and a Non-Special Flood Hazard Area Zone X. Zone AE flood zones represent areas subject to flooding by the 100-year flood event determined by detailed methods where base flood elevations are shown. The 100-year base flood elevation in the Project vicinity is approximately 10 and 11 feet for Zone AE. Zone X flood zones represent areas not in the 100- or 500-year floodplain and at the lowest risk of a flood event.

The proposed Project would result in an increase of 11 acres total of impervious surface area. The Project does not plan to change land use within the Project area. The amount of additional fill in the floodplain and the change in the 100-year water surface elevation is expected to be minimal.

The potential for severe 100-year storm along with projected SLR events poses risks for the Project area. Therefore, consideration by the Project was given to the potential effects of climate change on the project area floodplains. The proposed elevation of the causeway would ensure that the Project corridor would not incur direct impacts from future precipitation and flooding.

Wildfire

As discussed in Section 3.1.20, the Project location is located within a Local Responsibility Area for the City of Novato; the intersection of Atherton Avenue and SR 37 north to the Marin/Sonoma County line at the Petaluma River is within a State Responsibility Area and is not within a High Fire Hazard Severity Zone (CAL FIRE 2022 and 2023). The Project would not exacerbate wildfire risks or expose people or structures to significant risks because it would not increase roadway capacity.

Temperature

Novato has a warm-summer Mediterranean climate, where summers are hot, but winters are rainy and can be mild to chilly. Precipitation occurs in the colder seasons, but a number of clear sunny days occur even during the wetter seasons, except during spells of seasonal tule fog, when it can be quite chilly for many days.

The District Climate Change Vulnerability Assessment (Caltrans 2018b) does not indicate temperature changes during the Project's design life that would require adaptive changes in pavement design or maintenance practices.

Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, as well as identify potential impacts and avoidance, minimization, and/or mitigation measures, and related environmental requirements. Agency and tribal consultation and public participation for the State Route 37 Flood Reduction Project (Project) have been accomplished through a variety of formal and informal methods, including interagency coordination meetings, public meetings, public notices, Project Development Team meetings, and stakeholder meetings. This chapter summarizes the results of California Department of Transportation's (Caltrans') efforts to fully identify, address, and resolve Project-related issues through early and continuing coordination.

4.1 Public Scoping

4.1.1 First Public Scoping

In compliance with the California Environmental Quality Act (CEQA), a Notice of Preparation for an Environmental Impact Report (EIR) was filed with the State Clearinghouse on November 3, 2021 (State Clearinghouse Number 2021110045). The filing of the Notice of Preparation began a 30-day public scoping period from November 3, 2021 through December 2, 2021. In response to public input, Caltrans extended the 30-day public review period through December 17, 2021 for a 45-day public scoping period. The Notice of Preparation is included in Appendix F. The public scoping period and virtual public scoping meeting were advertised on the Caltrans District 4 website (https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/d4-37-corridor-projects) as well as through newspaper advertisements in the *Marin Independent Journal* and *Santa Rosa Press Democrat* (Appendix F). Postcard mailers were sent via United States Postal Service Every Door Direct Mail to approximately 3,987 addresses; emails were sent; letters to local, state, and federal elected officials and local, state, and federal agencies were sent; letters were sent to levee owners; and a Caltrans District 4 news release was made.

A virtual public scoping meeting was held during the public scoping comment period on November 17, 2021, from 5:30 p.m. to 7:30 p.m., through an online WebEx meeting. The purpose of the meeting was to present preliminary information on the Project and receive early input on the proposed environmental studies. Caltrans presented a PowerPoint presentation providing an overview of the proposed Project alternatives, with the remainder of the meeting time dedicated to a live question and answer session.

There were approximately 42 attendees at the meeting and 21 questions and comments were submitted during the meeting.

As part of the public scoping process, the public was invited to submit written comments on the scope and content of the environmental document during the public comment period. A total of 71 comments were submitted via email and letters. Comments received during the public scoping period were reviewed and are summarized in Table 4-1. Key comment themes received during the public scoping period included the request to consider more than one build alternative, such as a causeway; to extend the public review period; and to consider impacts and benefits to biological resources and hydrologic connectivity. In response to the public scoping comments, Caltrans extended the public review period from 30 calendar days to 45 calendar days, analyzed four build alternatives in this Draft EIR/Environmental Assessment (EA) as described in Chapter 1, and considered impacts and benefits to biological resources and hydrology as discussed in Chapter 2.

