State Route 1 Traffic Operational Systems Improvements Project

San Mateo County, California
District 04- SM-1 (PM 26.4/R47.3)
EA 04-2K880/ Project ID 417000040

Initial Study with Proposed Negative Declaration

Prepared by the
State of California, Department of Transportation

July 2020

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General Information about This Document

What's in this document:

The California Department of Transportation (Caltrans) has prepared this Initial Study (IS) with Proposed Negative Declaration (ND), which examines the potential environmental impacts of the proposed State Route 1 Traffic Operational Systems Improvements Project located from Miramontes Point Road Intersection to Clarinada Avenue Undercrossing in San Mateo County, California. Caltrans is the lead agency under the California Environmental Quality Act (CEQA). This document explains why the project is being proposed, the existing environment that could be affected by the project, potential impacts of each of the alternatives, and the proposed avoidance and minimization measures.

What you should do:

- Please read this document.
- Additional copies of this IS and related technical studies are available by request from Caltrans at the same contact for comments shown below.

This document can also be accessed electronically at the following website: https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs

- We'd would like to hear what you think. If you have comments regarding the proposed project, please send your written comments, including requesting that Caltrans hold a public meeting, to Caltrans by August 14thth, 2020.

- Send comments including requests that Caltrans holds a public meeting, additional copies of this IS or related technical studies via email to nina.hofmarcher@dot.ca.gov.

- Be sure to send comments by the deadline: September 13th, 2020.

What happens next:

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

Alternate formats:

For individuals with sensory disabilities, this document can be made available in Braille, in large print, or digital audio. To obtain a copy in one of these alternate formats, please call or write to the California Department of Transportation, District 4, Attn: Zachary Gifford, Environmental Senior, P.O. Box 23660, Oakland, CA 94623-0660; (510) 506-1264 (Voice), or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711

An ADA-compliant electronic copy of this document is available to download at: the Caltrans environmental document website (https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs).

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Initial Study with Proposed Negative Declaration

04-SM-1	26.4/R47.3	04-2K880
Dist. – Co. – Rte.	PM	E.A.

Project title:	Traffic Operational Systems Improvement Project
Lead agency name and address:	California Department of Transportation 111 Grand Avenue, Oakland, CA 94612
Contact person and phone number:	Zachary Gifford, Senior Environmental Planner (510) 506-1264
Project location:	San Mateo County, California
General plan description:	Highway
Zoning:	Highway, Public Facilities
Other public agencies whose approval is required (e.g., permits, financial approval, or participation agreements)	• California Transportation Commission • United States Fish and Wildlife Service • California Department of Fish and Wildlife • California Coastal Commission including; • City of Half Moon Bay Local Coastal Program • City of Pacifica Local Coastal Program • San Mateo County Local Coastal Program

The document, maps, project information, and supporting technical studies are available upon request from: Nina Hofmarcher; nina.hofmarcher@dot.ca.gov. The document is also available to download at the Caltrans environmental document website (https://dot.ca.gov/caltrans-near-me/district-4/d4-popular-links/d4-environmental-docs).

Lindsay A Vivian

August 3, 2020

Lindsay Vivian
Office Chief
Office of Environmental Analysis
Caltrans District 4

Date

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Proposed Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) is proposing to construct the State Route 1 Traffic Operational Systems Improvements project to improve day-to-day traffic management capabilities for Caltrans, cities and first responders. The project would also provide accurate travel time information for the traveling public on State Route 1. This project would include installation of wireless detection systems (WDS) in existing cabinets or structures, ground mounting Variable Message Signs (VMS) onto wood poles, adding Midwest guardrail system (MGS), and maintenance vehicle pullouts (MVP) to assist with equipment maintenance at 10 locations from Miramontes Point Road Intersection to Clarinada Avenue Undercrossing (post mile 26.4 to R47.3).

Determination

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

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

The proposed project would have no effect on aesthetics, agriculture and forest resources, air quality, cultural resources, geology and soils, hazards and hazardous materials, hydrology/water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, tribal cultural resources, and utilities and service systems. The proposed project would have a less than significant impact to greenhouse gas emissions.

With standard conservation measures and AMMs, the proposed project would have less than significant effects to biological resources, including the California red-legged frog and San Francisco gartersnake. Impacts to potential habitats are considered temporary because the impacted area will be replanted and reseeded with vegetation upon project completion. The proposed project will not impact wetlands and waters of the U.S, riparian habitat, protected and migratory birds, or essential fish habitat.

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

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Table of Contents

List of Figures

Chapter 1 Proposed Project

1.1 Project Information

The California Department of Transportation (Caltrans) proposes to improve the day-to-day traffic management capabilities for Caltrans, cities, and first responders by installing wireless detection systems, variable message signs (VMS), Midwest Guardrail System (MGS), and Maintenance Vehicle Pullouts (MVP) at 10 locations on State Route 1 in San Mateo county from Miramontes Point Road Intersection to Clarinada Avenue Undercrossing. The total length of the project is approximately 20.9 miles. The Project Vicinity Map is shown below in Figure 1.

Project Location Map

Project Locations

SM 1 Bluetooth TOS
SM-1-PM-26.0-47.8
2K880 / 0417000040

Figure 1 Project Vicinity Map

1.2 Background

The project is located along a 20.9-mile stretch of State Route 1, starting at Miramontes Point Road Intersection to Clarinada Avenue Undercrossing (post mile 26.4-R47.3). State Route 1 is a major north-south state highway that runs along the Pacific Ocean coastline for 656 miles. Along the San Mateo County coastline, from the beginning of the county line to the City of Pacifica, State Route 1 is known as the "Cabrillo Highway" and operates as a conventional highway. The route provides primary access to several coastal communities as well as access to beaches, parks, and other attractions along the coast, making it a popular route for tourists.

The portion of State Route 1 within the project limits varies from a two- to four-lane divided highway with no High Occupancy Vehicle (HOV) lanes.

Despite having no sidewalks or dedicated bike lanes, this portion of State Route 1 is part of the Pacific Coast Bicycle Route from Mexico to Canada and is also part of the California Coastal Trail.

Regional Planning

The Metropolitan Transportation commission (MTC) functions as both the state-designated Regional Transportation Planning Agency (RTPA) and federally designated Metropolitan Planning Organization (MPO). As such, it is responsible for the update of the Regional Transportation Plan (RTP), a financially constrained long-range programming report for the region. Under SB 375, each region in California must develop a Sustainable Communities Strategy (SCS) as part of its RTP. Each SCS must promote walk and bike-friendly mixed-use commercial and residential development that is found close to mass transit, jobs, schools, shopping, parks, recreation, and other amenities. MTC's Plan Bay Area (PBA), adopted in July 2013, serves as the San Francisco Bay Ara's RTP and SCS. MTC is in the process of developing PBA 2040, which will update PBA 2013.

Local Planning

The City/County Association of Governments of San Mateo County (C/CAG) is the designated Congestion Management Agency for San Mateo county. C/CAG is required to prepare and adopt a Congestion Management Program (CMP) on a biennial basis. The CMP identifies strategies to respond to future transportation needs, develops procedures to alleviate and control congestion, and promotes countrywide solutions.

The San Mateo County Transportation Authority administers Measure A funds (the voter-approved half-cent sales tax) for countrywide transportation projects and programs.

San Mateo County's Local Coastal Program (LCP) was approved by the county Board of Supervisors and the California Coastal Commission in

1980. All development in the Coastal Zone requires either a Coastal Development Permit or an exemption from Coastal Development Permit requirements. For a permit to be issued, the development must comply with the policies of the LCP and those ordinances adopted to implement the LCP. San Mateo County amended its LCP policies in 2013.

1.2.1 Existing Environmental Setting

The segment of State Route 1 within the project limits is primarily a semi-rural highway from PM 26.0 to PM 43.1 and freeway from PM R43.1 to PM 47.8. Frequent landslides and erosion along the coast have caused portions of State Route 1 to either be closed for long periods or re-routed entirely. Devil's Slide is a treacherous stretch of roadway between Half Moon Bay and Pacifica and was prone to major landslides that caused road closures. Entering San Mateo County from the south, State Route 1 follows the west coast of the San Francisco Peninsula, passing by marine mammal colonies at Año Nuevo State Park and the historic Pigeon Point Lighthouse, before reaching Half Moon Bay. Between Half Moon Bay and Pacifica, the highway bypasses the Devil's Slide area via the Tom Lantos tunnels, which were opened to traffic in 2013.

1.2.2 Existing Facility

There is little existing traffic monitoring along State Route 1 although the main intersections along this section of the highway of the project are signalized. The traffic volumes of State Route 1 from PM 26.0 to PM R47.27 where the proposed project is located has a variable Annual Average Daily Traffic (AADT) volume between 14,000 and 70,000 vehicles per day according to the 2015 Traffic Volumes on California State Highways.

State Route 1 generally traverses a major recreational area and provides access to beaches, state parks and national recreation areas.

Bicycle, transit and park and ride facilities are not included as part of this project.

1.3 Purpose and Need

The purpose of this project is to improve the day-to-day traffic management capabilities for Caltrans, cities and first responders and provide travel information to the traveling public on State Route 1. This project will improve traffic operations, public safety system performance, and minimize the duration and impacts of non-recurring congestion due to incidents and roadway and tunnel closures.

This project is needed because most of State Route 1 in this area does not have traffic management systems. This limits Caltrans' ability to quickly and effectively manage State Route 1 and inform the traveling public of

roadway conditions and closures. It is challenging for the traveling public to make informed real-time route decisions and avoid potential impacts of closures along State Route 1 and the Tom Lantos Tunnel in Pacifica.

1.4 Project Funding and Programming

This project is funded by the State Highway Operation and Protection Program (SHOPP) for the fiscal year 2021/2022 in Transportation Management (201.315) for a total project cost of $2,408,000.

1.5 Project Description

The proposed scope of work includes the installation of six wireless detection systems (WDS) in existing equipment cabinets or on existing structures, five ground-mounted variable message signs (VMS) onto wood poles, adding Midwest Guardrail System where it does not currently exist, and adding maintenance vehicle pullouts (MVP) to assist with equipment maintenance.

The installation of WDS modules involves work on new or existing poles and connecting to power using existing or new utility cabinets. The installation of new poles will require excavation and new concrete foundations. The new poles typically require about 1 cubic yard (CY) of excavation. WDS sensors would be installed predominately in paved areas.

The work scope of VMS involves installation of new VMS on wood poles and connecting to existing cabinets for power. All VMS would be installed with ground mounts on wood poles. Controller cabinet and service cabinets will be installed near the signs for the locations that do not have existing cabinets to utilize. The new cabinets will require excavation and new concrete foundations. There would be new pull boxes and wood poles for the VMS. The number of pull boxes would be finalized during the design phase of the project, but there are an estimated 2 pull boxes per each VMS location. The VMS foundations would require two holes; each hole would be 12 inches in diameter and 6 feet in depth. The soil would remain onsite.

Work will be done on existing Changeable Message Signs (CMS) only at Location 8 at the Tom Lantos Tunnels. The work involves modifying the software to enable the sign to display travel time.

MVPs would be installed at locations 5 and 6. MVPs provide additional space for safe exit off of the freeway mainline, providing safer and enhanced maintenance worker access. MVPs reduce worker exposure to high speed traffic. MVPs will be within Caltrans' right of way. Final dimensions of the MVPs will be determined during the design phase of the

project. Backfill for MVPs would be Hot Mix Asphalt (HMA) type A and aggregate base (AB). Poles and cabinet foundations are concrete.

MGS will be installed at several locations (locations 2,5,6 9, and 10) most of which have pre-existing MVPs. The MGS is being installed in order to protect the VMS at various locations. MGS will be installed in drilled holes that are 6 inches in diameter and 6 feet deep. MGS is installed to reduce the possibility and severity of possible run-off-road collisions and for worker safety.

Table 1-1 below identifies the construction features involved at each project location and the totals for the entire project.

Table 1-1: List of Locations and Construction Elements

Location	WDS	VMS	MVP	MGS (in feet)
1	1			
2		1		75
3	1			
4	1			
5		1	1	75
6		1	1	75
7	1			
8				
9	1	1		75
10	1	1		100
Total	6	5	2	400 feet

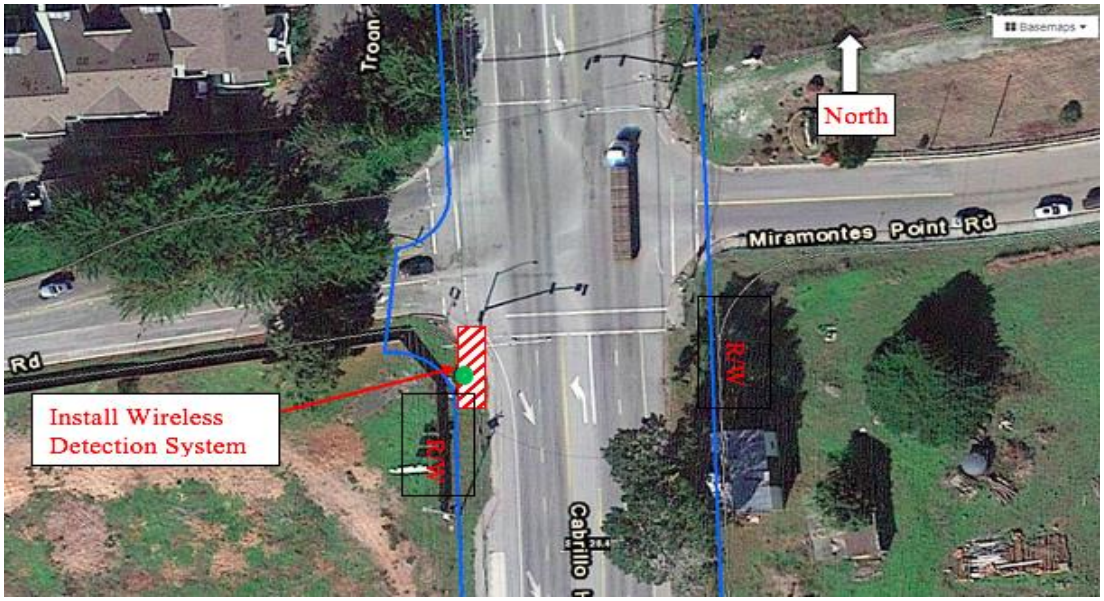
The proposed work for this project will occur at 10 separate locations. Specific details and figures for each location are presented below.

Legend:

Location Footprint*:
Wireless Detection System (WDS):
Maintenance Vehicle Pullouts (MVP):
Midwest Guardrail System (MGS):
Variable Message Sign (VMS):
Right of Way (R/W):

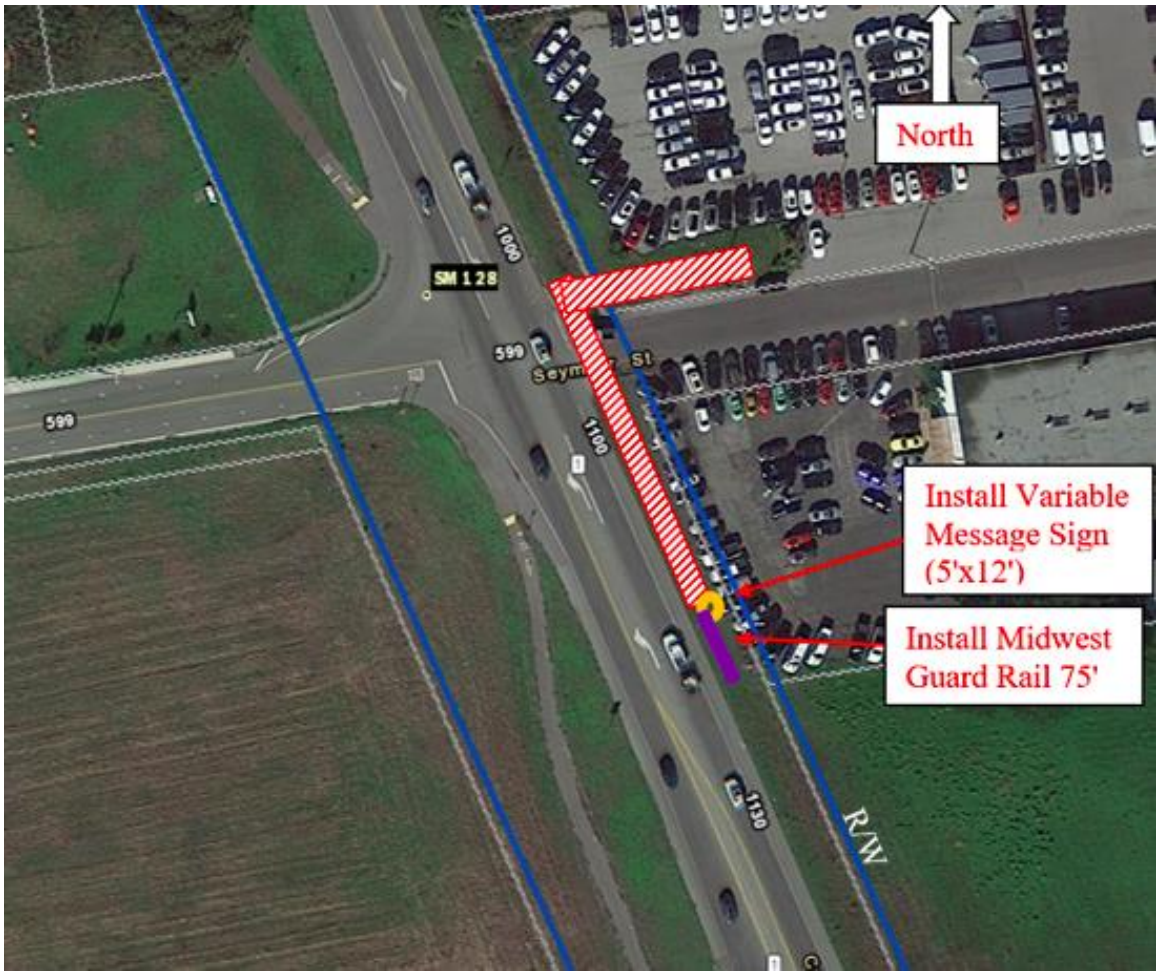
Location 1: PM 26.43 at Miramontes Point Road

The proposed work at this location includes installing WDS modules on an existing pole.