Table 4-1. Public Scoping Comment Summary

Comment Topic	Summary of Comment Topic
General	General comments included the following topics: support of or opposition to the Project or a specific design alternative; expanding the Project description; suggestions for technical topic discussions; request for information (presentation slides) provided at the scoping meeting; evaluation of alternatives; addressing environmental justice in the environmental document; cost of a short-term solution, and regional economics.
Project and Agency Coordination	Several comments emphasized the importance of initiating coordination/consultation early within the environmental process.
Design Features	Many comments expressed concern that the design for the build alternative would not allow natural stream flow and sediment transport. Comments suggested evaluating alternatives that include those with causeways that allow for the free movement of water, sediment, and wildlife, instead of pursuing the proposed flood reduction planning efforts to elevate the embankments between U.S. 101 and SR 121. Some comments suggested that elevated roadway structures would improve wildlife connectivity and the embankment would disrupt the connectivity. Comments indicated the preference for a causeway and requested that a thorough analysis be provided.
Environmental Issues to Consider	Several comments included suggestions for the analysis in the environmental document regarding topics such as biological resources, hydrology/water quality, noise, air quality, greenhouse gases, recreational uses, cultural resources, and transportation. Comments included suggestions for mitigation/avoidance measures, technical studies to be included, and potential impacts to be evaluated.

Comment Topic	Summary of Comment Topic
Assess Multiple Alternatives	Many of the comments requested that multiple, less environmentally damaging options (alternatives) be developed and assessed. The request for additional alternatives included a causeway alternative that would be consistent with the design parameters that were considered by the ultimate PEL Study.[1]
Sediment Fill	Several comments expressed concern over sediment fill and if it would be proposed as part of the Project. Commenters believed the build alternative would result in significant direct fill impacts to San Pablo Bay and surrounding wetlands. Questions were asked regarding where sediment fill would be placed, methods used, and volume and surface area of the Bay and/or wetlands to be filled. The comments requested that a thorough discussion of proposed filling of existing tidal marshes and flats be provided.
Environmental Mitigation	The topic of mitigation included comments related to suggestions for the Project to avoid potential impacts to wildlife movement, wetlands, and terrestrial habitats.
Access Issues	Several comments involved access issues along the Project corridor during operation of the build alternative. Concern was shown with how improvements to the Project corridor would impact access to trails and whether properties along the corridor would lose access.
Consistency with PEL and Causeway	Many of the comments requested that the proposed Project not go forward with the evaluation of environmental impacts until the PEL process has been completed. Other comments suggested that the PEL study goals should also be incorporated into the Project scope upon completion of the PEL process. Comments expressed that the solution to flooding occurring at SR 37 should be compatible with the PEL process.

Notes:

[1] *State Route 37 Corridor Planning and Environmental Linkages (PEL) Study from U.S. 101 to I-80* (Caltrans 2022c).

I-80 = Interstate 80

PEL = planning and environmental linkages

SR = State Route

U.S. 101 = United States Highway 101

4.1.2 Second Public Scoping Process

The Project that was originally proposed during the first public scoping meeting in November 2021 extended on SR 37 from U.S. 101 in Marin County to SR 121 in Sonoma County and included raising SR 37 on an embankment, replacing the Novato Creek Bridge, and modifying Simonds Slough, Atherton Avenue, and the Petaluma River Bridge. Based on public input following the first public scoping process and subsequent feedback received on the SR 37 PEL Study, Caltrans revised the proposed Project to raise SR 37 on a causeway. Refer to Section 1.1.2, Relationship to the SR 37 PEL Study for a more in-depth discussion about the relationship of this Project and the SR 37 PEL Study (Section 1.1.1, Background and Relationship to Other SR 37 Projects).

Due to the changes to the proposed Project presented in November 2021, Caltrans held a second virtual public scoping meeting on December 14, 2022, from 5:30 p.m. to 7:00 p.m. The purpose of the second scoping meeting was to provide updates of the latest Project development since the last scoping meeting in November 2021, which included to introduce the revised Project alternatives, to initiate a second public scoping comment period and obtain community and resource agency input, and to provide and solicit information about the environmental process. There were 53 attendees at the meeting, including Caltrans and the consultant team. A total of 14 questions and comments were submitted during the meeting.

The public scoping period and virtual public scoping meeting were advertised on the Caltrans District 4 website (https://dot.ca.gov/caltrans-near-me/district-4/d4-projects/d4-37-corridor-projects) as well as through newspaper advertisements in the *Marin Independent Journal* and *Santa Rosa Press Democrat* (Appendix F). Postcard mailers were sent via United States Postal Service Every Day Delivery Mail to approximately 5,000 addresses; approximately 60 emails were sent to local officials, state and federal agencies, media contacts (radio stations and newspapers), and members of the public; letters were sent to local and elected officials; letters were sent to levee owners; and a Caltrans District 4 news release was made. Caltrans advertised the meeting twice on the Caltrans District 4 Twitter account and once on Caltrans' Facebook social media.

The second public scoping period occurred from December 14, 2022 to January 13, 2023, for a period of 31 calendar days. Twelve comment letters from agencies, organizations and public individuals were received during this period. Comments received during the second public scoping period are summarized in Table 4-2.

Caltrans engaged with the community in compliance with Title VI of the Civil Rights Act of 1964 (Appendix B).

Table 4-2. Second Public Scoping Comment Summary

Comment Topic	Summary of Comment Topic
General	General comments included the reason for or advantages of having a two-phase build plan, environmental process for the EIR, location of second public scoping meeting recording, agency coordination and responsible agencies, mitigation of flood waters, flooding at Novato Creek, and the location of existing utilities along the SR 37 corridor. Several comments expressed support for the proposed causeway.

Comment Topic	Summary of Comment Topic
Project and Agency Coordination	Several comments emphasized the importance of initiating coordination/consultation with local agencies, stakeholders, and property owners to include BCDC, Pacific Gas and Electric Company, Novato Sanitary District, Transportation Authority of Marin, Sonoma-Marin Area Rail Transit, Marin Flood Control District, Marin Audubon Society, and Sierra Club. One comment requested information regarding responsible agencies for the Project. Comments requested agency jurisdictional boundaries within the Project limits be shown in the document.
Purpose and Need	One comment requested that the Project purpose should align with the overall corridor improvements and the PEL and that the need should include sea level rise adaptation.
Alternatives	One comment stated that the alternatives are inadequate and that an alternative that includes tidal marsh restoration in areas that were historically tidal marsh should be included.
Biological Resources	Several comments requested evaluation of impacts that Project may have on other plans and projects in the Novato Creek watershed and to consider cumulative effects and impacts on future restoration projects for San Pablo Bay. A comment requested discussion of potential impacts to wetlands at Novato Creek and Simonds Slough.
Transportation Access Issues	One comment involved disruption to access and where traffic would be directed along the Project corridor during construction. One comment requested information on movement of heavy trucks during peak hours during construction and proposed including an high-occupancy vehicle lane on SR 37 within the Project limits.
Flood Control and Levees	One comment requested information regarding how the Novato Creek bridge would serve a flood control function and if the Project includes any improvements for the existing levee systems. One comment requested information regarding existing levees and if they would be modified as part of the Project such as redesigning the levees or removing the existing roadway.
Utilities	Pacific Gas and Electric Company submitted a letter with information regarding their utility infrastructure within the Project area. Several comments emphasized the importance of initiating coordination/consultation with local utility providers.
Noise	One comment included concern for noise impacts during construction in the Bel Marin Keys and Black Point areas.
Railroad	One comment involved the existing Sonoma-Marin Area Rail Transit railroad adjacent to the Project. Concern was shown regarding the potential for an increase in indirect flooding from the Project on the railroad.
Nearby Projects	One comment included discussion of a nearby battery storage project being proposed south of SR 37 near U.S. 101 and asked if Caltrans was tracking other projects in the vicinity of the SR 37 improvements. One comment recommended prioritizing the project at the SR 37 and SR 121 interchange to unblock traffic jams.

Comment Topic	Summary of Comment Topic
Consistency with PEL	Several comments received requested that the evaluation discuss the PEL Study and include compliance with PEL objectives and purpose and need statements for the SR 37 corridor. One comment requested clarification on the 2045 PEL objective in relation to the 2130 Flood Reduction Project objective for SR 37.
Construction	One comment requested information on when the Request for Qualifications, construction cost estimate, and delivery method would be available.