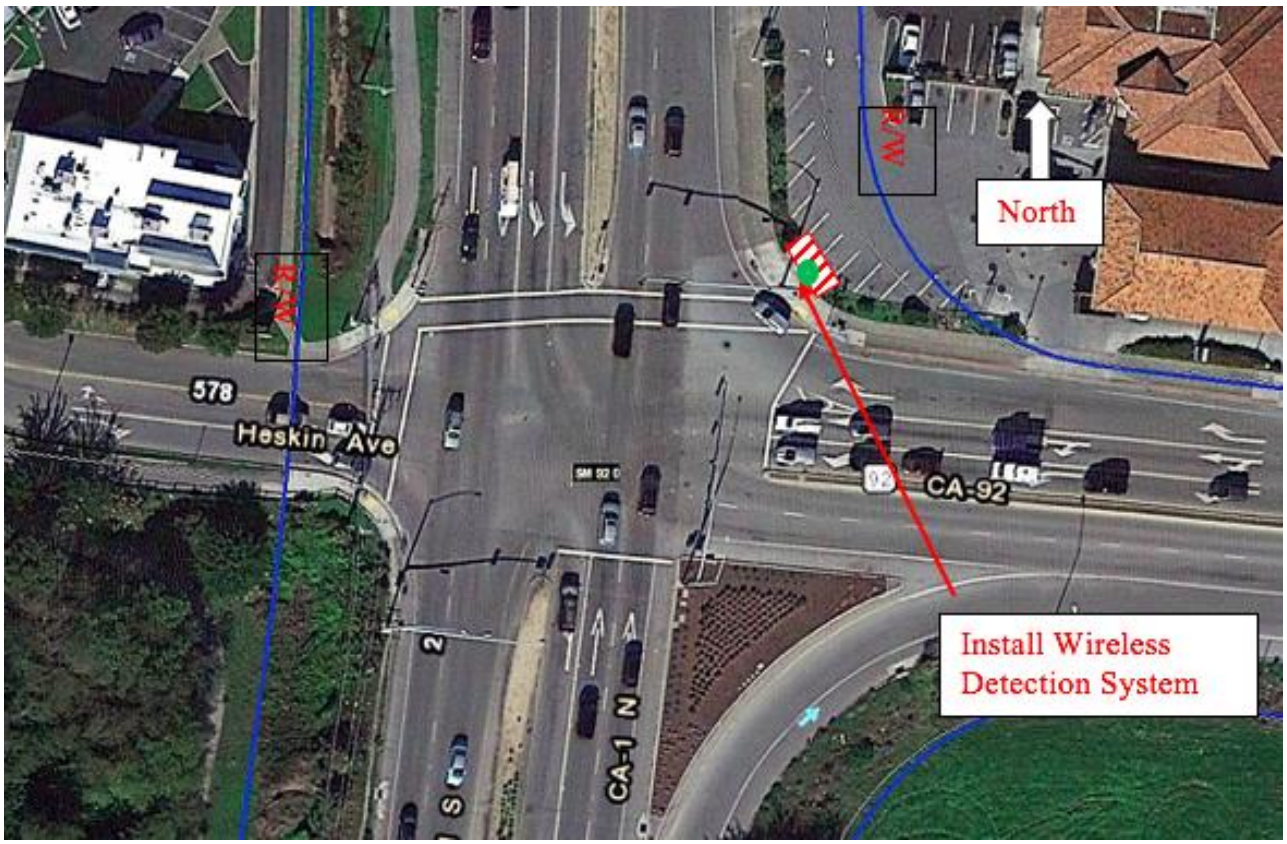
Location 2: PM 27.98 at Seymour Street

The proposed work at this location includes installing VMS and MGS. A controller cabinet and service cabinet will be installed near the sign. Power for the VMS to the existing PG&E pole would likely be supplied by excavating under the road across Seymour Street.



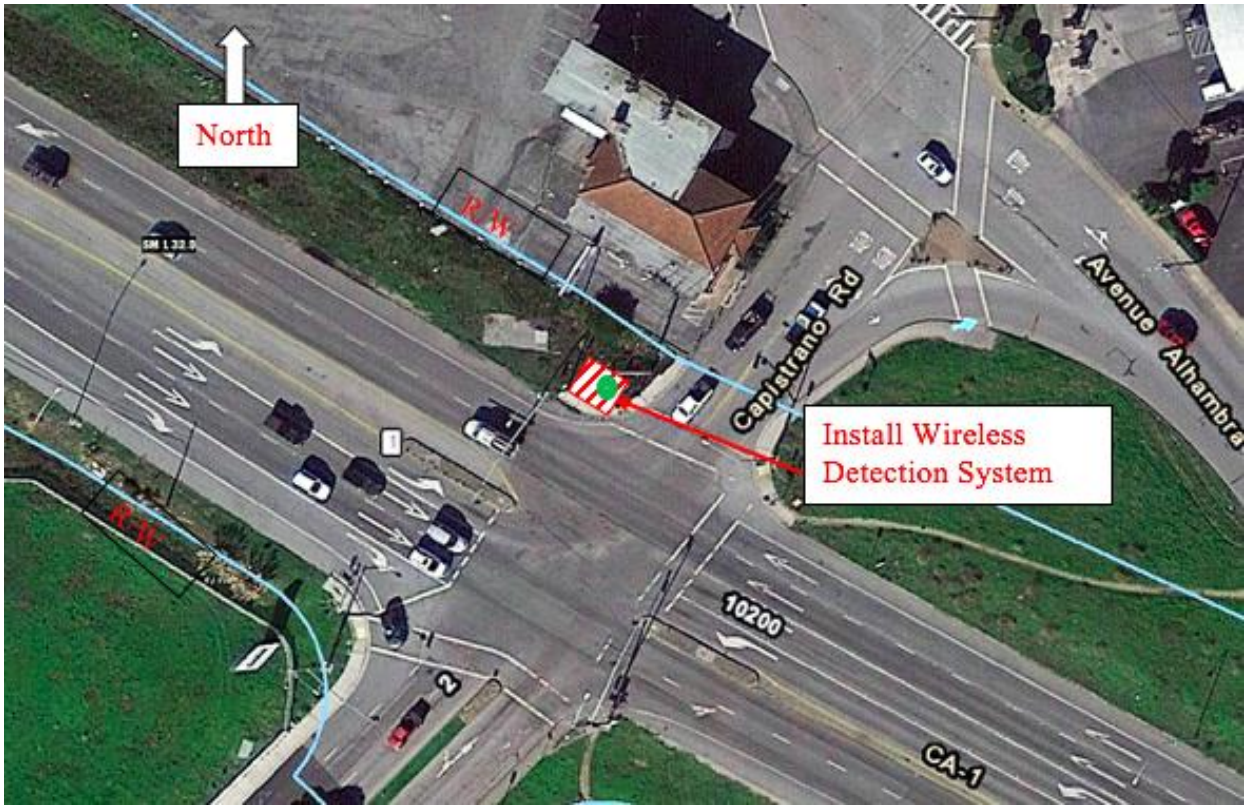
Location 3: PM 29.04 at Seymour Street

The proposed work at this location includes installing WDS modules on an existing signal pole and connecting to existing power.



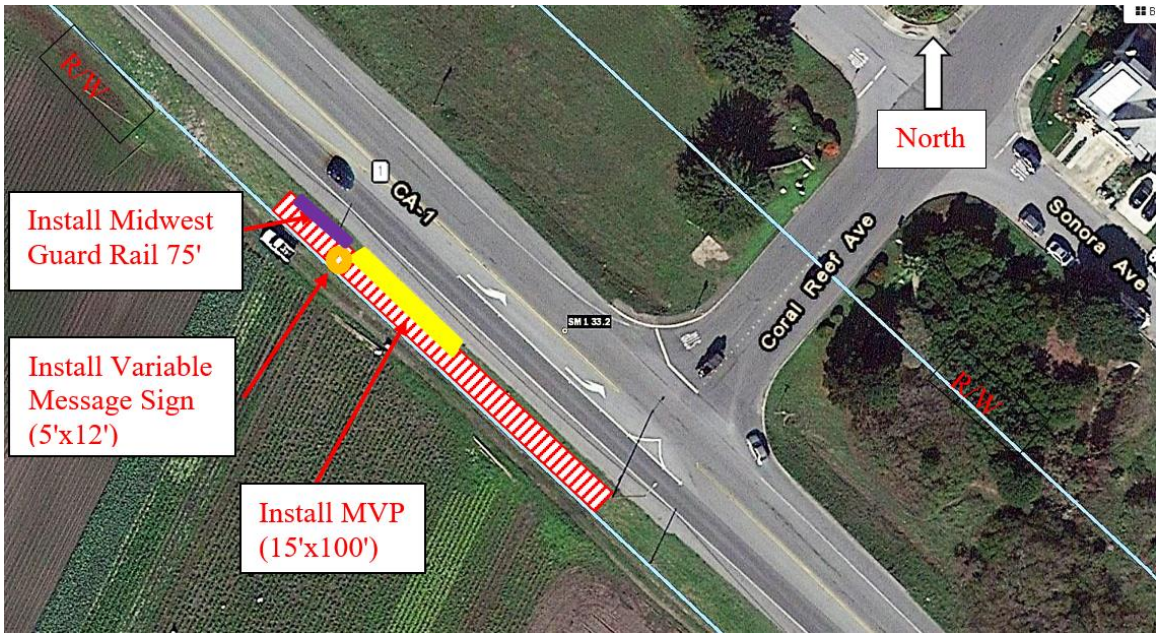
Location 4: PM 32.86 at Capistrano Road

The proposed work at this location includes installing WDS modules to a new pole and connecting to the power using an existing utility cabinet.



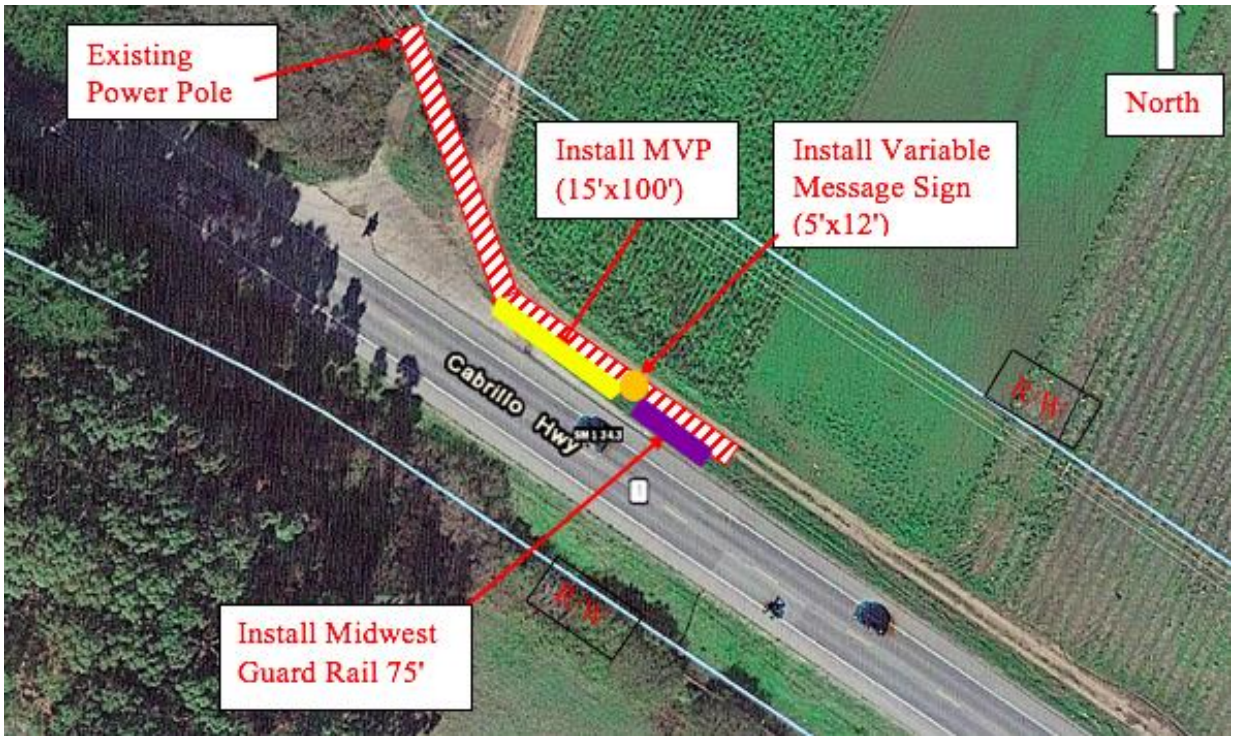
Location 5: PM 33.22 at Coral Reef Avenue

Work at this location includes a VMS installed on a wooden post. MVP and 75 feet of MGS will be installed at this location. Power for VMS would be provided by an adjacent PG&E pole. A controller cabinet and a service cabinet near the sign would be installed.



Location 6: PM 34.30

Work at this location includes a VMS, MVP and 75 feet of MGS. Power for VMS would be via a nearby existing power pole. A controller cabinet and service cabinet near the sign would be installed.

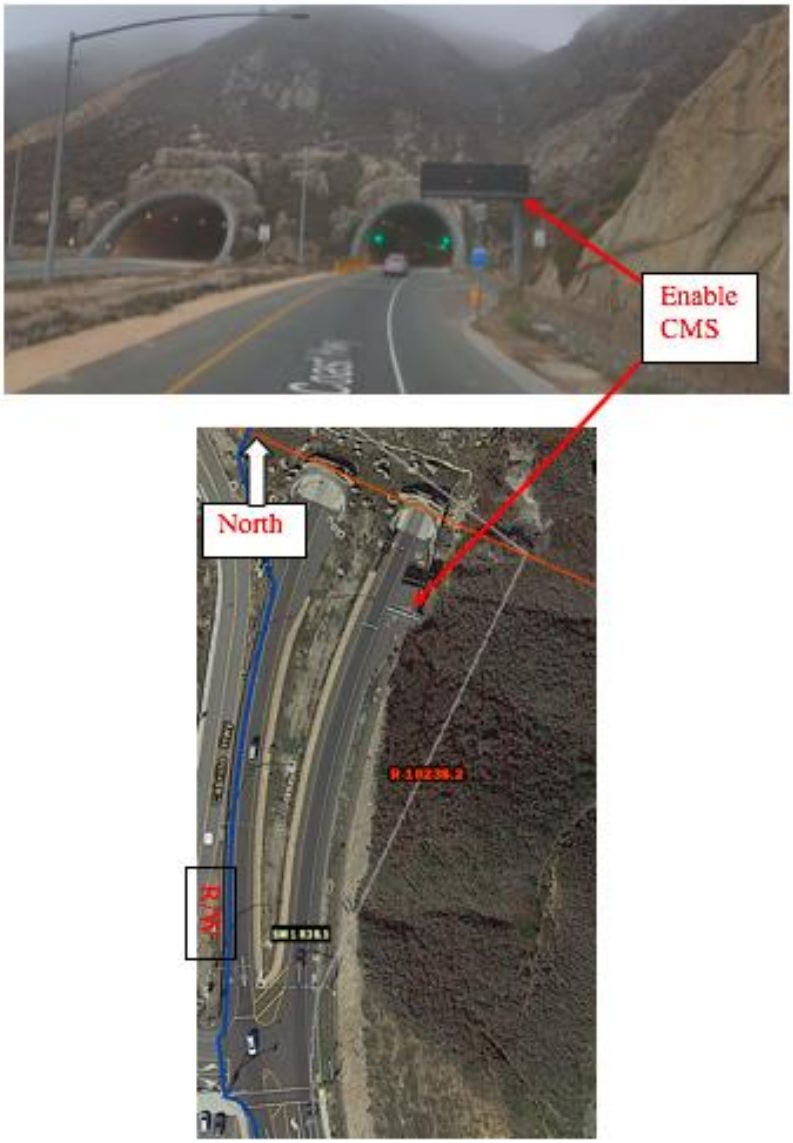


Location 7: PM R38.48 at Tom Lantos Tunnels

The proposed work at this location includes installing WDS modules on an existing pole and connecting to power using an existing utility cabinet.

Location 8: PM R39.36 at Tom Lantos Tunnels

The proposed equipment installation of new software at this location is to enable the existing operating Changeable Message Sign (CMS) to display travel time at the Tom Lantos Tunnels.

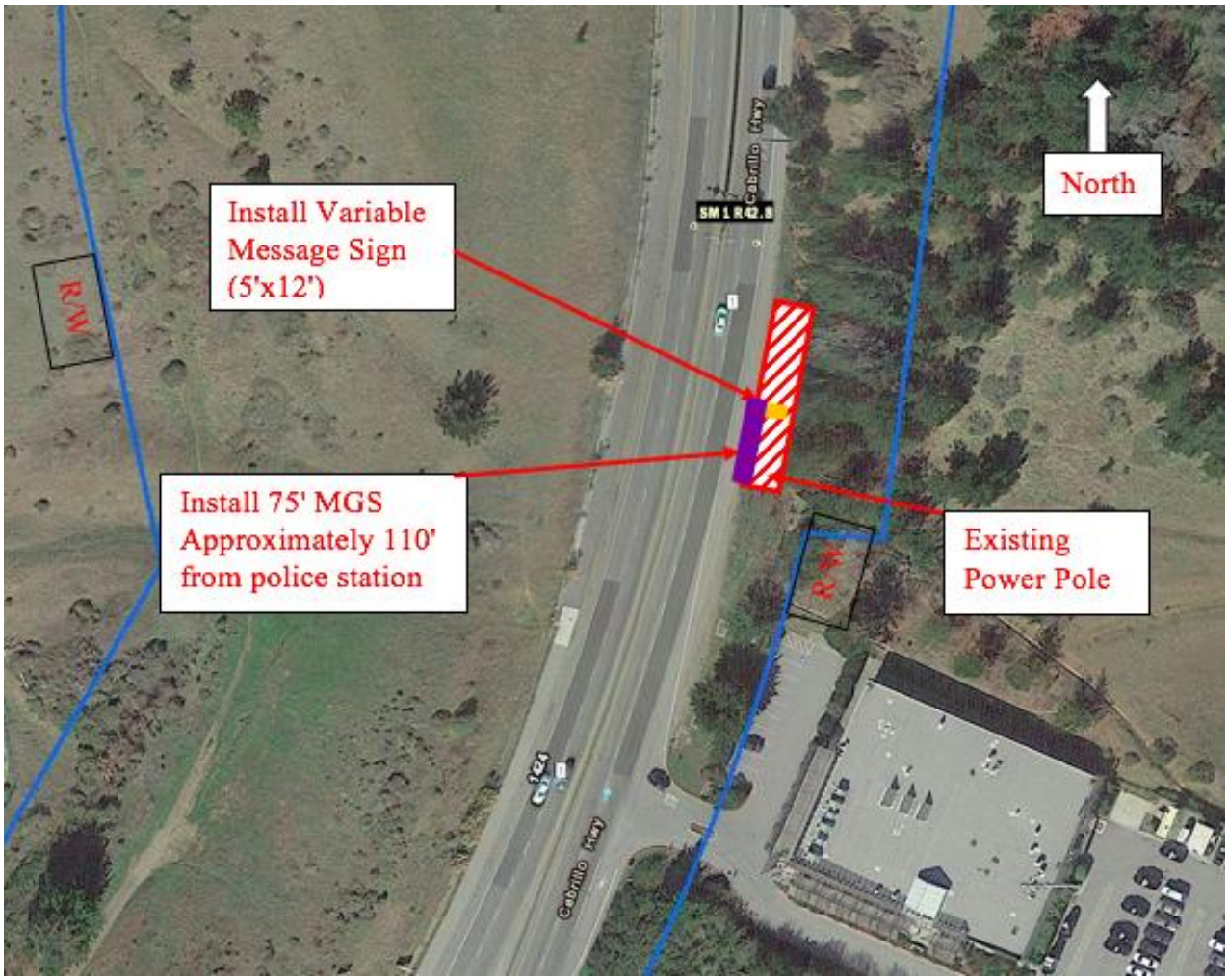


Location 9: PM R42.58 at Reina del Mar Avenue

Work at this location entails installing WDS modules on an existing signal pole and connecting to existing power.