Note:
BCDC = San Francisco Bay Conservation and Development Commission

4.2 Consultation and Coordination with Resource Agencies

4.2.1 Native American Tribal Consultation

On February 18, 2021, a request for a list of potentially interested Native Americans and a search of the Sacred Lands File was emailed to the Native American Heritage Commission. On July 15, 2021, the Native American Heritage Commission responded with a list of eight individuals representing eight Native American groups who were designated by the Native American Heritage Commission for consultation.

4.2.2 Section 106 and Assembly Bill 52 Consultation for Cultural Resources

Emails pursuant to Assemble Bill 52 were sent to potentially interested tribes on October 1, 2021. Caltrans contacted the following eight tribes: Cloverdale Rancheria of Pomo Indians, Dry Creek Rancheria of Pomo Indians, Federated Indians of Graton Rancheria (FIGR), Guidiville Indian Rancheria, Lytton Rancheria, Middletown Rancheria, Mishewal-Wappo Tribe of Alexander Valley, and Pinole Pomo Nation.

On October 5, 2021, an email response from Brenda Tomaras on behalf of Chairperson Mejia of Lytton Rancheria, stated no issues with the Project. The FIGR replied to the email on October 5, 2021, requesting a meeting. Caltrans met with the FIGR Tribal Historic Preservation Officer Buffy McQuillen on February 11, 2022, to discuss the Project. Based on the sensitivity of the Project area for the Tribe, Ms. McQuillen requested that archaeological testing be conducted in areas with ground disturbance near the Novato Creek and Simonds Slough. On May 1, 2023, Caltrans and members and associates of the FIGR met via Zoom to discuss Project changes necessitating mechanical coring to test for submerged sensitivity at locations beyond the original Novato Creek Bridge area. The Extended Phase I proposal was provided to FIGR Tribal Historic Preservation Officer Buffy McQuillen on May 12, 2023, for review. On June 15, 2023, at the FIGR/Caltrans quarterly meeting, Ms. McQuillen had two questions about the Extended Phase I. An email response to her questions was sent on June 29, 2023. A follow-up email regarding a separate issue regarding

the Extended Phase I and tribal monitoring was sent to Ms. McQuillen on July 3, 2023. Drafts of the Archeological Survey Report and Extended Phase I were transmitted to Ms. McQuillen for the FIGR on October 21, 2023. During a meeting with Caltrans on November 17, 2023, Ms. McQuillen did not provide comments on the draft documents and subsequently no written comments were provided.

4.2.3 Information Consultation with Biological Regulatory Agencies

BCDC sent two scoping letters dated December 13, 2021 and January 13, 2023. Both letters requested the Draft EIR/EA address BCDC policies of the *San Francisco Bay Plan* and the McAteer-Petris Act, and to provide more Project detail to determine whether the Project is within BCDC's jurisdiction and/or subject to the Coastal Zone Management Act (that is, require a permit). Appendix G addresses BCDC policies and Project consistency.

California Department of Fish and Wildlife (CDFW) sent Caltrans a scoping letter dated December 2, 2021. CDFW requests that the Project be evaluated with respect to a 1600 permit, CDFW regulatory authority, California Fish and Game Code, and endangered species. These issues are addressed in Section 2.3, Biological Resources.

Other regulatory agency comment letters requested that Caltrans evaluate more alternatives and also not pursue raising the highway with an embankment, noting that this would result in more extensive environmental impacts to biological resources and also would not be a long-term viable solution to flood reduction. Many agencies recommended a causeway as a viable alternative to address sea level rise and reduce environmental impacts and improve hydrological conditions. Based on public input following the first public scoping process and subsequent feedback received on the SR 37 PEL Study, Caltrans revised the proposed Project to raise SR 37 on a causeway. Refer to Section 1.1.2, Relationship to the SR 37 PEL Study.

4.2.4 Metropolitan Transportation Commission (Air Quality Conformity)

The Project team initiated consultation with the Metropolitan Transportation Commission Bay Area Air Quality Conformity Task Force (AQCTF) in December 2021. Caltrans presented the Project to the AQCTF on December 3, 2021 during the monthly meeting. On January 12, 2022, the AQCTF determined that the Project would be exempt under 40 Code of Federal Regulations 93.126 and would not need to complete additional environmental documentation and public participation. On March 23, 2023, Caltrans presented the Proposed Project to the AQCTF. Again, the AQCTF determined the Project would be exempt under 40 Code of Federal Regulations 93.126 and would not need to complete additional analysis.

4.2.5 Other Agency Coordination

In February 2019, the Resilient 37 program, a partnership between Caltrans, Metropolitan Transportation Commission, and the four North Bay Area County Transportation Authorities, was formed to address resiliency of the transportation infrastructure to sea level rise and flooding, traffic congestion, opportunities for ecological enhancements, increased transit, multimodal use, and public access along the SR 37 corridor from I-80 to U.S. 101. The program includes near- and longer-term improvements for the 21-mile corridor, including the long-term sea level rise vulnerability of a number of low-lying areas throughout the corridor. In February 2023, Sonoma Marin Area Rail Transit (SMART) was added as a member of the program partnership through an executed amendment.

Caltrans Headquarters Division of Rail and Mass Transit is working with SMART on developing an East-West Passenger Study and Project Study Report that will cover SMART rail between Suisun City and the city of Novato and is scheduled to be completed by winter 2023. Based on recommendations of the East-West Passenger Study and the Project Study Report, applicable resiliency features for the SMART rail tracks would be incorporated into Phase 2 of the Build Alternative, contingent on funding and schedule. SMART elements would not be incorporated into the Novato Creek Bridge Replacement, which would be the first construction package of the Build Alternative, due to length and slope of the bridge. Caltrans will evaluate options for incorporating SMART elements during the Phase 2 design, which includes 2.5 miles of causeway between U.S. 101 and Atherton Avenue. Caltrans and SMART would comply with CEQA and National Environmental Policy Act (NEPA) guidance, as required, should the SMART rail tracks become part this Project.

4.3 Public Involvement Process for the Draft Environmental Document

The public review period of the Draft EIR/EA lasted a minimum of 45 days from August 23, 2023, to October 10, 2023. Public input on the Project was solicited during the review period of this Draft EIR/EA.

On September 21, 2023, Caltrans held a public meeting for the Project in compliance with CEQA and NEPA. The public participated in-person at Margaret Todd Senior Center in the city of Novato and virtually from 6:00 p.m. to 7:30 p.m. The public, including agencies and organizations, were invited to learn more about the Project, ask questions, and share feedback on the Project.

Meeting advertisement involved publishing the Notice of Availability of the Draft EIR/EA in the *San Francisco Chronicle*, *Mercury News*, *Daily Public*, *Press Democrat*, and *Marin Independent Journal* on different dates in the months of August

and September 2023. In addition, postcards advertising the public meeting and public review period of the Draft EIR/EA were sent to 4,962 individual addresses.

A total of 28 people participated in the meeting; 12 people attended in-person, and 16 people attended virtually. The meeting started with a presentation of the Project by senior Caltrans team members. The presentation was then followed by a question and answer session that included both in-person and virtual attendees. The comment themes from the meeting are as follows:

- Traffic on Crest Road during construction
- Tolling within the Project area
- Removal of the existing SR 37 roadway at Project completion
- Accessibility near the U.S. 101 interchange
- Support for the Project
- Bicycle and pedestrian access before Phase 2
- Mitigation of biological impacts
- Traffic noise and construction noise impacts on nearby communities
- Integration of SMART (Sonoma-Marin Area Rail Transit) (light rail) in the Project
- Concern about sea level rise and residents' safety
- Flooding impacts from the Project on surrounding infrastructure and communities

A summary of the public meeting, the notice of availability, public meeting sign-in sheet, and the meeting transcript is available in Appendix N.

4.4 Public Comments on the Draft Environmental Document

All comments are addressed in this Final EIR/EA/FONSI. Refer to Appendix K, Responses to Comments. The comments received are categorized by Agency, Business, Organization, Individuals, and Transcript.