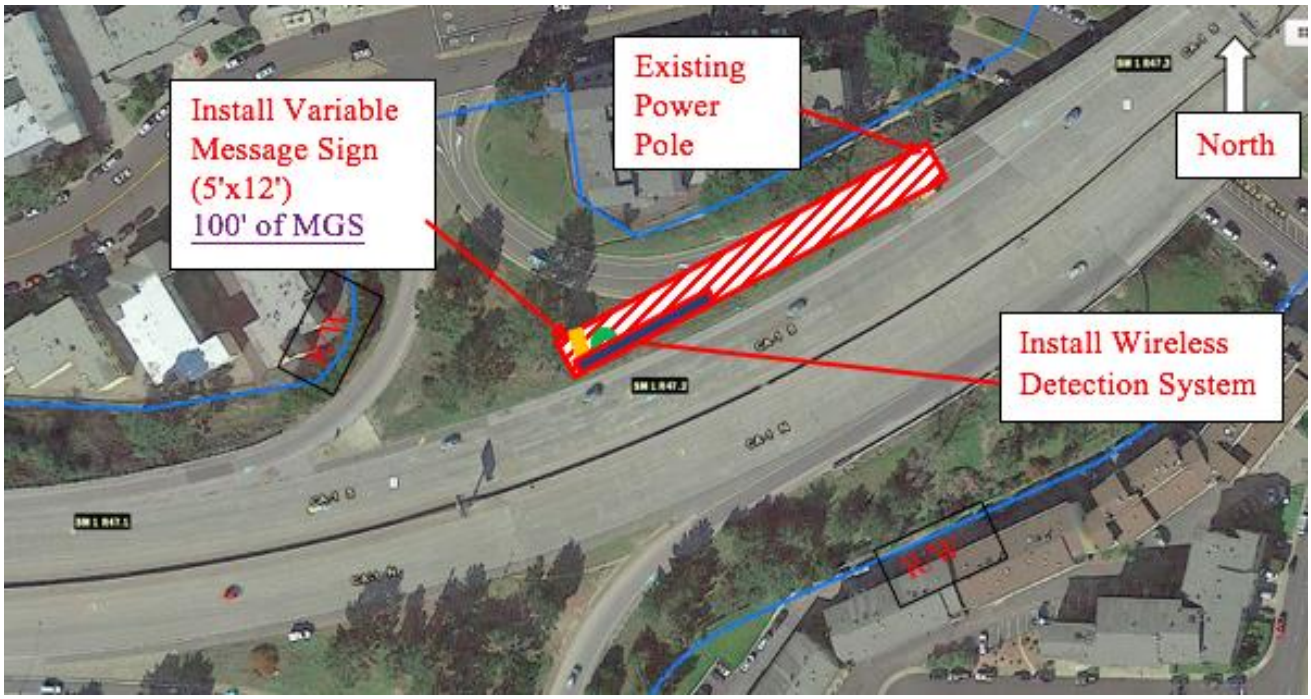
PM R 42.77 (Location 9 continued)

Work at this location includes the installation of a VMS on wood poles and MGS. Power for VMS would be provided at existing power utility cabinet. A controller cabinet and service cabinet near the sign would be installed as well.



Location 10: PM R47.20 at Clarinada Avenue On-Ramp

The proposed work at this location includes installing VMS on wooden poles and connecting to power using an existing utility cabinet. A controller cabinet and service cabinet would be installed. In addition, WDS modules would be installed on a new pole. About 100’ of MGS would be installed to protect these elements.



1.5.1 Excavation

Total excavation is 100 cubic yards for the 2 Maintenance Vehicle Pullouts and the excavation for the VMS, MGS, poles and cabinet foundations. Any excess soil would be removed according to Caltrans standards for the proper handling and disposal of any excess soil. If necessary, a disposal site would be determined based on the contamination level of the soil.

There will be trenching along the shoulders to install conduits for power and communications at all locations that include VMS and new poles. Typical excavation depth for trenching would be 12 inches under pavement and 30 inches under the soil.

1.5.2 Structures

Five VMS will be ground mounted on wooden poles. A total of 400 linear feet of MGS would be installed to protect the VMSs. Locations 2, 5, 6, and 9 would each have about 75’ of MGS installed. Location 10 will have 100' of MGS installed.

1.5.3 Construction Methods
Equipment that will be used includes backhoe, utility truck, semi-truck, small drill rigs, and a paving machine.

1.5.4 Utilities
There would not be utility relocations. No existing utilities have been identified that are in conflict with the work proposed by this project.

1.5.5 Drainage
There are no new drainage features for this project nor would the project impact existing drainage features.

1.5.6 Construction Schedule
Construction is anticipated to take 60 working days to complete. Work will occur during the summer months and during the daytime hours between approximately 8 am and 5 pm.

1.5.7 Access Routes
No access routes will be required for this project. All locations can be fully accessed from existing state right-of-way. There will be lane closures with traffic control.

1.6 Project Features
Project features are design elements and/or standard measures that are incorporated into a project and are intended to reduce environmental effects resulting from proposed project activities. The proposed project contains several standardized project components which are employed on most, if not all, of Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These components are referenced as project features in this chapter as they pertain to different environmental resources, and are separated out from avoidance and minimization measures (AMMs) which directly relate to the impacts resulting from the proposed project. AMMs and mitigation measures are discussed separately within each environmental section.

1.7 Project Features

Table 1-2: Project Feature Summary

Resource Area	Project Feature Reference	Project Feature
Aesthetics	Feature AES-01	Place unsightly materials, equipment storage, and staging features so that they are not visible to neighbors and highway users, to the maximum extent feasible – without impacting existing trees and

Resource Area	Project Feature Reference	Project Feature
		vegetation. If such materials, equipment, and staging features are visible, consider screening or covering items to reduce their visibility.
Aesthetics	Feature AES-02	For permanent storage areas that have been filled to capacity with sediment and debris, the final configuration will conform to natural contours (elevations, profile, and gradient) of surrounding terrain and native plant species will be established that are specific to the project location and comprise a diverse community of woody and herbaceous plants.
Aesthetics	Feature AES-03	Should nighttime work be necessary, all lighting will be directed downwards and towards the active construction area.
Aesthetics	Feature AES-04	Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas. Lighting per portable tower light will not exceed 2,000 lumens. To the extent practicable, personnel will only use enough coverage to light the work areas.
Air Quality	Feature AIR-01	All internal-combustion-engine-driven equipment will be equipped with manufacturer-recommended intake and exhaust mufflers that are in good condition and appropriate for the equipment.
Air Quality	Feature AIR-02	Fuel efficiency from construction equipment will be improved by minimizing idling time and maintaining construction equipment in proper working condition.
Biological Resources	Feature BIO-01	At least 30 days prior to the onset of activities, the name(s) and credentials of

Resource Area	Project Feature Reference	Project Feature
		the biologist(s) who will conduct preconstruction surveys and relocation activities for listed species will be submitted to the appropriate regulatory agency or agencies (National Marine Fisheries Service [NMFS], U.S. Fish and Wildlife Service [USFWS] and/or California Department of Fish and Wildlife [CDFW]) for approval. No project activities will begin until the biologist(s) has received written approval from the agencies to conduct the work. An agency-approved biologist (hereafter referred to as the Approved Biologist) will be present on-site during any construction activities that have potential to impact listed species. Through communication with the Resident Engineer or designee, the Approved Biologist may stop work if that is deemed necessary for any reason to protect listed species and will advise the Resident Engineer or designee on how to proceed accordingly.
Biological Resources	Feature BIO-02	Environmentally sensitive areas will be fenced to prevent encroachment of equipment and personnel into wetlands, riparian areas, stream channels and banks, and other sensitive habitats. The final project plans will show known locations where ESA fencing will be installed and will provide installation specifications. Environmentally sensitive areas identified during preconstruction surveys by the Approved Biologist will be fenced in communication with and as directed by the Resident Engineer. The bid solicitation package's special provisions will clearly describe acceptable fencing material and prohibited construction-related activities, including vehicle operation, material and equipment storage, construction of access

Resource Area	Project Feature Reference	Project Feature
		roads, and other surface-disturbing activities within ESAs.
Biological Resources	Feature BIO-03	Prior to ground-disturbing activities, an Approved Biologist will conduct a worker environmental awareness training for all construction personnel. At a minimum, the training will include a description of special-status species, migratory birds, and their habitats; how the species might be encountered within the project area; an explanation of the status of these species and their protection under federal and State regulations; the measures to be implemented to conserve listed species and their habitats as they relate to the work site; boundaries within which construction may occur; and how to best avoid the incidental take of listed species. The field meeting will include topics on species identification, life history, descriptions, and habitat requirements during various life stages. Emphasis will be placed on the importance of the habitat and life stage requirements within the context of project maps showing areas where avoidance and minimization measures (AMMs) are to be implemented. The training will include an explanation of applicable federal and State laws protecting endangered species as well as the importance of compliance with Caltrans and various resource agency conditions.
Biological Resources	Feature BIO-04	When listed species are present and it is determined that they could be injured or killed by construction activities, the Approved Biologist in coordination with the appropriate state and Federal wildlife agencies will identify appropriate methods for capture, handling, exclusion, and relocation of individuals that could be affected.

Resource Area	Project Feature Reference	Project Feature
Biological Resources	Feature BIO-05	The Approved Biologist, with appropriate handling permits or licenses from state and/or Federal wildlife protection agencies as required, will conduct, monitor, and supervise all capture, handling, exclusion, and relocation activities; ensure that sufficient personnel are available for safe and efficient collection of listed species; and ensure that proper training and any required permitting or licensing is current for personnel identifying, handling, and conducting safe capture of listed species.
Biological Resources	Feature BIO-06	Where listed species cannot be captured, handled, excluded, or relocated, actions that could injure or kill individual organisms will be avoided or delayed until the species leaves the affected area or the organism reaches a stage at which it can be captured, handled, excluded, or relocated
Biological Resources	Feature BIO-07	If any endangered plant is found, ESA fencing will be placed, to the extent practicable, around the area to ensure the areas will be avoided. Caltrans will contact the appropriate agency within one working day upon discovery of an endangered plant.
Biological Resources	Feature BIO-08	If active nests of migratory birds are present within the project area, work within 50 feet of the nest of passerine species or 300 feet of raptor species will be avoided and monitored.
Biological Resources	Feature BIO-09	Exclusion methods will be used to prevent migratory birds from nesting and roosting within the project area (February 1 to September 30).
Biological Resources	Feature BIO-10	Vegetation clearing will be scheduled to occur outside the bird nesting season of February 1 to September 30 to the greatest extent feasible to avoid impacts on nesting birds. If vegetation clearing is unavoidable

Resource Area	Project Feature Reference	Project Feature
		during the nesting season, surveys for nesting birds will be conducted before clearing begins. Prior to vegetation clearing, a preconstruction survey will be conducted by a qualified wildlife biologist to identify and report to the Resident Engineer the potential presence of any protected species or nesting bird in the work area. If a protected species or active nest is observed in the work area, appropriate measures will be taken in accord with the project's issued environmental permits and authorizations, and/or in coordination with the appropriate wildlife regulatory agency as required prior to work. A qualified wildlife biologist will be present on-site during vegetation removal to monitor for protected species and migratory birds, to implement appropriate measures to avoid or minimize impacts during the work, and to verify that clearing is done according to the contract's special provisions and permits.
Biological Resources	Feature BIO-11	Portions of the project footprint that are suitable dispersal habitats for the California red-legged frog (Rana draytonii) and other protected amphibian species will be surveyed prior to initiating ground-disturbing activities to identify refuge habitat or other potential sites that might be occupied by those species.
Biological Resources	Feature BIO-12	An Approved Biologist will be present during initial ground-disturbing activities in suitable habitats for protected amphibian species to monitor vegetation removal and the removal of the top 12 inches of topsoil at all project locations. If a listed amphibian is discovered during the initial ground-disturbing activities, work will be stopped immediately, and the biologist will contact CDFW and/or USFWS within 1 working

Resource Area	Project Feature Reference	Project Feature
		day. The biologist, in consultation with CDFW and USFWS, will use adaptive management to modify, as necessary, project activities to avoid or minimize effects on listed species.
Biological Resources	Feature BIO-13	If an individual protected amphibian is observed during construction after initial ground-disturbing activities, work at that location will be temporarily halted while the animal leaves the work site on its own accord or is relocated by the agency approved biologist.
Biological Resources	Feature BIO-14	All vegetated areas outside of the permanent impact boundaries and temporary impact boundaries will be delineated as ESAs.
Biological Resources	Feature BIO-15	ESA fencing will be installed to outline and protect nonimpacted wetland and water areas prior to the start of construction. The ESA fencing will be delineated on the final plans and will remain on-site until job completion
Biological Resources	Feature BIO-16	Encroachment into ESAs will not be allowed without prior approval an Approved Biologist(s) being present. This includes staging and operation of heavy equipment or casting of excavation materials.
Biological Resources	Feature BIO-17	Prior to construction, Caltrans will conduct a survey to identify and mark trees for removal and trees that will remain during construction. Whenever possible, trees will be trimmed rather than removed. For trees that will remain, those trees and their critical root zone will be marked with bright orange polypropylene ESA fencing that can be avoided during construction to the greatest extent feasible in temporary impact areas and along the edge of the project footprint.

Resource Area	Project Feature Reference	Project Feature
Biological Resources	Feature BIO-18	Work will not be performed in the critical root zone of any tree to be retained without consultation with an International Society of Arboriculture (ISA)-certified arborist. If trees are damaged during construction and become unhealthy or die, the damaged tree(s) will be removed and replaced.
Biological Resources	Feature BIO-19	Caltrans will develop and implement a revegetation plan to enhance and improve areas where riparian vegetation is removed or disturbed.
Biological Resources	Feature BIO-20	Where tree removal is required to support construction activities, native tree species with a diameter at breast height greater than 4 inches that are removed will be replanted in kind at a 3 to 1 ratio.
Biological Resources	Feature BIO-21	Upon project completion, all temporarily disturbed previously vegetated areas will be contoured to preconstruction grades, where appropriate, and replanted with appropriate native vegetation, as described in the revegetation plan.
Biological Resources	Feature BIO-22	Plant species identified by the California Invasive Plant Council (Cal-IPC) as “high” (e.g., poison hemlock [Conium maculatum], jubata grass [Cortaderia jubata], French broom [Genista monspessulana], English ivy [Hedera helix], cape ivy [Delairea odorata], and Himalayan blackberry [Rubus ursinus]) will be removed from the project footprint by bagging vegetative parts of the plant; removing the entire root system, if possible; and replacing disturbed areas with native vegetation that will establish before the invasive species.
Biological Resources	Feature BIO-23	Storage areas will not disturb wetlands or other special status plant communities.
Biological Resources	Feature BIO-24	Staging and parking areas will be located in designated areas a minimum of 150 feet

Resource Area	Project Feature Reference	Project Feature
		from the ordinary high water mark (OHWM), as specified by the project biologist in coordination with the Project Engineer.
Biological Resources	Feature BIO-25	Where necessary, native topsoil will be removed and stored in a designated location as specified by the project biologist in coordination with the Project Engineer until project completion.
Biological Resources	Feature BIO-26	Equipment will be operated during the least sensitive diurnal, seasonal, and meteorological periods relative to the potential effects on listed species and habitat if feasible.
Biological Resources	Feature BIO-27	Equipment will not operate in ESAs identified in project plan sheets and contract specifications or as identified by the Approved Biologist and Resident Engineer.
Biological Resources	Feature BIO-28	When nighttime work cannot be avoided, disturbance of listed species will be avoided and minimized by restricting substantial use of temporary lighting to the least sensitive seasonal and meteorological windows.
Biological Resources	Feature BIO-29	Lights on work areas will be shielded and focused to minimize lighting of listed-species habitat.
Biological Resources	Feature BIO-30	Maintenance and construction activities will be avoided at night to the extent practicable.
Cultural Resources	Feature CUL-01	If previously unidentified cultural resources or human remains are unearthed during construction, work should be halted within a 60-foot radius until a qualified archaeologist can assess the significance of the discovery
Hydrology/ Water Quality	Feature HYD-01	Temporary material storage piles (e.g., RSP) will not be placed in the 100-year floodplain during the rainy season (October 15 through May 31), unless material can be relocated within (i.e., before) 12 hours of the onset of a storm.

Resource Area	Project Feature Reference	Project Feature
Hydrology/ Water Quality	Feature HYD-02	Perimeter control methods (e.g., fiber rolls, silt fences and other erosion and sediment control measures) will be installed per a Regional Water Quality Control Board (RWQCB)-accepted Storm Water Pollution Prevention Plan (SWPPP) and the Caltrans BMP manual. Fiber rolls and silt fences will be installed along or at the base of slopes during construction to capture sediment.
Hydrology/ Water Quality	Feature HYD-03	Concrete wastes will be collected in washouts, and water from curing operations will be collected and disposed of properly. Neither will be allowed into watercourses.
Hydrology/ Water Quality	Feature HYD-04	Excavated material will not be stored or stockpiled in the channel. Any excavated material that will not be placed back in the channel or on the bank after construction will be end-hauled to an approved disposal site.
Hydrology/ Water Quality	Feature HYD-05	Excavated material will not be stored or stockpiled in creek channels. Any excavated material that will not be placed back in the channel or on the bank after construction will be end-hauled to an approved disposal site. Temporary stockpiling on the embankment will be avoided.
Hydrology/ Water Quality	Feature HYD-06	Graded areas will be protected from erosion using a combination of silt fences and fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (e.g., jute or coir) will be used as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used in the project area.
Hydrology/ Water Quality	Feature HYD-07	Equipment will be inspected daily for leaks and completely cleaned of any external petroleum products, hydraulic fluid,

Resource Area	Project Feature Reference	Project Feature
		coolants, and other deleterious materials prior to operation.
Hydrology/ Water Quality	Feature HYD-08	A Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed for each project that requires the operation of construction equipment and vehicles. The SPCC Plan will be kept on-site during construction, and the appropriate materials and equipment will also be on-site during construction to ensure the SPCC Plan can be implemented. Personnel will be knowledgeable in the use and deployment of the materials and equipment so response to an accidental spill will be timely.
Hydrology/ Water Quality	Feature HYD-09	Maintenance and fueling of construction equipment and vehicles will occur at least 50 feet from the creek's ordinary high water mark or the edge of ESAs (e.g., wetlands, waters, and riparian habitat)

1.8 Permits and Approvals

Table 1-3 summarizes the permits anticipated for the proposed Project by the respective agencies as well as permit status. Approval of project funding is required by the California Transportation Commission board for each phase of the Project.

Table 1-3 Required Permits

Issuing Agency	Permit, Authorization or Agreement	Impacted Resource
U.S Fish and Wildlife Service	Letter of Concurrence	May affect, not likely to adversely affect the California red-legged frog and the San Francisco garter snake
San Mateo County	Coastal Development Permit	Project lies within jurisdiction and placement of signs

Issuing Agency	Permit, Authorization or Agreement	Impacted Resource
		may have visual impacts
City of Half Moon Bay	Coastal Development Permit	Project lies within jurisdiction and placement of signs may have visual impacts
City of Pacifica	Coastal Development Permit	Project lies within jurisdiction and placement of signs may have visual impacts

Chapter 2 California Enviornmental Quality Act (CEQA) Evaluation

The proposed project by Caltrans is subject to state environmental review requirements. Project documentation has been prepared in compliance with CEQA. Caltrans is the lead agency under CEQA. This chapter evaluates potential environmental impacts of the proposed project, as described in Chapter 1 as they relate to the CEQA checklist to comply with State CEQA Guidelines (Title 14 California Code of Regulations, Division 6, Chapter 3, Section 15091.

2.1 CEQA Environmental Checklist

This checklist (presented at the beginning of each resource section below in the form of a table listing the pertinent questions applicable to the resource and four columns where the degree of impact is indicated) identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, technical studies performed in connection with the project 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 checklist are related to CEQA 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 below; see Chapter Section 1.6 for a detailed discussion of these features then add All proposed measures are provided in Appendix D.

Table 2-1 Environmental Factors Potentially Affected

X	Aesthetics		Agriculture and Forestry		Air Quality
X	Biological Resources		Cultural Resources		Energy
	Geology/Soils		Greenhouse Gas Emissions	X	Hazards and Hazardous Materials
	Hydrology/Water Quality		Land Use/Planning		Mineral Resources

	Noise		Population/Housing		Public Services
	Recreation		Transportation/Traffic		Tribal Cultural Resources
	Utilities/Service Systems		Wildfire		Mandatory Findings of Significance

2.1.1 Aesthetics

CEQA Significance Determinations for Aesthetics

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?				**x**
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				**x**
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				**x**

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

a), b), c), and d) No Impact – all project locations

A Visual Impact Assessment (VIA) was completed by the Caltrans Office of Landscape Architecture in April 2020 (Caltrans 2020a). The findings of the VIA are analyzed as they apply to CEQA in this section. This project will be compatible with the existing visual character of State Route 1. The Visual Quality of the existing corridor is moderate-low to moderate-high due to its coastal setting. The project corridor has a high degree of vividness, though much of the developed detail along its length is not memorable.
The project will not have a substantial adverse effect on a scenic vista or substantially damage scenic resources including trees, rock outcroppings, or historic buildings within the State Scenic Highway and will not substantially degrade the existing visual character or quality of public views of the site and surroundings. There are two locations (locations 5 and 6) where the proposed message signs and metal beam guardrail would constitute new elements in areas relatively free of such roadside features. While noticeable, the signs and MGS should not substantially degrade the visual character and quality or affect viewers' ability to see rural landscape beyond. This project will not create a new source of substantial light or glare.

Location 1: PM 26.43 at Miramontes Point Road

At this location the work will utilize existing utility cabinets so the visual impact is expected to be low.

Location 2: PM 27.98 at Seymour Street

Both highway travelers and highway neighbors are anticipated to have a moderate to low response to the proposed changes. The new elements will be noticeable; however, they will be framed within a low value view and are elements typical for developed commercial areas. Any resulting visual impact is expected to be from moderate-low to low.

Location 3: PM 29.04 at Seymour Street

At this location the work will utilize existing utility cabinets so the visual impact is expected to be low.

Location 4: PM 32.86 at Capistrano Road

The work will utilize existing utility cabinets at this location so the visual impact is expected to be low.

Location 5: PM 33.22 at Coral Reef Avenue

Visual impact at this location is expected to be moderate to the local residences due to the addition of these elements into otherwise undeveloped areas. These new elements will initially stand out as they are placed in open areas where no other similar elements are located. The majority of the visual impact will be to the local residences as they exit onto SR 1 from Coral Reef Avenue. There will likely be a low visual impact for the traveling public as there will be little impact to the existing character. Overall visual impact is considered moderate-low.

Location 6: PM 34.30

Visual impact at this location is expected to be moderate-low due to the addition of these elements into otherwise undeveloped areas. These new elements will initially stand out as they are placed in open areas where no other similar elements are located, and the new features contrast with the rural agricultural setting at this location.

Location 7: PM R38.48 at Tom Lantos Tunnels

As this work will utilize existing utilities, the visual impact is expected to be low.

Location 8: PM R39.36 at Tom Lantos Tunnels

At this location the work will utilize existing utility cabinets so the visual impact is expected to be low.

Location 9: PM R42.58 at Reina del Mar Avenue

As this work will utilize existing utilities, the visual impact is expected to be low.

Location 9: PM R42.58 at Reina del Mar Avenue

Visual impact at this location is expected to be moderate-low. These new elements will initially stand out as they are placed in an area that is framed by vegetation and appears undeveloped. However, the elements are not unusual for this stretch of the route.

Location 10: PM R47.20 at Clarinada Avenue On-Ramp

As this work is with an existing urban setting, the visual impact is expected to be low.

Avoidance and Minimization Measures

Aesthetic avoidance and minimization measures would be implemented to reduce potential effects on environmental resources. These measures would include minimizing the area of impact to the maximum extent feasible.

AES-1: Protect mature vegetation to the maximum extent feasible in order to preserve the scenic quality of the existing landscape.

AES-2: Plan contractor staging and operations to protect and preserve naturalized annual grassland and sporadic shrubs to the maximum extent feasible.

AES-3: After construction, treat areas cleared for contractor access and trenching operations with appropriate erosion control measures where required.

AES-4: Construction activities shall limit all construction lighting to within the area of work and avoid light trespass in residential areas through directional lighting, shielding, and other measures as needed.

AES 5- During construction operations, unsightly material and equipment in staging areas shall be placed where they are less visible and/or covered where possible.

2.1.2 Agriculture and Forest Resources

CEQA Significance Determinations for Agriculture and Forest Resources

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

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
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?				**x**
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				**x**
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)),				**x**

timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
d) Result in the loss of forest land or conversion of forest land to non-forest use?				**x**
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?				**x**

a), b), c), d), and e) No Impact – all project locations

All project locations are in Urban and Built-Up Land areas as seen in the San Mateo County Important farmland 2016 map. The project at all locations would not convert farmland to non-agricultural use. The project footprint does not contain land under the Williamson Act and none of the project locations are zoned as forest land, timber land, or timberland production. There will be no loss or conversion of forest land to non-forest land, or any other changes to the existing environment that would convert farmland to non-agricultural use or forest land to non-forest use.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.3 Air Quality

CEQA Significance Determinations for Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with or obstruct implementation of the applicable air quality plan?				**x**
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?				**x**
c) Expose sensitive receptors to substantial pollutant concentrations?				**x**
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				**x**

a), b), c), and d) No Impact

The project is exempt from conformity determination per 40 CFR 93.126 as this project does not include any lane additions. The project will not conflict with or obstruct implementation of the applicable air quality plan, result in a cumulatively considerable net increase in any criteria pollutant, expose sensitive receptors to substantial pollutant concentrations, or result in other emissions that adversely affect a substantial number of people. A

construction GHG emission analysis report for this project was submitted on August 27th, 2019. Construction-generated GHG includes emissions resulting from material processing by onsite construction equipment, workers commuting, and traffic delays due to construction.
Emissions will be produced at different rates depending on activities involved at various phases of construction. Carbon dioxide is the most important GHG pollutant due to its abundance. The construction-related GHG emissions were calculated using the Road Construction Emissions Model (RCEM) provided by Sacramento Metropolitan Air Quality Management District. It was estimated that for construction duration of 7 months, the total amount of carbon dioxide produced per construction of the project would be 166.00 tons.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.4 Biological Resources

CEQA Significance Determinations for Biological Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?			**x**	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				**x**
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,				**x**

hydrological interruption, or other means?				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				**x**
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				**x**
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?				**x**

Caltrans has prepared a Natural Environment Study (NES) for the Project. The following text summarizes and analyzes the information presented in the NES.

The Biological Study Area (BSA) encompasses all areas within 200 feet of the project footprint at each location, to account for potential direct and indirect effects of construction activities and human presence. This includes, but is not limited to, impacts due to construction-related noise, vibration, ground disturbance, hydrologic disturbance, vegetation removal, and compaction.

The project locations contain varying amounts of developed lands within their individual BSAs. More importantly, the project footprints are almost entirely within the developed land classification.

Vegetation in the BSA at location 1 is primarily coastal grassland, with low-density residential development in the northwest corner.

Vegetation in the BSA at location 2 is a mix of developed low-density land (residential and commercial) and coastal grassland.

Vegetation in the BSA at location 3 is dominated by human development, primarily from State Route 1 and a commercial development (shopping center). There is a small amount (~0.15 acre) of open land in the southern portion of the BSA. This open land parcel hosts a mix of grasses and shrubs but is mowed regularly, preventing identification of plant species during surveys. Additional unpaved land exists adjacent to SR 1 with some plants consisting of ornamentals, grasses, and weeds.

Vegetation in the BSA at location 4 is a mix of developed and open land, with development, including SR 1, being the dominant land cover.

Vegetation in the BSA at location 5 is a mix of agricultural land, roadway, and undeveloped lands adjacent to SR 1.

Vegetation in the BSA at location 6 is a mix agricultural land, roadway, and undeveloped lands adjacent to SR 1.

Vegetation in the BSA at location 7 consists of roadway (SR1 and adjacent roads and parking lot) and coastal bluff.

No BSA is shown for location 8 as this location has no footprint, and work in this area only consists of activating existing CMS.

Vegetation in the BSA at location 9-1 consists of paved and vegetated areas adjacent to SR 1.

Vegetation in the BSA at location 9-2 consists of paved and vegetated areas adjacent to SR 1.

Vegetation in the BSA at location 10 consists of paved and vegetated areas adjacent to SR 1 and its on and off ramps, as well as local roads and residential development.

Special-status and locally rare species with at least some potential to occur within the BSA include Ornduff's meadowform and protected and migratory birds. Federally and state-listed species with at least some potential to occur within the BSA include the California red-legged frog and the San Francisco garter snake.

a) Less than Significant Impact

Special-Status Plant Species

Sixty-two plant species were evaluated for their potential to occur within the project footprint. Of these, one species, Ornduff's meadowform (*Limnanthes douglasii ssp. ornduffii*), was determined to have some potential in the project footprint based on presence of suitable habitat.

Plant surveys, floristic in nature, were conducted for Ornduff's meadowform, as well as many other special-status species, in 2019 and 2020. No special-status plant species were observed during surveys.

Because no special-status plant species have been observed within the BSA, no impacts to special-status plants are anticipated. The avoidance and minimization measures listed in Section 4.4, including Measure 2 (Environmentally Sensitive Area Fencing), and Measure 18 (Preconstruction/Daily Surveys) will avoid impacts to any protected species. If a special-status plant species is discovered at any point, the biologist will work with the Resident Engineer to determine if it can be protected in-place, re-located within the BSA, or salvaged to be re-planted at the end of project construction. If the special-status plant species is federally or state listed, the appropriate natural resource agencies will be contacted immediately, and consultation will be initiated as necessary.

Special-Status Wildlife Species

The NES identified special-status wildlife species that have the potential or are known to occur in the BSA, which are discussed in the following sections.

Section 1: California Red-Legged Frog (*Rana draytonii*)

There are 22 CNDDB occurrences of the red-legged frog within two miles of the project locations. One occurrence is known to be extirpated and one is presumed extirpated, but the remaining occurrences are all presumed extant.

Red-legged frogs can move overland considerable distances, with known instances of up to 2 miles. Based on this information, it is reasonable to conclude that upland habitat within 2 miles from a known or potential breeding pond is potential red-legged frog dispersal and aestivation habitat.

There are multiple CRLF occurrences documented within 2 miles of location 1. Work at this location will be short-lived in nature and occur during daytime when frogs are unlikely to initiate movements, minimizing potential impacts to the frog.

There are multiple CRLF occurrences documented within 2 miles of location 2. Relatively undeveloped lands occur to the southwest and southeast of location 2, providing a potential route for frogs to disperse

though the BSA. A roadside ditch on the northbound shoulder of SR 1 may further increase connectivity between other open areas and the BSA. The ditch and associated culverts may provide shelter as well as aquatic habitat during portions of the year. The project footprint is, however, subject to regular mowing and its value to frogs is likely restricted to frogs dispersing through the area.

There are multiple CRLF occurrences documented within 2 miles of location 3. Work at this location will be short-lived in nature and occur during daytime when frogs are unlikely to initiate movements, minimizing potential impacts to the frog.

There are multiple CRLF occurrences documented within 2 miles of location 4. Work at this location will be short-lived in nature and occur during daytime when frogs are unlikely to initiate movements, minimizing potential impacts to the frog.

There are multiple CRLF occurrences documented within 2 miles of location 5. The footprint and open land on the opposite side of SR 1 is subject to regular mowing, reducing its value as potential shelter. In addition, the project footprint lacks burrows typical of aestivation habitat and does not contain any aquatic features. Aestivation refers to a state of animal dormancy, similar to hibernation that occurs in the summer. Frogs may use the project footprint while dispersing, though the disturbance of vehicular traffic on SR 1 and agricultural operations adjacent may deter frog individuals from utilizing the project footprint.

There are multiple CRLF occurrences documented within 2 miles of location 6. The area is subject to regular mowing, removing potential cover for the frog. The footprint does not contain aquatic features, but the footprint may be used by frogs dispersing through the area. While SR 1 may constitute a barrier to frog movement into the BSA from the west, the lands to the east are open agricultural fields or undeveloped, and frogs may potentially disperse into the BSA.

There are multiple CRLF occurrences documented within 2 miles of location 7. The baseline disturbance of SR 1 and visitor activity in the adjacent parking lot likely exceeds the disturbance of project work at this location. Overall, the project footprint at location 7 lacks the habitat features needed to support CRLF.

There are multiple CRLF occurrences documented within 2 miles of location 8. No effects are expected as all work will be on pavement and there will be no ground disturbance Overall, nothing would exceed the environmental baseline at this location.

There are multiple CRLF occurrences documented within 2 miles of location 9-1. The baseline disturbance of SR 1 likely exceeds the disturbance of project work at this location. The project does contain a small amount of landscaped vegetation; however, it is unlikely that frogs would use SR 1 as a route for crossing, which is 5 lanes wide at this location.

There are multiple CRLF occurrences documented within 2 miles of location 9-2. While it may be possible that frogs would disperse through the BSA, disturbance would likely deter individuals from entering the footprint. The footprint consists of packed soil and a gravel shoulder, with no burrows or other aestivation features. No aquatic features exist within the project footprint.

There are no CRLF occurrences documented within 2 miles of location 10. CRLF are unlikely to utilize this location and is bounded on all sides by the residential developments of Daly City. Additionally, frogs are likely isolated by SR 1, which at this location consists of four lanes of traffic in each direction with a continuous concrete median barrier. Baseline disturbance at this location is extremely high due to the urban traffic of SR 1. MVP construction represents an incremental increase in developed land when compared to the surrounding environment as a whole.

Locations 7 and 8 are located within federally designated critical habitat for the red-legged frog. However, no impacts to critical habitat are anticipated due to the nature of work at these locations.

By implementing the avoidance and minimization measures, Caltrans anticipates potential direct and indirect effects on the frog will be minimal.

Direct effects to CRLF could occur from the use of heavy equipment, use of hand tools, vegetation removal, fencing installation, soil removal and distribution, MVP, MGS, and VMS construction, as well as other construction-related noise, vibration, and dust. These stressors are unlikely to affect eggs and larvae as red-legged frogs are unlikely to breed within the project footprint and all construction activities will occur outside the CRLF breeding season. However, stressors may affect juvenile or adult CRLF that are feeding, sheltering, or dispersing in the area.

In the event of a summer rainstorm during the construction period, adult CRLF could initiate movements and disperse through the BSA, including through the project footprint. Individuals moving into the BSA could be inadvertently injured or killed by heavy equipment, hand tools, and other construction activities. However, listed species will likely be highly conspicuous under such circumstances.

Noise from construction has the potential to startle or alarm individuals and cause changes in behavior, or even displacement of individuals. Studies suggest that anthropogenic noise has the potential to either increase or decrease calling rates of CRLF (Sun and Narens 2005). Caltrans standard specifications include provisions to ensure noise will not exceed 86 A-weighted decibels at 50 feet from the project site if construction occurs during nighttime hours. No night work is anticipated for this project.

Vibration and soil movement resulting from construction activities have the potential to collapse burrows in which CRLF may be aestivating. Burrows in upland Red-legged Frog habitat have low potential to be present within the project footprints. Studies have concluded that vibrational energy decreases rapidly over distance from the source of disturbance (Attewell and Farmer, 1973, as cited in USFWS, 2007; Caltrans, 2004). The unpaved ground surface within the project footprint is likely compacted to at least 95 percent per industry standards and will absorb construction-related vibration. However, the use of equipment still has a low potential to collapse burrows and could result in mortality, injury, harm, or behavioral changes to CRLF

Other minor direct effects may result from fencing installation and vegetation removal. These stressors may create dispersal barriers or cause minor temporary changes in behavior. The general avoidance and minimization measures, including minimizing vegetation removal and replanting the project footprint will be utilized to avoid and minimize impacts to the Red-legged Frog from these stressors.

A total of 0.284 acre of permanent impacts to potential Red-legged Frog dispersal habitat are anticipated as a result of construction at locations 5 and 6. In addition, 0.126 acre of temporary impacts to potential Red-legged Frog habitat are anticipated as a result of construction at location 2.

The use of heavy equipment, hand tools, vegetation removal, soil movement, and dust could result in increased erosion, sedimentation, or changes in hydrology, any of which could occur either during construction or later in time. Increased sediment loads have the potential to degrade downstream Red-legged Frog breeding habitat if soils enter nearby water features. In addition, construction activities could result in the introduction of chemical contaminants to a work site or staging area, such as oil or toxic chemicals leaking from construction equipment. Construction activities could also spread invasive species present in the BSA to other sites that support Red-legged Frogs. These indirect effects will all be avoided through the Implementation of avoidance and minimization measures for protection of water quality, erosion control (including implementation of

construction site BMPs and the WPCP), and species-specific protection measures. No critical habitat has been designated for CRLF.

The project will not create any new barriers to frog dispersal. MGS and post-mounted VMS are not expected to impact frog movements. MVP locations will convert vegetated land but the MVP width will only be 15 feet and MVPs will be unused by vehicles the majority of the time.

Avoidance, Minimization, and/or Mitigation Measures

As required under the Endangered Species Act, Caltrans will implement reasonable and prudent measures to avoid and minimize potential take of the Red-legged Frog. The general and amphibian-specific measures including Measure 1 (Worker Environmental Awareness Training), Measure 2 (ESA Fencing), Measure 4 (Light Restrictions), Measure 14 (Dry Season Work Window), Measure 15 (Proper Use of Erosion Control Devices), Measure 16 (Entrapment Avoidance), Measure 17 (Biological Monitor), and Measure 18 (Preconstruction/Daily Surveys), will serve to avoid and minimize impacts to this species. Caltrans will implement reasonable and prudent measures to minimize and avoid take of state and federally listed species. Caltrans will restore habitat that is temporarily impacted by construction activities.

Section 2: San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*)

Although habitat for the San Francisco Garter Snake (SFGS) occurs in the BSA, no habitat for SFGS was observed within the project footprint along the shoulders of State Route 1. These portions of the project footprint are made up primarily of paved surfaces, graveled shoulders, and regularly mowed areas that do not provide the physical or biological elements required to support SFGS in any of its life stages. Although no habitat for SFGS occurs within the project footprint, the unlikely possibility exists that wandering SFGS individuals may occur within the project footprint at locations 5 and 6.

No SFGS habitat was observed within the project footprint; therefore, no direct effects to SFGS habitat would occur. Although no habitat for SFGS occurs within the project footprint, the unlikely possibility exists that wandering SFGS individuals may occur in the project footprint because of the proximity of suitable habitat near the project locations. If SFGS are present in the BSA during project construction, take of SFGS may occur in the form of harm, harassment, injury, and mortality of individuals. The sources of take may include crushing or injury from construction-related disturbance, modifications to behavior as a result of disturbances (e.g., noise), or capture and relocation.

Implementation of the proposed general and specific avoidance and minimization measures, preconstruction surveys, and biological monitoring would make the likelihood of encountering or taking SFGS individuals in the BSA during construction negligible.