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The following primary persons are responsible for contributing to preparing, and reviewing this report:

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Audrey Van, Senior Environmental Planner
Hannah Minderhout, Environmental Planner
Joza Burnam, Environmental Planner
Julie Petersen, Environmental Planner
Loretta Meyer, Senior Environmental Planner
Morgan Angulo, Environmental Planner
Shianne Howe, Environmental Planner

Yassaman Sarvian, Senior Environmental Planner

Biology

Debra Bishop, Principal Ecologist
Stephanie Owens, Biologist
Kyle Brown, Biologist

Technical Specialists

Andy Priest, GIS Specialist
Bryan Bell, Senior Technical Editor
Celeste Brandt, Technical Editor
Clarice Ericsson, Senior Publications Technician

Transportation

Loren Bloomberg, Senior Transportation Engineer

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Emily Malkauskas, Biologist
Kelly Hardwicke, Biologist
Steve Rottenborn, Wildlife Ecologist

Illingworth & Rodkin

Heather Bruce, Noise
Michael S. Thill, Noise

Chapter 6 Distribution List

This list identifies the agencies, elected officials, organizations, and businesses that were notified of availability of this document and public meetings as described in Chapter 4.

FEDERAL AGENCIES

U.S. Fish and Wildlife Service
2800 Cottage Way W-2605
Sacramento, CA 95825

U.S. Army Corps of Engineers
San Francisco District
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

U.S. Coast Guard
1 Yerba Buena Island
San Francisco, CA 94130

National Marine Fisheries Services
777 Sonoma Avenue, Room 325
Santa Rosa, CA 95404

U.S. Department of Agriculture
Natural Resources Conservation Service
5401 Old Redwood Highway
Suite 100
Petaluma, CA 94954

U.S. Department of Transportation
Federal Highway Administration
650 Capitol Mall, Suite 4-100
Sacramento, CA 95814

U.S. Environmental Protection Agency, Region IX
Federal Activities Office, CMD-2
75 Hathorne Street
San Francisco, CA 94105-3901

U.S. Geological Survey
3020 State University Drive
Sacramento, CA 95819

STATE AGENCIES

California Air Resources Board
CEQA Coordinator
1001 “I” Street
Sacramento, CA 95814

California Department of Fish and Wildlife, Region 3
2825 Cordelia Road, Suite 100
Fairfield, CA 94534

California Department of Parks and Recreation
Bay Area District
845 Casa Grande Road
Petaluma, CA 94954-5804

California Highway Patrol
53 San Clemente Drive
Corte Madera, CA 94925

California Native American Heritage Commission
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691

California Natural Resources Agency
Department of Conservation, Division of Land Resource Protection
801 K Street, MS 18-01
Sacramento, CA 95814

California Office of Emergency Services (Cal EMA)
3650 Schriver Avenue
Mather, CA 95655

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

California State Coastal Conservancy
1515 Clay Street, 10th Floor
Oakland, CA 94612

California State Transportation Agency
400 Capitol Mall, Suite 2340
Sacramento, CA 95814

California Transportation Commission
1120 N Street, MS 52
Sacramento, CA 95814

State Clearinghouse, Executive Officer
1400 Tenth Street, Room 156
P.O. Box 3044
Sacramento, CA 95812-3044

State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

REGIONAL AND LOCAL AGENCIES

Association of Bay Area Governments
375 Beale, Suite 700
San Francisco, CA 94105

Bay Area Air Quality Management District
375 Beale Street, Suite 660
San Francisco, CA 94105

City of Benicia
250 East “L” Street
Benicia, CA 94510

Marin County Community Development Agency
Environmental Health Services
3501 Civic Center Drive, Suite 308
San Rafael, CA 94903

Marin County Open Space District
3501 Civic Center Drive
San Rafael, CA 94903

Marin County Community Development Agency
Planning Division
3501 Civic Center Drive, Suite 236
San Rafael, CA 94903

Marin County Libraries
Novato Library
1720 Novato Boulevard
Novato, CA 94947

Marin County Sheriff’s Office
1600 Los Gamos Drive #200
San Rafael, CA 94903

Metropolitan Transportation Commission
Bay Area Metro Center
375 Beale Street, Suite 800
San Francisco, CA 94105

Novato Sanitary District
500 Davidson Street
Novato, CA 94945

North Marin Water District
999 Rush Creek Place
P.O. Box 146
Novato, CA 94948

Regional Climate Protection Authority

411 King Street
Santa Rosa, CA 95404

Regional Water Quality Control Board, Region 2
1515 Clay Street, Suite 1400
Oakland, CA 94612