Project-related indirect effects could include increased erosion, sedimentation, or changes in hydrology to SFGS habitat in the BSA. Any of these detrimental effects could occur either during construction or post-construction. The disturbance of upland areas and removal of vegetation could lead to an increased potential for erosion and sedimentation of soils, affecting SFGS habitats outside the project footprint. For example, construction could result in indirect effects to SFGS aquatic habitat from increased sediment loads, turbidity, and siltation if soils enter nearby water features, thereby adversely affecting SFGS as well as potential prey for SFGS. In addition, construction activities could result in the introduction of chemical contaminants to a work site or staging area, such as oil or toxic chemicals leaking from construction equipment. Construction activities also could introduce invasive plant species to the BSA, or could spread invasive species present in the BSA to other sites that support SFGS. These indirect effects would be avoided through implementation of avoidance and minimization measures for protection of water quality and erosion control and species-specific protection measures. No critical habitat has been designated for SFGS.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the general avoidance and minimization measures will serve to avoid and minimize potential project-related impacts to SFGS, including provision of worker environmental awareness training, onsite presence of a biological monitor, and minimization of vegetation removal. In addition, implementation of standard BMPs will reduce the potential for project-related run-off or accidental spills to affect SFGS aquatic habitat. Similar to CRLF, species-specific measures designed to reduce impacts to SFGS are included in this section.

Other Protected and Migratory Bird Species

Protected and migratory bird species have potential to occur within the BSA. During field surveys, blackbirds and ravens were observed within the BSA. No raptors were observed nesting. Native bird species could potentially nest within the riparian forest/woodlands that occurs adjacent to the BSA. The use of construction equipment to remove vegetation within the project footprint has the potential to impact nesting birds, including migratory birds subject to the MBTA and native birds protected under California Fish and Game Code (CFGC)Section 3503, including causing nest abandonment and/or loss of eggs or young. Destruction or

disturbance of an active nest or eggs will conflict with the CFGC and the MBTA. With the use of project avoidance and minimization measures, no impacts to protected bird species are anticipated. The measures presented in Section 4.4, including Measure 9 (Migratory Bird Treaty Act) and Measure 18 (Preconstruction/Daily Surveys) will avoid and minimize impacts to these species if they are present within the BSA.

b) No Impact
A site assessment identified no riparian features within the project footprint at all locations.

c) No Impact
A site assessment identified aquatic features within the BSA at locations 4, 5, 6 and 7. Aquatic features at these locations are classified as riverine wetland by the National Wetland Inventory. However, no aquatic features exist within the project footprints. No impacts to wetlands or waters of the U.S. are anticipated from the proposed project.

d) No Impact
The proposed project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

e) No Impact
The proposed project would not conflict with any local policies or ordinances protecting biological resources; therefore, there would be no impact.

f) No Impact
The proposed 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

Avoidance and Minimization Measures

BIO-1: Worker Environmental Awareness Training: Construction personnel will attend a mandatory environmental education program delivered by the agency-approved biological monitor or department biologist prior to taking part in site construction, including vegetation clearing. The program will focus on the conservation measures that are relevant to an employee's personal responsibility and will include an explanation on how to avoid take of the Red-legged Frog and San Francisco garter snake. At a minimum, the training will include a description of species; how they might be encountered within the project area; their status and protection; and the relevant Conservation Measures and Terms and Conditions of the Letter of Concurrence. A fact sheet conveying this information will be prepared and

distributed to all construction and project personnel. Distributed materials will include cards with distinctive photographs of the Red-legged Frog and San Francisco garter snake, compliance reminders, and relevant contact information. Documentation of the training, including sign-in sheets, will be kept on file and made available to the Agencies upon request.

BIO-2: Environmentally Sensitive Area Fencing: Before the start of construction, ESAs (defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed) will be clearly delineated using temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and fully maintained at all times. The final project plans will show all locations where the fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities, including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.

BIO-3: Inclement Weather Restriction: No work will occur during or within 24 hours following a rain event exceeding 0.2-inch as forecasted by: The National Oceanic and Atmospheric Administration National Weather Service for Half Moon Bay, CA (C3295) base station. USFWS/CDFW approval to continue work during or within 24 hours of a rain event will be considered on a case-by-case basis.

BIO-4: Light Restrictions. Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas. Lighting per portable tower light will not exceed 2,000 lumens. To the extent practicable, personnel will only use enough coverage to light the work areas.

BIO-5: Staging and parking areas will be in designated areas, as specified by the project biologist in coordination with the Resident Engineer.

BIO-6: Soil Storage: Where necessary, native topsoil will be removed and stored in a designated location as specified by the project biologist in coordination with the Resident Engineer until project completion.

BIO-7: Vegetation Removal: Vegetation removal will be limited to designated work areas needed for access and workspace. Where possible, vegetation will be trimmed instead of removed. Removal in temporary work areas will be cut above soil level to promote vegetative growth of established plants following construction to the maximum extent feasible. Vegetation will be mowed to a height greater than 4 inches.

BIO-8: Replant, Reseed, and Restore Disturbed Areas: Caltrans will restore temporarily disturbed areas to preconstruction conditions, including by restoring contours to the maximum extent practicable. Where soil compaction is unintended, compacted soils will be loosened after heavy construction activities are complete. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to stabilize and prevent erosion. Where disturbance includes the removal of trees, native species will be replanted at a 3:1 ratio for every native tree removed and 1:1 (native) for every non-native tree removed, based on local species composition.

BIO-9: Migratory Bird Treaty Act: To protect migratory birds and their nests, all initial major vegetation clearing, but not grubbing, will be conducted between October 1 and January 31, outside the typical bird nesting season, when possible. Upon completion of vegetation and tree trimming, Caltrans will install storm water and erosion control BMPs as needed. A qualified biologist with appropriate construction and species experience will conduct nest and bird surveys and other wildlife surveys before and during tree cutting. All work will be conducted under a Regional Water Board approved Water Pollution Control Plan and Storm Water Pollution Protection Plan as necessary.

If construction activities occur between February 1 and September 30, preconstruction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction activities. If work is to occur within 300 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance. Buffer size should be determined in cooperation with CDFW and USFWS. All clearing and grubbing of woody vegetation will be performed by hand or using light construction equipment, such as backhoes and excavators.

BIO-10: Invasive Species Management: To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable

vegetation for wildlife species, Caltrans will comply with Executive Order 13112. The purpose of this order is to prevent the introduction of invasive species and provide for their control to minimize economic, ecological, and human health impacts. 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 will contain the plant material associated with these noxious weeds and will dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area will be covered to the extent practicable with heavy black plastic solarization material until completion of construction. All earthmoving equipment, as well as seeding equipment to be used during project construction will be thoroughly cleaned before arriving on the project site.

BIO-11: Water Quality/Erosion Control BMP's: Erosion control BMPs will be developed and implemented to minimize any wind or water-related erosion, in compliance with the requirements of the Regional Water Quality Control Board. Protective measures will include, at a minimum:

- No discharge of pollutants from vehicle and equipment cleaning will be allowed into any storm drains or watercourses.
- Equipment will be inspected daily for leaks. If any leaks are found, a drip pan will be placed under the leak and the leak will be repaired immediately by the contractor.
- Vehicle and equipment fueling, and maintenance operations will occur at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities.
- Concrete wastes will be collected in washouts, and water from curing operations will be collected and disposed of properly. Neither will be allowed into watercourses.
- Spill containment kits will be maintained on-site at all times during construction operations and/ or staging or fueling of equipment.
- Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering temporary stockpiles when weather conditions require.

- Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment.
- Graded areas will be protected from erosion using a combination of silt fences and fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting (e.g., jute or coir) will be used as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the BSA. This will include products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials will include natural fibers, such as jute, coconut, twine or other similar natural fibers.

BIO-13: Dry Season Work Window: Construction actions will be scheduled to minimize impacts to the Red-legged Frog and San Francisco garter snake, and their habitats. To reduce impacts to special-status species and their habitats, construction activities within potential species habitat will be conducted during the dry season, between July 1 and October 15.

BIO-14: Proper Use of Erosion Control Devices: To avoid entanglement or injury of amphibians or reptiles, including the Red-legged Frog and San Francisco garter snake, erosion control materials that use plastic or synthetic monofilament netting will not be used.

BIO-15: Entrapment Avoidance: To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks at an angle no greater than 30 degrees. Before such holes or trenches are filled they must be thoroughly inspected for trapped animals. All replacement pipes, hoses, culverts, or similar structures less than 12 inches in diameter will be closed, capped, or covered upon entry to the project site. All similar structures greater than 12 inches must be inspected before they are subsequently moved, capped and/or buried.

BIO-16: Biological Monitor: The names and qualifications of proposed biological monitor(s) will be submitted to the USFWS and CDFW for approval prior to the start of construction. The Agency-Approved Biological Monitor(s) will keep a copy of the letter of concurrence in their possession when on-site. Through communication with the Resident Engineer, the Agency-Approved Biological Monitor(s) will be on-site during all work that

could reasonably result in take of the Red-legged Frog or San Francisco garter snake. The Agency-Approved Biological Monitor(s) will have the authority to stop work that may result in the unauthorized take of special status species. If the Agency-Approved Biological Monitor exercises this authority, the USFWS will be notified by telephone and e-mail message within one (1) working day.

BIO-17: Preconstruction/Daily Surveys: Preconstruction surveys for special status plant and wildlife species, including the Red-legged Frog and San Francisco garter snake, will be conducted by the Agency-Approved Biological Monitor no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities (including vegetation removal and Temporary High Visibility Fencing Installation) within the project footprint. These efforts will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The Agency-Approved Biological Monitor will investigate potential cover sites when it is feasible and safe to do so. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found under cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. Safety permitting, the Agency-Approved Biological Monitor will also investigate areas of disturbed soil for signs of Red-legged Frogs 30 minutes following initial disturbance of the given area. The need for further preconstruction surveys will be determined by the Biologist based on site conditions and realized construction timelines.

BIO-18: Protocol for Species Observation: The Agency-Approved Biological Monitor (s) will have the authority to halt work through coordination with the Resident Engineer in the event that a listed species is observed in the BSA. The Resident Engineer will keep construction activities suspended in any construction area where the biologist has determined that a potential take of the species could occur. Work will resume after observed listed individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is relocated by the biologist to a release site using Agency-approved handling techniques.

BIO-19: Handling of Listed Species: If a listed species is discovered, the Resident Engineer and Agency-Approved Biological Monitor will be immediately informed. If a Red-legged Frog or San Francisco garter snake gains access to a construction zone, work will be halted immediately within 50 feet until the animal leaves the site or is captured and relocated by the

Agency-Approved Biological Monitor. The USFWS will be notified within one (1) working day if a Red-legged Frog or San Francisco garter snake is discovered within the construction site.

Captured Red-legged Frogs or San Francisco garter snakes will be released within appropriate habitat outside of the construction area but near the capture location. The release location will be determined by the Agency-Approved Biological Monitor. The Agency-Approved Biological Monitor will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005) and *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003). Disinfecting equipment and clothing is especially important when biologists are entering the BSA to handle amphibians after working in other aquatic habitats.

BIO-20: Injured Animals: Injured Red-legged Frogs or San Francisco garter snakes will be cared for by an Agency-Approved Biological Monitor(s) or a licensed veterinarian, if necessary. Any deceased Red-legged Frogs or San Francisco garter snakes will be preserved according to standard museum techniques and will be held in a secure location. The USFWS will be notified within one (1) working day of the discovery of a death or an injury to any listed species resulting from project-related activities or if a listed species is observed at a construction site. Notification will include the date, time, and location of the incident or the finding of a deceased or injured animal, clearly indicated on a United States Geological Survey (USGS) 7.5-minute quadrangle and other maps at a finer scale, as requested by the USFWS, and any other pertinent information.

BIO-21: Reporting: Caltrans will submit post-construction compliance reports prepared by the Agency-Approved Biological Monitor to the USFWS within 60 calendar days following completion of project activities or within 60 calendar days of any break in construction activity lasting more than 60 calendar days. This report will detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures for listed species; (3) an explanation of failure to meet such measures, if any; (4) known project effects on listed species, if any; (5) occurrences of incidental take of any listed species, if any; (6) documentation of employee environmental education; and (7) other pertinent information.

BIO-22: USFWS Access: If requested, before, during, or upon completion of groundbreaking and construction activities, Caltrans will allow access by USFWS personnel into the project footprint to inspect the project and its activities.

BIO-23: Re-initiation of Consultation: Caltrans will reinitiate consultation if modifications to the proposed project design have the potential to results in effects to listed species not considered in this document or the Letter of Concurrence.

2.1.5 Cultural Resources

CEQA Significance Determinations for Cultural Resources

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

a), b), and c) No Impact

This section is summarized from the Caltrans District 4 Office of Cultural Resource Studies (OCRS) Completion of Section 106 Compliance memorandum that was prepared for this project, dated May 8, 2019.

This project will not cause a substantial adverse change in the significance of a historical resource or an archeological resource pursuant to 15064.5. This project will not disturb any human remains, including those interred outside of dedicated cemeteries.

Avoidance and Minimization Measures

CULT-1: If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans' OCRS will be called. Caltrans ORCS staff will assess the remains and, if determined human, will contact the County Coroner as per Public Resources Code (PRC) Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC) who will assign a Most Likely Descendant. Caltrans will consult with the Most Likely

Descendent on treatment and reburial of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.1.6 Energy

CEQA Significance Determinations for Biological Resources

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

a) and b) No Impact

This project is not a capacity increasing project and will not result in increased or unnecessary consumption of energy resources during construction or operation. This project will not conflict with a state or local plan for renewable energy or energy efficiency.

Standard Conservation Measures

Caltrans standard specifications and best management practices (BMPs) will be implemented during construction to reduce any inefficient or unnecessary energy resource usages. BMPs include limiting the idling of vehicles and equipment onsite and maintaining vehicles and equipment.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.7 Geology and Soils

CEQA Significance Determinations for Geology and Soils

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				**x**
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.				**x**
ii) Strong seismic ground shaking?				**x**
iii) Seismic-related ground failure, including liquefaction?				**x**
iv) Landslides?				**x**
b) Result in substantial soil erosion or the loss of topsoil?				**x**
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				**x**

spreading, subsidence, liquefaction or collapse?				
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?				**x**
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?				**x**
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				**x**

a) (i-iv), b), c), d), e), and f) No Impact

This section summarizes the Geologic and Paleontological Environmental Study/Memorandum prepared for this project which is dated May 4, 2020.

The project will not expose people or structures to potential substantial adverse effects, rupture of a known earthquake fault, produce strong seismic ground shaking, create seismic-related ground failure, create landslides, result in substantial soil erosion or the loss of topsoil, be located on expansive soil, or have soils incapable of adequately supporting the use of septic tanks.

All construction will be completed in previously disturbed material and will not impact native soil or rock. Therefore, no paleontological resources will be unearthed. This project will not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.8 Greenhouse Gas Emissions

CEQA Significance Determinations for Greenhouse Gas Emissions

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

a) and b) Less than Significant Impact

While the proposed project will result in GHG emissions during construction, it is anticipated that the project will not result in any increase in operational GHG emissions. The proposed project does not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. With implementation of construction GHG reduction measures, the impact would be less than significant.

Operational GHG emissions are emitted through the regular daily use of the highway, since the Project would not increase the capacity of the highway, operational emissions would not increase. Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities. The analysis focused on vehicle-emitted GHGs, and CO2 emissions, because CO2 is the

single most important GHG pollutant due to its abundance when compared with other vehicle-emitted GHGs. Construction-related GHG emissions were calculated using the Road Construction Emissions Model, version 9.0.0, provided by the Sacramento Metropolitan Air Quality Management District. It was estimated that for a construction duration of 24 months, the total amount of CO_2 produced for the construction of the retaining wall would be 1079.51 tons. Total CO2e emissions (CO_2, CH4, and N_2O) would be 1091.05 metric tons.

All construction contracts include Caltrans Standard Specifications Section 7-1.02A and 7 1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and would comply with all California Air Resource Board (ARB) emission reduction regulations; and Section 14-9.02, Air Pollution Control, which requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce GHG emissions.

Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; while it is a naturally occurring component of Earth’s atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or “mitigate” the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (such as adjusting

transportation design standards to withstand more intense storms and higher sea levels). This analysis will include a discussion of both.

Regulatory Setting

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

Federal

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

The National Environmental Policy Act (NEPA) (42 United States Code [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.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2019). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values “the triple bottom line of sustainability” (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Economy (CAFE) Standards. This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the CAFE program based on each manufacturer’s average fuel economy for the portion of its vehicles produced for sale in the United States.

Energy Policy Act of 2005, 109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) the establishment of the Office of Indian Energy Policy and Programs within the

Department of Energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

The U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) is responsible for setting GHG emission standards for new cars and light-duty vehicles to significantly increase the fuel economy of all new passenger cars and light trucks sold in the United States. Fuel efficiency standards directly influence GHG emissions.

State

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

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

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

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

Senate Bill (SB) 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable

Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

SB 391, Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to identify strategies to address California's climate change goals under AB 32.
EO B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$).[1] Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

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

SB 1386, Chapter 545, 2016, declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."

AB 134, Chapter 254, 2017, allocates Greenhouse Gas Reduction Funds and other sources to various clean vehicle programs, demonstration/pilot

GHGs differ in how much heat each trap in the atmosphere (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" (CO_2e). The global warming potential of CO_2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO_2.

projects, clean vehicle rebates and projects, and other emissions-reduction programs statewide.

SB 743**,** Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles travelled, to promote the state's goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

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

EO B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

EO N-19-19 (September 2019) advances California's climate goals in part by directing the California State Transportation Agency to leverage annual transportation spending to reverse the trend of increased fuel consumption and reduce GHG emissions from the transportation sector. It orders a focus on transportation investments near housing, managing congestion, and encouraging alternatives to driving. This EO also directs ARB to encourage automakers to produce more clean vehicles, formulate ways to help Californians purchase them, and propose strategies to increase demand for zero-emission vehicles.

Environmental Setting

This project is situated along the lightly to densely developed San Mateo County State Route 1 between post miles 26.43 and 47.20. 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. U.S. EPA is responsible for documenting GHG emissions nationwide, and the ARB does so for the state, as required by H&SC Section 39607.4.

National GHG Inventory

The U.S. EPA prepares a national GHG inventory every year and submits it to the United Nations in accordance with the Framework Convention on Climate Change. The inventory provides a comprehensive accounting of all human-produced sources of GHGs in the United States, reporting emissions of CO_2, CH_4, N_2O, HFCs, perfluorocarbons, SF_6, and nitrogen

trifluoride. It also accounts for emissions of CO_2 that are removed from the atmosphere by "sinks" such as forests, vegetation, and soils that uptake and store CO_2 (carbon sequestration). The 1990–2016 inventory found that of 6,511 $MMTCO_2e$ GHG emissions in 2016, 81% consist of CO_2, 10% are CH_4, and 6% are N_2O; the balance consists of fluorinated gases (EPA 2018a). In 2016, GHG emissions from the transportation sector accounted for nearly 28.5% of U.S. GHG emissions.

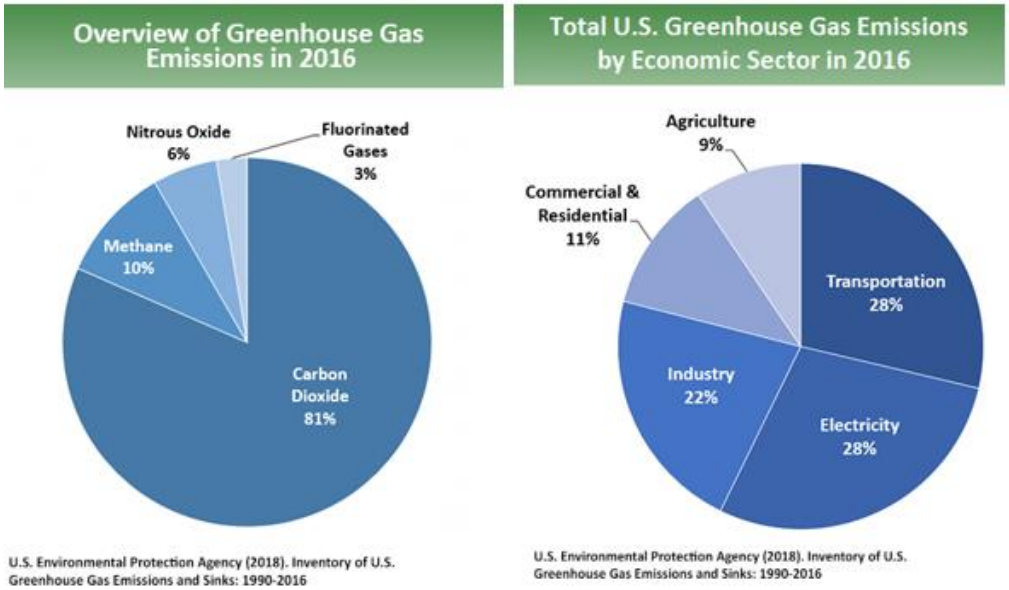


Figure 2: U.S. 2016 Greenhouse Gas Emissions

State GHG Inventory

ARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2019 edition of the GHG emissions inventory found total California emissions of 424.1 $MMTCO_2e$ for 2017, with the transportation sector responsible for 41% of total GHGs. It also found that overall statewide GHG emissions declined from 2000 to 2017 despite growth in population and state economic output (ARB 2019a).

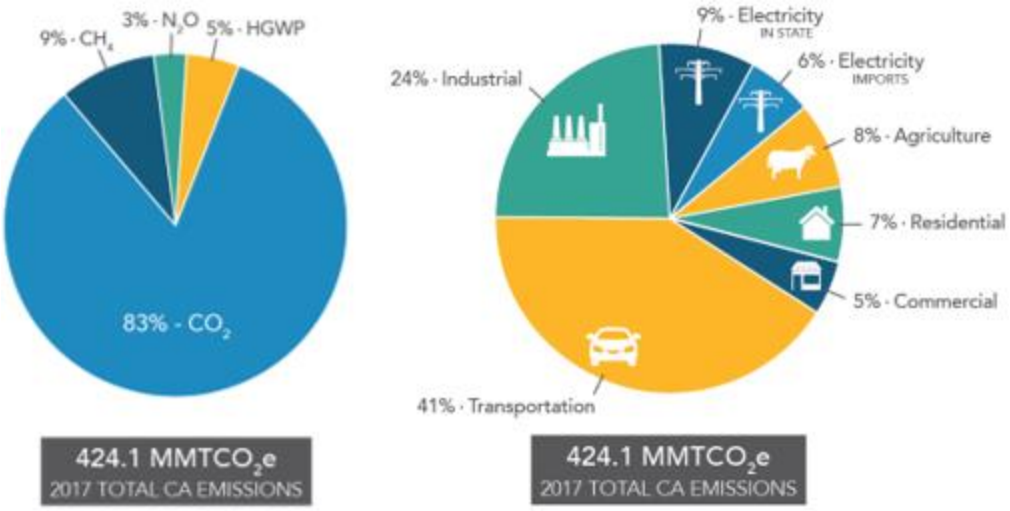


Figure 3: California 2017 Greenhouse Gas Emissions

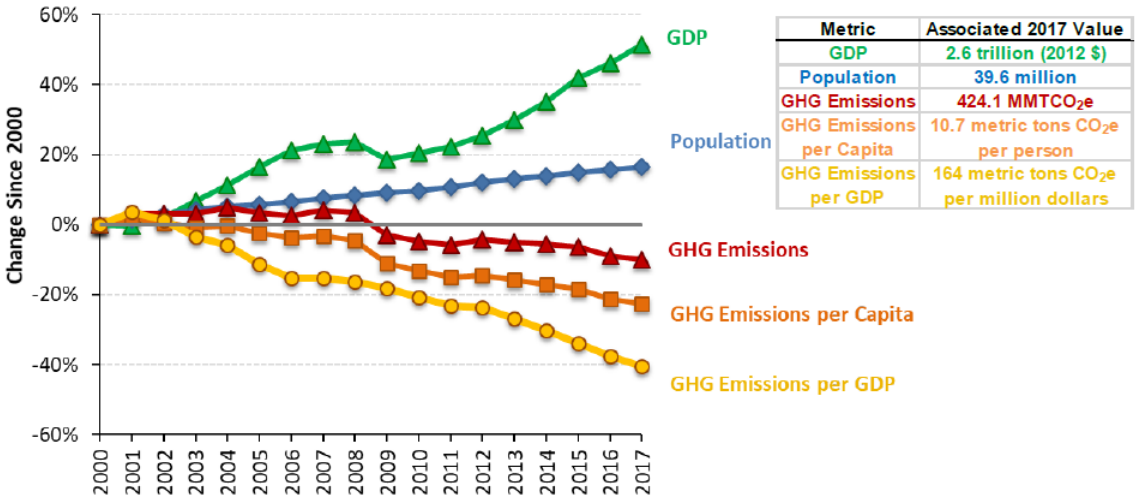


Figure 4: Change in California GDP, Population, and GHG Emissions since 2000 (*Source*: ARB 2019b)

AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. ARB adopted the first scoping plan in 2008. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32. The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions.

Regional Plans

ARB sets regional targets for California's 18 MPOs to use in their RTP/SCSs to plan future projects that will cumulatively achieve GHG

reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. The proposed project is within the geography of MTC/ABAG. The regional reduction target for MTC/ABAG is 10 percent by 2020 and 19 percent by 2035 (ARB 2019c). The RTP/SCS aims to reduce per-capita delay and CO_2 emissions.

San Mateo County General Plan's Energy and Climate Change Element demonstrates San Mateo County's commitment to "working to sustain the long-term health of the natural and built environments, achieve effective and meaningful reductions in GHGs, and increase resiliency to the impacts of climate change in the unincorporated county (San Mateo County 2013: 1). In 2012, San Mateo County adopted its Government Operations Climate Action Plan, and in 2013, completed its Energy Efficiency Climate Action Plan for the unincorporated area of the county. Both plans are intended to help the County meet its GHG reduction commitments (County of San Mateo 2019).

Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation of the SHS and those produced during construction. The primary GHGs produced by the transportation sector are CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of the combustion of petroleum-based products, like gasoline, in internal combustion engines. Relatively small amounts of CH4 and N2O are emitted during fuel combustion. In addition, a small amount of HFC emissions are included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Pub. 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 greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

The purpose of this project is to improve the day to day traffic management capabilities for Caltrans, cities and first responders and provide travel information to the traveling public on State Route 1. The proposed project is not a capacity increasing project. Because the project would not affect the roadway or increase the number of travel lanes, no increase in vehicle miles traveled (VMT) would occur as result of project implementation. While some GHG emissions during the construction period would be unavoidable, no increase in operational GHG emissions is expected.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Greenhouse Gas Reduction Strategies

Statewide Efforts

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

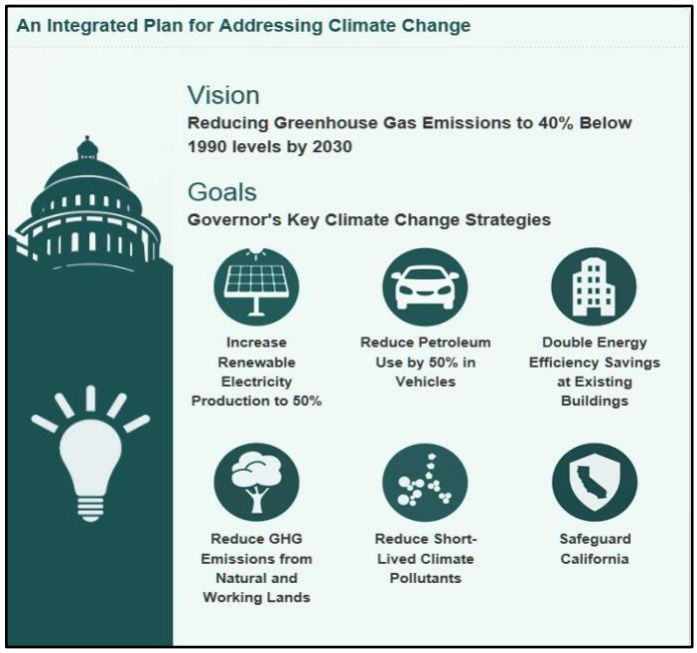


Figure 5: California Climate Strategy

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled (VMT). A key state goal for reducing GHG emissions is to reduce today's petroleum use in cars and trucks by up to 50 percent by 2030 (State of California 2019).

In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Caltrans Activities

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

Caltrans Strategic Management Plan

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

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

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several sustainable transportation planning grants. These grants encourage local and regional multimodal transportation, housing, and land use planning that furthers the region's RTP/SCS; contribute to the State's GHG reduction targets and advance transportation-related GHG emission reduction project types/strategies; and support other climate adaptation goals (e.g., *Safeguarding California*).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. *Caltrans Activities to Address Climate Change* (April 2013) provides a comprehensive overview of Caltrans' statewide activities to reduce GHG emissions resulting from agency operations.

Project-Level GHG Reduction Strategies

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

- Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all ARB emission reduction regulations
- Caltrans Standard Specifications Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes.
- A construction transportation management plan will be implemented during construction to minimize work-related traffic delays by the application of general traffic handling practices and strategies.

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.

Federal Efforts

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

The U.S. Global Change Research Program (USGCRP) delivers a report to Congress and the president every 4 years, in accordance with the Global Change Research Act of 1990 (15 U.S.C. Ch. 56A § 2921 et seq). The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways." Chapter 12, "Transportation," presents a key discussion of vulnerability assessments. It notes that "asset owners and operators have increasingly conducted more focused studies of particular assets that consider multiple climate hazards and scenarios in the context of asset-specific information, such as design lifetime" (USGCRP 2018).

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

FHWA order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events,* December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems.

FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. *California's Fourth Climate Change Assessment* (2018) is the state's effort to "translate the state of climate science into useful information for action" in a variety of sectors at both statewide and local scales. It adopts the following key terms used widely in climate change analysis and policy documents:

- *Adaptation* to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.
- *Adaptive capacity* is the "combination of the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to prepare for and undertake actions to reduce adverse impacts, moderate harm, or exploit beneficial opportunities."
- *Exposure* is the presence of people, infrastructure, natural systems, and economic, cultural, and social resources in areas that are subject to harm.
- *Resilience* is the "capacity of any entity – an individual, a community, an organization, or a natural system – to prepare for disruptions, to recover from shocks and stresses, and to adapt and grow from a disruptive experience". Adaptation actions contribute to increasing resilience, which is a desired outcome or state of being.
- *Sensitivity* is the level to which a species, natural system, or community, government, etc., would be affected by changing climate conditions.
- *Vulnerability* is the "susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt." Vulnerability can increase because of physical (built and environmental), social, political, and/or economic factor(s). These factors include, but are not limited to: ethnicity, class, sexual orientation and identification, national origin, and income inequality. Vulnerability is often defined as the combination of sensitivity and adaptive capacity as affected by the level of exposure to changing climate.

Several key state policies have guided climate change adaptation efforts to date. Recent state publications produced in response to these policies draw on these definitions.

EO S-13-08, issued by then-governor Arnold Schwarzenegger in November 2008, focused on sea-level rise and resulted in the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan). The Safeguarding California Plan offers policy principles and recommendations and continues to be revised and augmented with sector-specific adaptation strategies, ongoing actions, and next steps for agencies.

EO S-13-08 also led to the publication of a series of sea-level rise assessment reports and associated guidance and policies. These reports formed the foundation of an interim *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance) in 2010, with instructions for how state agencies could incorporate "sea-level rise (SLR) projections into planning and decision making for projects in California" in a consistent way across agencies. The guidance was revised and augmented in 2013. *Rising Seas in California – An Update on Sea-Level Rise Science* was published in 2017 and its updated projections of sea-level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018.

EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change other than sea-level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic approach. Representatives of Caltrans participated in the multi-agency, multidisciplinary technical advisory group that developed this guidance on how to integrate climate change into planning and investment.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group, which in 2018 released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts.

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans is conducting climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects including precipitation, temperature, wildfire, storm surge, and sea-level rise. The approach to the vulnerability assessments was tailored to the practices of a transportation agency, and involves the following concepts and actions:

- *Exposure* – Identify Caltrans assets exposed to damage or reduced service life from expected future conditions.
- *Consequence* – Determine what might occur to system assets in terms of loss of use or costs of repair.
- *Prioritization* – Develop a method for making capital programming decisions to address identified risks, including considerations of system use and/or timing of expected exposure.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments will guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the State Highway System, allowing Caltrans to both reduce the costs of storm damage and to provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

Sea-Level Rise Analysis

All locations of the proposed project are not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected. As shown in Figure 12 below, the red line represents areas subject to sea level rise in the future and the project locations occur outside of those areas.

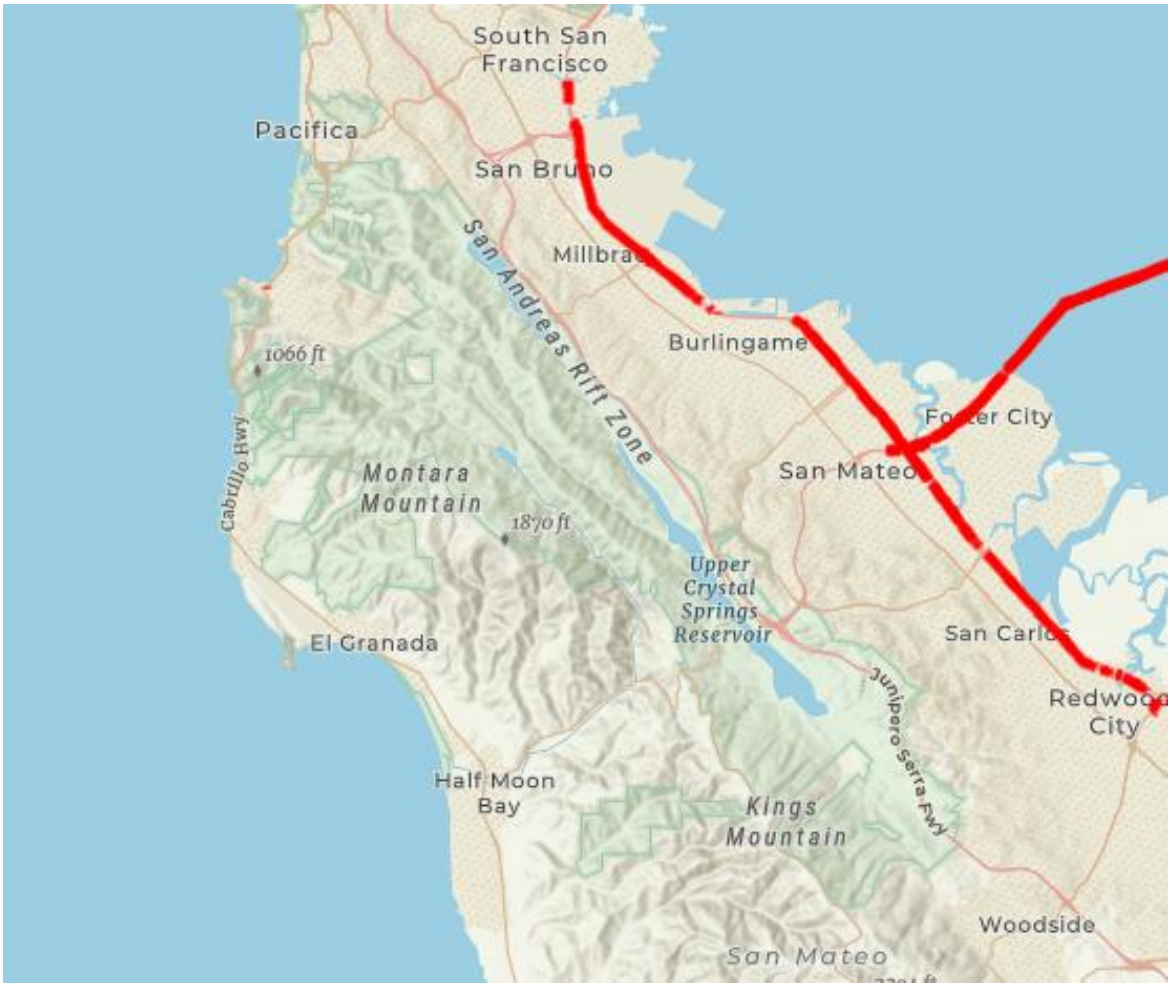


Figure 6: Future Sea Level Rise Predictions

Floodplains

Reference was made to FEMA Flood Insurance Rate Map (FIRM) numbers, 06081C0260E dated 10/16/12, 06081C0266F, 06081C0138F, 06081C0109F, 06081C0036F all dated 8/2/17. Based on these FIRMs, there are no locations where proposed project work is within a base floodplain. However, location 9 at PM 42.58 under FIRM 06081C0126F dated 8/2/17, is in the 0.2% Annual Chance Flood Hazard Zone X. This work at location 9 does not change the existing grade and is not in the base flood plain as well. Therefore, the proposed work is not expected to have any impacts to the floodplains.

2.1.9 Hazards and Hazardous Materials

CEQA Significance Determinations for Hazards and Hazardous Materials

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				**x**
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?			**x**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				**x**
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?				**x**

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?				**x**
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**x**
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				**x**

a), c), d), e), f), and g) No Impact

This project has no potential to create a significant hazard to the public or environment through reasonable foreseeable upset and accidental conditions, emit hazardous emissions, be located on a site that is included on a list of hazardous materials sites, be located within an airport land use plan, impair implementation of or physically interfere with an adopted emergency response plan, or expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

b) Less Than Significant Impact

The construction of maintenance vehicle pullouts at project locations 2, 5, and 6 will require excavation of roadside soils that could contain regulated levels of aerially deposited lead (ADL) from past vehicle emissions. Therefore, testing and characterization of the soils to be excavated will be necessary during the project design phase to determine the required waste

management practices for the excavated, surplus lead-contaminated soils. Using the site investigation results, the necessary special provisions will be prepared by the Hazardous Waste Branch to specify the waste material disposal requirements for the construction contractor. Project construction would not result in hazards to the public or the environment through the transport, use, or disposal of hazardous materials. 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.

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 RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

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

Standard Conservation Measures

HAZ-1: Caltrans Standards will be followed for the proper handling and disposal of any unanticipated hazardous waste discovered during construction.

HAZ-2: The project will implement BMPs according to special provision 12-11.09 “Minimal Disturbance of Regulated Material Containing ADL.”