San Francisco Bay Conservation and Development Commission
375 Beale Street, Suite 510
San Francisco, California 94105

Solano County Department of Resource Management
675 Texas Street, Suite 5500
Fairfield, CA 94533

Sonoma County Transit
355 W. Robles Avenue
Santa Rosa, CA 95407

Sonoma County Transportation Authority
411 King Street
Santa Rosa, CA 95404

Sonoma County Planning
2550 Ventura Avenue
Santa Rosa CA, 95403

Transportation Authority of Marin
900 Fifth Avenue, Suite 100
San Rafael, CA 94901

Vallejo Sanitary and Flood Control District
50 Ryder Street
Vallejo, CA 94590

FEDERAL AND STATEWIDE ELECTED OFFICIALS

The Honorable Laphonza Butler
United States Senate
One Post Street, Suite 2450
San Francisco, CA 94104

The Honorable Alex Padilla
United States Senate
333 Bush Street, Suite 3225
San Francisco, CA 94104

The Honorable Jared Huffman
United States House of Representatives (CA-2)
999 Fifth Avenue, Suite 290
San Rafael, CA 94901

The Honorable Mike Thompson
United States House of Representatives (CA-5)
2721 Napa Valley Corporate Drive
Napa, CA 94558

The Honorable Mike McGuire
California State Senate, District 2
50 “D” Street, Suite 120-A
Santa Rosa, CA 95404

The Honorable Bill Dodd
California State Senate, District 3
555 Mason Street, Suite 275
Vacaville, CA 95688

The Honorable Damon Connolly
California State Assembly, District 12
3501 Civic Center Drive, Suite 412
San Rafael, CA 94903

MARIN COUNTY BOARD OF SUPERVISORS

The Honorable Mary Sackett
Marin County Supervisor, District 1
3501 Civic Center Drive, Room 329
San Rafael, CA 94903

The Honorable Katie Rice
Marin County Supervisor, District 2
3501 Civic Center Drive, Room 329
San Rafael, CA 94903

The Honorable Stephanie Moulton-Peters
Marin County Supervisor, District 3
3501 Civic Center Drive, Room 329
San Rafael, CA 94903

The Honorable Dennis Rodoni
Marin County Supervisor, District 4
3501 Civic Center Drive, Room 329
San Rafael, CA 94903

The Honorable Eric Lucan
Marin County Supervisor, District 5
3501 Civic Center Drive, Room 329
San Rafael, CA 94903

SONOMA COUNTY BOARD OF SUPERVISORS

The Honorable Susan Gorin
Sonoma County Supervisor, District 1
575 Administration Drive, Room 100 A
Santa Rosa, CA 95403

The Honorable David Rabbitt
Sonoma County Board of Supervisor, District 2
575 Administration Drive, Room 100 A
Santa Rosa, CA 95403

The Honorable Chris Coursey
Sonoma County Supervisor, District 3
575 Administration Drive, Room 100 A
Santa Rosa, CA 95403

The Honorable James Gore
Sonoma County Supervisor, District 4
575 Administration Drive, Room 100 A
Santa Rosa, CA 95403

The Honorable Lynda Hopkins
Sonoma County Supervisor, District 5
575 Administration Drive, Room 100 A
Santa Rosa, CA 95403

CITY OF NOVATO

Mayor Mark Milberg
City of Novato
922 Machin Avenue
Novato, CA 94945

Councilmember Susan Wernick
City of Novato, Council District 5
922 Machin Avenue
Novato, CA 94945

Councilmember Pat Eklund
City of Novato, Council District 4
922 Machin Avenue
Novato, CA 94945

Councilmember Rachel Farac
City of Novato, Council District 2
922 Machin Avenue
Novato, CA 94945

BUSINESSES

A Self Storage
101 Renaissance Road
Novato, CA 94945

Stone Tree Golf Club
9 Stone Tree Lane
Novato, CA 94945

Thompson Builders Corporation
5400 Hanna Ranch Road
Novato, CA 94945

Pacific Gas and Electric Company
245 Market Street, Room 1054D
San Francisco, CA 94109

Petaluma River Ranch
3900 Highway 37
Petaluma, CA 94952

ORGANIZATIONS

Agricultural Institute of Marin
2169 E. Francisco Boulevard, Suite A
San Rafael, CA 94901