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.10 Hydrology and Water Quality

CEQA Significance Determinations for Hydrology and Water Quality

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?				**x**
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				**x**
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:				**x**
(i) result in substantial erosion or siltation on- or off-site;				**x**
(ii) substantially increase the rate or amount of surface runoff in a manner				**x**

which would result in flooding on- or offsite;				
(iii) create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or			x	
(iv) impede or redirect flood flows?				x
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				x
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				x

a) and b) – No impact

To ensure compliance with CWA Section 402, the State Water Resources Control Board (SWRCB) issued Caltrans a Statewide National Pollutant Discharge Elimination System (NPDES) Stormwater Permit to regulate storm water discharges from Caltrans facilities (Order No. 2012-0011-DWQ). The SWRCB issued a statewide Construction General Permit (CGP) for construction activities (2009-0009-DWQ, CAS000002, as amended by 2010-0014-DWQ and 2012-0006-DWQ), that applies to storm water discharges from land where clearing, grading, and excavation result in a disturbed soil area (DSA) of one acre or greater. Construction activity resulting in a DSA of less than 1.0 acre is subject to the CGP if the construction activity is part of a larger Common Plan of Development totaling 1.0 acre or more of DSA, or if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Projects not subject to the CGP require a Water Pollution Control Program (WPCP), per Caltrans Standard Specifications. Since the DSA for this project is less than an acre, a WPCP will be required.

This project will not substantially degrade surface or ground water quality and there would be no violations to any water quality standards or waste discharge requirements. This project will not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

c)(i), (ii), and (iv)- No impact

This project will not 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; result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite.

c) (iii) – Less than significant impact

Construction of MVPs and MGS would have the most potential effect to local water quality due to having the most disturbance of existing soil. Installation of Bluetooth Detection System's would result in the least effect to water quality due to no soil disturbance.

Environmental Setting

This project is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (Region 2 SFB RWQCB); thus, the RWQCB is responsible for the enforcement of state and federal water quality regulations for the project site.

High-risk waterbodies potentially affected by construction activities include Pacific Ocean at Pacifica State/Linda Mar Beach, Pacific Ocean at Pillar Point Beach, Pacific Ocean at Venice Beach, San Pedro Creek and San Vicente Creek. Area of Special Biological Significance potentially affected by construction activities consist of Fitzgerald Marine Reserve.

Standard Conservation Measures

HYDRO-1: Standard BMPs. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 13 of the Caltrans Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind- or water-related erosion. BMPs to be implemented within the project area will include, at a minimum:

a. No discharge of pollutants from vehicle and equipment cleaning will be allowed into storm drains or water courses.

b. Vehicle and equipment fueling, and maintenance operations must be at least 50 feet away from water courses.
c. Concrete wastes will be collected in washouts, and water from curing operations will be collected, disposed of, and not allowed into water courses.
d. Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.
e. Coir rolls will be installed along or at the base of slopes during construction to capture sediment, and temporary organic hydro-mulching would be applied to all unfinished disturbed and graded areas.
f. Work areas where temporary disturbance has removed pre-existing vegetation will be restored and reseeded with a native seed mix.
g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
h. A revegetation plan will be prepared for restoration of temporary work areas.

HYDRO-2: During construction, a silt fence will be used to intercept and slow the flow of sediment-laden sheet flow runoff. A silt fence is a temporary linear sediment barrier of permeable fabric.

HYDRO-3: Prior to commencement of construction activities, a Water Pollution Control Plan (WPCP) will be prepared by the Contractor and approved by Caltrans. The WPCP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.11 Land Use and Planning

CEQA Significance Determinations for Land Use and Planning

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Physically divide an established community?				**x**
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?				**x**

a) No Impact

The project footprint locations are in predominantly urban and built-up land areas. The work scope is to seismically retrofit the five bridges, so the project will not physically divide an established community or cause displacement.

b) No Impact

This project is consistent with state, regional, and local plans and programs

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.12 Mineral Resources

CEQA Significance Determinations for Mineral Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**x**
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?				**x**

a) and b) No Impact

The project will not result in a loss of availability of a known mineral resource or of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. The project will not result in the loss of availability of a mineral resource that would be of value to the region and residents of the state.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.13 Noise

CEQA Significance Determinations for Noise

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				**x**
b) Generation of excessive ground borne vibration or ground borne noise levels?				**x**
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?				**x**

a), b), and c) No Impact

The project will not add a new traffic lane or substantially alter the alignments or increase ambient noise levels in excess of established

standards. Construction noise will be temporary and will be within acceptable levels for construction activity. There will be no generation of excessive ground borne vibration or ground borne noise levels. This project is not located within the vicinity of a private airstrip or an airport land use plan.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.14 Population and Housing

CEQA Significance Determinations for Population and Housing

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				**x**
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				**x**

a) and b) No Impact

The purpose of this project is to improve the day to day traffic management capabilities for Caltrans, cities and first responders and provide traveler information to the traveling public on State Route 1. The project is not growth-inducing and will not displace existing people or housing.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.15 Public Services

CEQA Significance Determinations for Public Services

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

a) No Impact

The proposed project will have no effect on the provision or need for public services. Caltrans will prepare a TMP to maintain the flow of traffic during construction and ensure accessibility through the project locations for vehicles with essential services such as fire and police protection. Schools, parks, and public facilities will not be affected by this project

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.16 Recreation

CEQA Significance Determinations for Recreation

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				**x**
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?				**x**

a) and b) No Impact

This project would not increase the use of existing neighborhood and regional parks or other recreational facilities such that deterioration would occur or be accelerated. The project does not include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.17 Transportation and Traffic

CEQA Significance Determinations for Transportation/Traffic

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				**x**
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)? NOTE: While public agencies may immediately apply Section 15064.3 of the updated Guidelines, statewide application is not required until July 1, 2020. In addition, uniform statewide guidance for Caltrans projects is still under development. The PDT may determine the appropriate metric to use to analyze traffic impacts pursuant to section 15064.3(b). Projects for which an NOP will be issued any time after December 28th, 2018 should consider including an				**x**

analysis of VMT/induced demand if the project has the potential to increase VMT (see page 20 of OPR's updated SB 743 Technical Advisory), particularly if the project will be approved after July 2020.				
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				**x**
d) Result in inadequate emergency access?				**x**

***A,* b), c), and d) No Impact**

This project is not inconsistent with CEQA Guidelines section 15064.3, subdivision (b) which relates to induced demand and vehicle miles traveled (VMT). This is not a capacity increasing project and the project will not impact traffic patterns or result in inadequate emergency access. The project will not substantially increase hazards due to a geometric design feature or incompatible uses.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed

2.1.18 Tribal Cultural Resources

CEQA Significance Determinations for Tribal Cultural Resources

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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				**x**
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.				**x**

a) and b) No Impact

There are no resources 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). There are no resources determined by the lead agency to be significant pursuant to criteria set forth in subdivision(C) of Public Resources Code section 5024.1. Native American outreach occurred throughout the consultation process

and as part of resource identification efforts for the proposed project; however, no resources were identified in the project area by the lead agency.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed.

2.1.19 Utilities and Service Systems

CEQA Significance Determinations for Utilities and Service Systems

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				**x**
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				**x**
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?				**x**
d) Generate solid waste in excess of State or local standards, or in				**x**

excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				**x**

a), b), c), d), and e) No Impact

The scope of this project is to improve the day-to-day traffic management capabilities for Caltrans, cities, and first responders by installing Wireless Detection Systems in existing cabinets or structures, ground mounting Variable Message Signs (VMS) onto wood poles, adding Midwest Guardrail System (MGS), and adding Maintenance Vehicle Pullouts (MVP) to assist with equipment maintenance. This project will not require or result in the relocation or construction of any utilities or service systems. The project is not expected to produce solid waste other than temporary debris related to construction, which will have no effect on the environment. This project at all locations will comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed

2.1.20 Wildfire

CEQA Significance Determinations for Wildfire

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

Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				**x**
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?				**x**
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?				**x**
d) Expose people or structures to significant risks, including downslope or				**x**

downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				

a), b), c), and d) No Impact

The proposed project is not located in a very high fire hazard severity zones and no wildlife impacts are expected for this project. The project will not substantially impair an adopted emergency response plan or evacuation plan. The project will not exacerbate wildfire risks due to slope, prevailing winds, or other factors. The project will not require the installation or maintenance of associated infrastructure that may exacerbate fire risk and the project will not expose people or structures to significant risk.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed

2.1.21 Mandatory Findings of Significance

CEQA Significance Determinations for Mandatory Findings of Significance

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?				**x**
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				**x**

other current projects, and the effects of probable future projects)?				
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?				**x**

a), b), c) No Impact

This project does not have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species or cause a drop in their population below self-sustaining levels.

Caltrans does not anticipate any cumulative effects from this proposed project. This project does not have any environmental effects that would cause substantial adverse effects on human beings.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed

2.2 Topics Considered but Determined Not to be Relevant

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

Environmental Justice

No minority or low-income populations that would be adversely affected by the proposed project have been identified as determined above. Therefore, this project is not subject to the provisions of Executive Order 12898.

Section 4(f)

There are no historic sites, parks and recreational resources, wildlife or waterfowl refuges, which meet the definition of a Section 4(f) resource, within the project vicinity. Therefore, this project is not subject to the provisions of Section 4(f) of the Department of Transportation Act of 1966.

Avoidance, Minimization, and/or Mitigation Measures

No impacts are anticipated; therefore, no measures are proposed

Chapter 3 Comments and Coordination

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

3.1 Consultation and Coordination with Public Agencies

U.S. Fish and Wildlife Service Consultation Summary

Fixing America's Surface Transportation (FAST) Act was signed into law on December 4, 2015. Providing funding from 2016 to 2020, the FAST Act includes provisions to promote streamlined and accelerated project delivery. Caltrans is approved to participate in the FAST Act project delivery program through the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (MOU) between Caltrans and FHWA. The MOU allows Caltrans to assume FHWA's responsibilities under NEPA as well as FHWA's consultation and coordination responsibilities under federal environmental laws for most highway projects in California. Caltrans is exercising this authority as the federal nexus for Section 7 consultation on this project.

Under this authority, Caltrans has made the following determinations for species under USFWS jurisdiction:

- *May affect, not likely to adversely affect* the California red-legged frog;
- *May affect, not likely to adversely affect* the San Francisco gartersnake.

No effects to any other listed, candidate, or proposed species are anticipated. Caltrans biologists have worked closely with project engineers to limit the size and scope of the proposed project. In addition, avoidance and minimization measures, including but not limited to, training for construction personnel, seasonal avoidance, ESA fencing, entrapment avoidance, preconstruction surveys, and biological monitoring, will be implemented to reduce impacts to listed, candidate, and proposed species and their habitats.

By implementing these measures, Caltrans anticipates minimal adverse direct impacts to the CRLF and SFGS. However, even with such measures,

take, in the form of harassment, harm, injury, or death of individuals, may occur.

The proposed project will permanently impact 0.284 acre of potential Red-legged Frog dispersal habitat as a result of MVP construction. This loss of habitat is not anticipated to result in the take of individual red-legged frogs.

The proposed project will also temporarily impact 0.126 acres of potential Red-legged Frog dispersal habitat. These impacts will result from construction of project features at location 2. This will result in a temporary reduction in the area of dispersal habitat. All temporary impacts to listed species' habitat will be mitigated by restoring disturbed areas on-site to pre-project or ecologically enhanced conditions. These impacts are considered temporary because the impacted area will be replanted or reseeded with vegetation upon project completion.

The proposed project is expected to be carried out under a Letter of Concurrence from the USFWS. A letter of concurrence indicates a project is unlikely to result in the take of listed species. However, this determination will be finalized prior to completion of the final environmental document.

California Department of Fish and Wildlife Consultation Summary
California Endangered Species Act (CESA) stipulates that incidental take of a state listed species be fully mitigated with financial assurance; if required, appropriate mitigation measures for state-listed species would be designed in coordination with CDFW.

No take of state listed species is anticipated.

CDFW also maintains a list of animal Species of Special Concern (SSC), most of which are species whose breeding populations in California may face extirpation. Although these species have no legal status, CDFW recommends their consideration during analysis of the impacts of proposed projects to protect declining populations and avoid the need to list them as endangered in the future. Standard and species-specific measures will be taken to avoid and minimize impacts to Red-legged Frog, which is a SSC, and other wildlife.

The majority of birds and mammals that may occur surrounding the BSA are protected under CFGC. CFGC Section 4150 specifically protects all non-game mammals. Activities resulting in mortality of non-game mammals may be considered take by CDFW. The avoidance and minimization measures implemented to protect the special status species discussed in this IS also protect non-game mammals.

City of Half Moon Bay Local Coastal Program, City of Pacifica Local Coastal Program, San Mateo County Local Coastal Program, and the California Coastal Commission Coordination Summary

The proposed project is within the jurisdiction of three Local Coastal Programs (City of Half-Moon Bay, City of Pacifica, and San Mateo County) and the California Coastal Commission.

On February 11, 2020, our coastal liaison,Bob Solotar, spoke with Tina Wehrmeister, Pacifica Planning Director, and Bonny O'Connor, Associate Planner for Pacifica, regarding the work proposed for Location 9. Their thought was that Pacifica's designated coastal zone may stop at the edge of travel way pavement, so any signs or poles that are installed past the travel way pavement edge would be outside the coastal zone and not subject to permitting or permit exemption requirements. They said they will look into if the proposed work would need to go through any kind of coastal permitting or exemption process.

On May 1, 2020, our coastal liaison spoke with all three LCPs and the result was that this project may qualify for exemptions in all three jurisdictions. The primary issue was in Half Moon Bay, where the location of one of the proposed signs was moved to avoid a coastal wetland.

Caltrans will continue to openly coordinate with all three coastal jurisdictions.

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

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

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Chapter 5: Appendices

Appendix A: References

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Appendix B: Title 6 Policy Statement

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Making Conservation a California Way of Life.

November 2019

NON-DISCRIMINATION POLICY STATEMENT

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

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

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

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

Toks Omishakin
Director

Appendix C List of Acronyms and Abbreviations

Abbreviation	Definition
AB	Aggregate Base-Class 2
ADL	aerially deposited lead
AMM	Avoidance and Minimization Measure
APE	Area of Potential Effects
ARB	California Air Resources Board
BA	Biological Assessment
BC	black carbon
BMP	Best Management Practice
BSA	Biological Study Area
Caltrans	California Department of Transportation
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
CH_4	methane
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CRLF	California red-legged frog
CTP	California Transportation Plan
CTS	California tiger salamander
DSA	disturbed soil area
EFH	Essential Fish Habitat
ESA	Environmentally Sensitive Area
EO	Executive Order
°F	degrees Fahrenheit
FED	Final Environmental Document
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FR	Federal Register
GHG	Greenhouse gas
GPS	Global Positioning System
GWP	global warming potential
HFC	hydrofluorocarbon
HMA	hot mix asphalt
HUC	hydrologic unit code
HWY	highway
I-	Interstate
IPAC	Information for Planning and Conservation

IPCC	Intergovernmental Panel on Climate Change
IS	Initial Study
ITP	Incidental Take Permit
LCFS	Low Carbon Fuel Standard
LOC	letter of concurrence
MBTA	Migratory Bird Treaty Act
MM	Mitigation measure
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES	natural environment study
NMFS	National Marine Fisheries Service
OWHM	ordinary high water mark
RSP	rock slope protection
RWQCB	Regional Water Quality Control Board
SR	State Route
U.S.	United States
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Appendix D: Avoidance and Minimization Measures

Caltrans has incorporated several avoidance, minimization and mitigation measures into the proposed project to avoid and minimize the impacts of this project on environmental resources. The proposed avoidance, minimization and mitigation measures are as follows:

Protected or Regulated Resource	Proposed Avoidance and Minimization
General Avoidance and Minimization Measures: Aesthetics	**AES-1:** Protect mature vegetation to the maximum extent feasible in order to preserve the scenic quality of the existing landscape. **AES-2:** Plan contractor staging and operations to protect and preserve naturalized annual grassland and sporadic shrubs to the maximum extent feasible. **AES-3:** After construction, treat areas cleared for contractor access and trenching operations with appropriate erosion control measures where required. **AES-4:** Construction activities shall limit all construction lighting to within the area of work and avoid light trespass in residential areas through directional lighting, shielding, and other measures as needed. **AES5-** During construction operations, unsightly material and equipment in staging areas shall be placed where they are less visible and/or covered where possible.

General Avoidance and Minimization Measures: Biology	**BIO 1:** Worker Environmental Awareness Training: : Construction personnel will attend a mandatory environmental education program delivered by the Agency-Approved Biological Monitor or Department Biologist prior to taking part in site construction, including vegetation clearing. The program will focus on the conservation measures that are relevant to an employee's personal responsibility and will include an explanation on how to avoid take of the Red-legged Frog and San Francisco garter snake. At a minimum, the training will include a description of species; how they might be encountered within the project area; their status and protection; and the relevant Conservation Measures and Terms and Conditions of the Letter of Concurrence. A fact sheet conveying this information will be prepared and distributed to all construction and project personnel. Distributed materials will include cards with distinctive photographs of the Red-legged Frog and San Francisco garter snake, compliance reminders, and relevant contact information. Documentation of the training, including sign-in sheets, will be kept on file and made available to the Agencies upon request. **BIO 2:** ESA Fencing: Before the start of construction, ESAs (defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed)

General Avoidance and Minimization Measures: Biology	will be clearly delineated using temporary high-visibility fencing. Construction work areas will include the active construction site and all areas providing support for the project, including areas used for vehicle parking, equipment and material storage and staging, and access roads. The high-visibility fencing will remain in place throughout the duration of construction activities, will be inspected regularly, and fully maintained at all times. The final project plans will show all locations where the fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities, including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs. **BIO 3:** Inclement Weather Restrictions: No work will occur during or within 24 hours following a rain event exceeding 0.2-inch as forecasted by: The National Oceanic and Atmospheric Administration National Weather Service for Half Moon Bay, CA (C3295) base station. USFWS/CDFW approval to continue work during or within 24 hours of a rain event will be considered on a case-by-case basis.