Bike East Bay
P.O. Box 1736
Oakland, CA 94604

California Transit Association
1415 L Street, Suite 1000
Sacramento, CA 95814

California Indian Environmental Alliance
6232 Fairmount Avenue
El Cerrito, CA 94530

Center for Environmental Health
2201 Broadway, Suite 508
Oakland, CA 94612

Center for Volunteer & Nonprofit Leadership
1 McInnis Pkwy, Suite 175
San Rafael, CA 94903

Communities For a Better Environment
120 Broadway, Suite 2
Richmond, CA 94804

Diaz & Loera Centro Latino
520 Broadway
Vallejo, CA 94590

Ducks Unlimited, Western Regional Office
3074 Gold Canal Drive
Rancho Cordova, CA 95670

Environmental Forum of Marin
P.O. Box 151546
San Rafael, CA 94915

Federated Indians of Graton Rancheria
Mr. Greg Sarris, Chairperson
6400 Redwood Drive, Suite 300
Rohnert Park, CA 94928

Green Action for Health & Environmental Justice
466 Geary Street, Suite 300
San Francisco, CA 94102

Greenbelt Alliance
P.O. Box 170159
San Francisco, CA 94117

Hispanic Chamber of Commerce of Marin
P.O. Box 4423
San Rafael, CA 94913

International Bird Rescue
4369 Cordelia Road
Fairfield, CA 94534

Land Paths
618 4th Street, #217
Santa Rose, CA 95404

Madrone Audubon Society
P.O. Box 1911
Santa Rosa, CA 95402

Marin Audubon Society
P.O. Box 599
Mill Valley, CA 94942

Marin Conservation League
175 N. Redwood Dr., Suite 135
San Rafael, CA 94903

Mishewal-Wappo Tribe of Alexander Valley
2275 Silk Road
Windsor, CA 95492

Movement Generation Justice & Ecology Project
P.O. Box 102
Berkeley, CA 94701

Movimiento Cultural de La Union Indigena
The Presidio
P.O. Box 29096
San Francisco, CA 94129

Napa County Bicycle Coalition
P.O. Box 5157
Napa, CA, 94581

National Indian Justice Center
5250 Aero Drive
Santa Rosa, CA 95403

Natural Heritage Institute
100 Pine Street, #1550
San Francisco, CA 94111

North Bay Jobs with Justice
600 B Street
Santa Rosa, CA 95401

North Bay Leadership Council
775 Baywood Drive, Suite 101
Petaluma, CA 94954

North Bay Regional Center
610 Airpark Road
Napa, CA 94558

Point Blue Conservation Science
999 Mesa Road
Bolinas, CA 94924

Rails to Trails Conservancy
304 12th Street, Suite 2A
Oakland, CA 94607

Redwood Community Health Coalition
1310 Redwood Way
Petaluma, CA 94999

Resource Renewal Institute
8 Bolinas Road
Fairfax, CA 94930

San Francisco BART District
P.O. Box 12688
Oakland, CA 94604-2688

San Francisco Bay Joint Venture
4911 Central Avenue
Richmond, CA 94804

San Francisco Bay Keeper
1736 Franklin Street, Suite 800
Oakland, CA 94612

San Francisco Estuary Institute
4911 Central Ave
Richmond, CA 94804

San Francisco State University
1600 Holloway Avenue
San Francisco, CA 94132

San Pablo Baylands National Wildlife Refuge
2100 Sears Point Road
Sonoma, CA 95476

Save the Bay
560 14th Street, #400
Oakland, CA 94612

Sierra Club Redwood Chapter
55A Ridgway Ave.
P.O. Box 466
Santa Rosa, CA 95402

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Berkeley, CA 94702

Solano Land Trust
198 Dobbins Street, Suite A
Vacaville, CA 95688

Sonoma Land Trust
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Santa Rosa, CA 95404

The Nature Conservancy
620 Davis Street
San Francisco, CA 94111

The Rose Foundation for Communities and the Environment
201 4th Street, Suite 102
Oakland, CA 94607-4369

The Watershed Project
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Richmond, CA 94804

Transportation Solutions Defense and Education Fund
P.O. Box 151439
San Rafael, CA 94915

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One Shields Avenue
Davis, CA 95616-8571

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Yocha Dehe Wintun Nation
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Chapter 7 References

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