General Avoidance and Minimization Measures: Biology	**BIO 4:** Light Restrictions: Construction personnel will turn portable tower lights on no more than 30 minutes before the beginning of civil twilight, and off no more than 30 minutes after the end of civil sunrise. Portable tower lights will have directional shields attached to them, and personnel will only direct lights downward and toward active construction and staging areas. Lighting per portable tower light will not exceed 2,000 lumens. To the extent practicable, personnel will only use enough coverage to light the work areas. **BIO 5:** Staging: Staging and parking areas will be in designated areas, as specified by the project biologist in coordination with the Project Engineer. **BIO 6:** Soil Storage: Where necessary, native topsoil will be removed and stored in a designated location as specified by the project biologist in coordination with the Project Engineer until project completion. **BIO 7:** Vegetation Removal: Vegetation removal will be limited to the designated work areas needed for access and workspace. Where possible, vegetation will be trimmed instead of removed. Removal in temporary work areas will be cut above soil level to promote re-vegetative growth of established plants following construction to the maximum extent

General Avoidance and Minimization Measures: Biology	feasible. Vegetation will be mowed to a height greater than 4 inches. **BIO 8:** Replant, Reseed, and Restore Disturbed Areas: Caltrans will restore temporarily disturbed areas to the preconstruction or improved contours and functions to the maximum extent practicable. Where soil compaction is unintended, compacted soils will be loosened after heavy construction activities are complete. Exposed slopes and bare ground will be reseeded with native grasses and shrubs to the maximum extent feasible to stabilize and prevent erosion. Where disturbance includes the removal of trees, native species will be replanted at a 3:1 ratio for every native tree removed and 1:1 (native) for every non-native tree removed, based on the local species composition. **BIO 9:** Migratory Bird Treaty Act: To protect migratory birds and their nests, all initial major vegetation clearing, but not grubbing, will be conducted between October 1 and January 31, outside the typical bird nesting season, when possible. Upon completion of vegetation and tree trimming, Caltrans will install storm water and erosion control BMPs as needed. A qualified biologist with appropriate construction and species experience will conduct nest and bird surveys and other wildlife surveys before and during tree cutting. All work will be conducted under a Regional Water Board

General Avoidance and Minimization Measures: Biology	approved Water Pollution Control Plan and Storm Water Pollution Protection Plan as necessary. If construction activities occur between February 1 and September 30, preconstruction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction activities. If work is to occur within 300 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance. Buffer size should be determined in cooperation with CDFW and USFWS. All clearing and grubbing of woody vegetation will be performed by hand or using light construction equipment, such as backhoes and excavators. **BIO 10:** Invasive Species Management: To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. The purpose of this order is to prevent the introduction of invasive species and provide for their control to minimize economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California

General Avoidance and Minimization Measures: Biology	Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and will dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area will be covered to the extent practicable with heavy black plastic solarization material until completion of construction. All earthmoving equipment, as well as seeding equipment to be used during project construction will be thoroughly cleaned before arriving on the project site. **BIO 11:** Water Quality/Erosion Control BMPs: Water Quality/Erosion Control BMP's: Erosion control BMPs will be developed and implemented to minimize any wind or water-related erosion, in compliance with the requirements of the Regional Water Quality Control Board. Protective measures will include, at a minimum: • Vehicle and equipment fueling, and maintenance operations will occur at least

General Avoidance and Minimization Measures: Biology	50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facilities. • Concrete wastes will be collected in washouts, and water from curing operations will be collected and disposed of properly. Neither will be allowed into watercourses. • Spill containment kits will be maintained on-site at all times during construction operations and/ or staging or fueling of equipment. • Dust control measures will include use of water trucks and dust palliatives to control dust in excavation-and-fill areas, covering temporary access road entrances and exits with rock (rocking), and covering temporary stockpiles when weather conditions require. • Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction, to capture sediment. • Graded areas will be protected from erosion using a combination of silt fences and fiber rolls along toes of slopes or along edges of designated staging areas, and erosion control netting

General Avoidance and Minimization Measures: Biology	(e.g., jute or coir) will be used as appropriate on sloped areas. Erosion control materials that use plastic or synthetic monofilament netting will not be used within the BSA. This will include products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials will include natural fibers, such as jute, coconut, twine or other similar natural fibers. **BIO 12:** Construction Site BMP's: The following site restrictions will be implemented to avoid or minimize impacts on special status species and their habitats: • Routes and boundaries of roadwork will be clearly marked before the start of construction or grading. • All food and food-related trash items will be enclosed in sealed trash containers and will be properly disposed off-site. • Sediment and debris removed from the roadway will be disposed of off-site, at an approved location, where it cannot enter surface waters. • No pets belonging to project personnel will be allowed within the BSA at any time during construction.

General Avoidance and Minimization Measures: Biology	• No firearms will be allowed in the project footprint except for those carried by authorized security personnel, or local, state or federal law enforcement officials. • A Spill Prevention and Control Plan will be prepared in accordance with WPCP requirements. Hazardous materials (e.g., fuels, oils, solvents) will be stored in sealable containers in a designated location that is at least 100 feet from any hydrologic features. **BIO 13:** Dry Season Work Window: Construction actions will be scheduled to minimize impacts to the Red-legged Frog and San Francisco garter snake, and their habitats. To reduce impacts to special status species and habitat, construction activities within potential listed amphibian habitat will be conducted during the dry season, between July 1 and October 15. **BIO 14:** Proper Use of Erosion Control Devices: To avoid entanglement or injury of amphibians or reptiles, including the Red-legged Frog and San Francisco garter snake, erosion control materials that use plastic or synthetic monofilament netting will not be used. **BIO 15:** Entrapment Avoidance: To prevent inadvertent entrapment of animals during construction, all

General Avoidance and Minimization Measures: Biology	excavated, steep-walled holes or trenches more than 1 foot deep will be covered at the close of each working day by plywood or similar materials or provided with one or more escape ramps constructed of earth fill or wooden planks at an angle no greater than 30 degrees. Before such holes or trenches are filled, they must be thoroughly inspected for trapped animals. All replacement pipes, hoses, culverts, or similar structures less than 12 inches in diameter will be closed, capped, or covered upon entry to the project site. All similar structures greater than 12 inches must be inspected before they are subsequently moved, capped and/or buried. **BIO 16:** Biological Monitor: The names and qualifications of proposed Biological Monitor(s) will be submitted to the USFWS and CDFW for approval prior to the start of construction. The Agency-Approved Biological Monitor(s) will keep a copy of the Letter of Concurrence in their possession when on-site. Through communication with the Resident Engineer, the Agency-Approved Biological Monitor(s) will be on-site during all work that could reasonably result in take of the Red-legged Frog or San Francisco garter snake. The Agency-Approved Biological Monitor(s) will have the authority to stop work that may result in the unauthorized take of special status species. If the Agency-Approved Biological

General Avoidance and Minimization Measures: Biology	Monitor exercises this authority, the USFWS will be notified by telephone and e-mail message within one (1) working day. **BIO 17:** Preconstruction/Daily Surveys: Preconstruction surveys for special status plant and wildlife species, including the Red-legged Frog and San Francisco garter snake, will be conducted by the Agency-Approved Biological Monitor no more than 20 calendar days prior to any initial ground disturbance and immediately prior to ground-disturbing activities (including vegetation removal and Temporary High Visibility Fencing Installation) within the project footprint. These efforts will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The Agency-Approved Biological Monitor will investigate potential cover sites when it is feasible and safe to do so. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, tree cavities, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. Safety permitting, the Agency-Approved Biological Monitor will also investigate areas of disturbed soil for signs of Red-legged Frogs 30 minutes following initial disturbance of the given area. The need for further preconstruction

General Avoidance and Minimization Measures: Biology	surveys will be determined by the Biologist based on site conditions and realized construction timelines. **BIO 18:** Protocol for Species Observation: The Agency-Approved Biological Monitor (s) will have the authority to halt work through coordination with the Resident Engineer in the event that a listed species is observed in the BSA. The Resident Engineer will keep construction activities suspended in any construction area where the biologist has determined that a potential take of the species could occur. Work will resume after observed listed individuals leave the site voluntarily, the biologist determines that no wildlife is being harassed or harmed by construction activities, or the wildlife is relocated by the biologist to a release site using Agency-approved handling techniques. **BIO 19:** Handling of Listed Species: If a listed species is discovered, the Resident Engineer and Agency-Approved Biological Monitor will be immediately informed. If a Red-legged Frog or San Francisco garter snake gains access to a construction zone, work will be halted immediately within 50 feet until the animal leaves the site or is captured and relocated by the Agency-Approved Biological Monitor. The USFWS will be notified within one (1) working day if a Red-legged Frog or San Francisco garter snake is

General Avoidance and Minimization Measures: Biology	discovered within the construction site. The captured Red-legged Frogs or San Francisco garter snakes will be released within appropriate habitat outside of the construction area but near the capture location. The release location will be determined by the Agency-Approved Biological Monitor. The Agency-Approved Biological Monitor will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (USFWS 2005) and *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003). Disinfecting equipment and clothing is especially important when biologists are entering the BSA to handle amphibians after working in other aquatic habitats. **BIO 20:** Injured Animals: Injured Red-legged Frogs or San Francisco garter snakes will be cared for by an Agency-Approved Biological Monitor(s) or a licensed veterinarian, if necessary. Any deceased Red-legged Frogs or San Francisco garter snakes will be preserved according to standard museum techniques and will be held in a secure location. The USFWS will be notified within one (1) working day of the discovery of

General Avoidance and Minimization Measures: Biology	a death or an injury to any listed species resulting from project-related activities or if a listed species is observed at a construction site. Notification will include the date, time, and location of the incident or the finding of a deceased or injured animal, clearly indicated on a United States Geological Survey (USGS) 7.5-minute quadrangle and other maps at a finer scale, as requested by the USFWS, and any other pertinent information. **BIO 21:** Reporting: Caltrans will submit post-construction compliance reports prepared by the Agency-Approved Biological Monitor to the USFWS within 60 calendar days following completion of project activities or within 60 calendar days of any break in construction activity lasting more than 60 calendar days. This report will detail (1) dates that relevant project activities occurred; (2) pertinent information concerning the success of the project in implementing avoidance and minimization measures for listed species; (3) an explanation of failure to meet such measures, if any; (4) known project effects on listed species, if any; (5) occurrences of incidental take of any listed species, if any; (6) documentation of employee environmental education; and (7) other pertinent information. **BIO 22:** USFWS Access: : If requested, before, during, or upon

General Avoidance and Minimization Measures: Biology	completion of groundbreaking and construction activities, Caltrans will allow access by USFWS personnel into the project footprint to inspect the project and its activities **BIO 23:** Re-initiation of Consultation: Caltrans will reinitiate consultation if modifications to the proposed project design have the potential to results in effects to listed species not considered in this document or the Letter of Concurrence.
General Avoidance and Minimization Measures: Cultural Resources	**CULT-1:** If remains are discovered during excavation, all work within 60 feet of the discovery will halt and Caltrans' OCRS will be called. Caltrans ORCS staff will assess the remains and, if determined human, will contact the County Coroner as per Public Resources Code (PRC) Sections 5097.98, 5097.99, and 7050.5 of the California Health and Safety Code. If the Coroner determines the remains to be Native American, the Coroner will contact the Native American Heritage Commission (NAHC) who will assign a Most Likely Descendant. Caltrans will consult with the Most Likely Descendent on treatment and reburial of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.
General Avoidance and Minimization Measures: Energy Resources	Caltrans Standard specifications and best management practices (BMPs) will be implemented during construction to reduce any inefficient or unnecessary energy resource usages. BMPs include limiting the idling of vehicles and

	equipment onsite and maintaining vehicles and equipment.
General Avoidance and Minimization Measures: Greenhouse Gas Emissions	1. Caltrans Standard Specifications Section 7-1.02A and 7-1.02C, Emissions Reduction, require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all ARB emission reduction regulations 2. Caltrans Standard Specifications Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. 3. A construction transportation management plan will be implemented during construction to minimize work-related traffic delays by the application of general traffic handling practices and strategies.
General Avoidance and Minimization Measures: Hazardous Waste	**HAZ-1:** Caltrans Standards will be followed for the proper handling and disposal of any unanticipated hazardous waste discovered during construction. **HAZ-2:** The project will implement BMPs according to special provision 12-11.09 “Minimal Disturbance of Regulated Material Containing ADL.”

Water Quality/Erosion Control BMP's	**HYDRO-1:** Standard BMPs. The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 13 of the Caltrans Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind- or water-related erosion. **HYDRO-2:** During construction, a silt fence will be used to intercept and slow the flow of sediment-laden sheet flow runoff. A silt fence is a temporary linear sediment barrier of permeable fabric. **HYDRO-3:** Prior to commencement of construction activities, a Water Pollution Control Plan (WPCP) will be prepared by the Contractor and approved by Caltrans. The WPCP addresses potential temporary impacts via implementation of appropriate BMPs, such as those mentioned above, to the maximum extent practicable.

Appendix E: List of Special-status Plant Species and their Potential to Occur in the BSA

Common Name (Scientific Name)	Fed / State/ Rare Plant Status	Habitat	Habitat Presence	Potential to Occur	Effect Determination
Alkali milk-vetch (*Astragalus tener var. tener*)	- / - / 1B.2	Alkali playa | Valley & foothill grassland | Vernal pool | Wetland. Low ground, alkali flats, and flooded lands; in annual grassland or in playas or vernal pools. 0-170 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Anderson's manzanita (*Arctostaphylos andersonii*)	- / - / 1B.2	Broadleaved upland forest | Chaparral | North coast coniferous forest. Open sites, redwood forest. 95-765 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Arcuate bush-mallow (*Malacothamnus arcuatus*)	- / - / 1B.2	Chaparral, cismontane woodland.Gravelly alluvium. 1-735 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Bent-flowered fiddleneck (*Amsinckia lunaris*)	- / - / 1B.2	Cismontane woodland | Coastal bluff scrub | Valley & foothill grassland. 3-795 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Blasdale's bent grass (*Agrostis blasdalei*)	- / - / 1B.2	Coastal bluff scrub | Coastal dunes | Coastal prairieSandy or gravelly soil close to rocks; often in	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

		nutrient-poor soil with sparse vegetation. 5-365 m.			
Blue coast gilia (*Gilia capitata ssp. chamissonis*)	- / - / 1B.1	Coastal dunes, coastal scrub. 3-200 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
California seablite (*Suaeda californica*)	FE / - / 1B.1	Freshwater marsh | Marsh & swamp | Wetland. Margins of coastal salt marshes. 0-5 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	No Effect
Chaparral ragwort (*Senecio aphanactis*)	- / - / 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20-855 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Choris' popcornflower (*Plagiobothrys chorisianus var. chorisianus*)	- / - / 1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. 5-705 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Coast yellow leptosiphon (*Leptosiphon croceus*)	- / CC / 1B.1	Coastal bluff scrub, coastal prairie.10-150 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Coastal marsh milk-vetch *(Astragalus pycnostachyus*	- / - / 1B.2	Coastal dunes | Coastal scrub | Marsh & swamp | Wetland. Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-

var. pycnostachyus)					
Coastal triquetrella (*Triquetrella californica*)	- / - / 1B.2	Coastal bluff scrub, coastal scrub. Grows within 30m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes, and fields. On gravel or thin soil over outcrops. 10-100 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Compact cobwebby thistle (*Cirsium occidentale var. compactum*)	- / - / 1B.2	Chaparral | Coastal dunes | Coastal prairie | Coastal scrub. On dunes and on clay in chaparral; also in grassland. 5-245 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Congested-headed hayfield tarplant (*Hemizonia congesta ssp. congesta*)	- / - / 1B.2	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 5-520 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Crystal Springs fountain thistle (*Cirsium fontinale var. fontinale*)	FE / SE / 1B.1	Chaparral | Cismontane woodland | Meadow & seep | Ultramafic | Valley & foothill grassland | Wetland. Serpentine seeps and grassland. 45-185 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	No Effect

Crystal Springs lessingia (*Lessingia arachnoidea*)	- / - / 1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland.Grassy slopes on serpentine; sometimes on roadsides. 90-200 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Dark-eyed gilia (*Gilia millefoliata*)	- / - / 1B.2	Coastal dunes. 1-60 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Davidson's bush-mallow (*Malacothamnus davidsonii*)	- / - / 1B.2	Chaparral | Oak woodland | Sandy soils	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Diablo helianthella (*Helianthella castanea*)	- / - / 1B.2	Coastal dunes. 1-60 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Dudley's lousewort (*Pedicularis dudleyi*)	- / CR / 1B.2	Chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland. Deep shady woods of older coast redwood forests; also in maritime chaparral. 60-330 m.	Absent	No potential to occur. No suitable habitat is present within the BSA.	-
Fragrant fritillary (*Fritillaria liliacea*)	- / - / 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

		though usually on clay, in grassland. 3-385 m.			
Franciscan manzanita (*Arctostaphylos franciscana*)	FE / - / 1B.1	Chaparral | Ultramafic. Serpentine outcrops in chaparral. 30-215 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	No Effect
Franciscan onion (*Allium peninsulare var. franciscanum*)	- / - / 1B.2	Cismontane woodland | Ultramafic | Valley & foothill grassland. Clay soils; often on serpentine; sometimes on volcanics. Dry hillsides. 5-320 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Franciscan thistle (*Cirsium andrewsii*)	- / - / 1B.2	Broadleaved upland forest | Coastal bluff scrub | Coastal prairie | Coastal scrub | Ultramafic. Sometimes serpentine seeps. 0-295 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Hall's bush-mallow (*Malacothamnus hallii*)	- / - / 1B.2	Chaparral, coastal scrub. Some populations on serpentine. 10-735 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

Hickman's cinquefoil (*Potentilla hickmanii*)	FE / SE / 1B.1	Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps, marshes and swamps and wetlands. Freshwater marshes, seeps, and small streams in open or forested areas along the coast. 5-125 m.	Absent	No potential to occur. Occurrence records exist in near the BSA at location 7. Species was not observed within BSA during surveys and work will be restricted to paved sufaces at this location.	No Effect
Hillsborough chocolate lily (*Fritillaria biflora var. ineziana*)	- / - / 1B.1	Cismontane woodland | Ultramafic | Valley & foothill grassland. Probably only on serpentine; most recent site is in serpentine grassland. 90-170 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Indian Valley bush-mallow (*Malacothamnus aboriginum*)	- / - / 1B.2	Chaparral | Cismontane woodland | Rocky, granitic, often in burned areas	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Island rock lichen (*Hypogymnia schizidiata*)	- / - / 1B.3	Chaparral, closed-cone coniferous forest.On bark and wood of hardwoods and conifers. 260-540 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Kellogg's horkelia (*Horkelia cuneata var. sericea*)	- / - / 1B.1	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral.Old dunes, coastal sandhills; openings. Sandy or gravelly soils. 5-430 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

Kings Mountain manzanita (*Arctostaphylos regismontana*)	- / - / 1B.2	Broadleaved upland forest | Chaparral | North coast coniferous forest. Granitic or sandstone outcrops. 240-705 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Marin checker lily (*Fritillaria lanceolata var. tristulis*)	- / - / 1B.1	Coastal bluff scrub | Coastal prairie | Coastal scrub | Ultramafic. Occurrences reported from canyons and riparian areas as well as rock outcrops; often on serpentine. 5-305 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Marin western flax *(Hesperolinon congestum*)	FT / ST / 1B.1	Chaparral, valley and foothill grassland.In serpentine barrens and in serpentine grassland and chaparral. 60-400 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	No Effect
Marsh microseris (*Microseris paludosa*)	- / - / 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland.3-610 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Minute pocket moss (*Fissidens pauperculus*)	- / - / 1B.2	North coast coniferous forest | Redwood. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Montara manzanita *(Arctostaphylos montaraensis*)	- / - / 1B.2	Chaparral | Coastal scrub. Slopes and ridges. 270-460 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

Northern curly-leaved monardella (*Monardella sinuata ssp. nigrescens*)	- / - / 1B.2	Coastal dunes, coastal scrub, chaparral, lower montane coniferous forest. Sandy soils. 10-245 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Oregon polemonium (*Polemonium carneum*)	- / - / 2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. 0-1830 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Ornduff's meadowfoam (*Limnanthes douglasii ssp. ornduffii*)	- / - / 1B.1	Meadows and seeps, agricultural fields. 5-15 m.	Present	Low potential to occur. Species not observed during surveys but agricultural fields exist adjacent to project footprints.	-
Pacific manzanita (*Arctostaphylos pacifica*)	- / SE / 1B.1	Chaparral | Coastal scrub. 320 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Pappose tarplant (*Centromadia parryi ssp. parryi*)	- / - / 1B.2	Chaparral | Coastal prairie | Marsh & swamp | Meadow & seep | Valley & foothill grassland. Vernally mesic, often alkaline sites. 1-500 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Perennial goldfields	- / - / 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub.5-185 m.	Absent	No potential to occur. No suitable	-

(*Lasthenia californica ssp. macrantha*)				habitat is present within the footprint.	
Point Reyes horkelia (*Horkelia marinensis*)	- / - / 1B.2	Coastal dunes, coastal prairie, coastal scrub.Sandy flats and dunes near coast; in grassland or scrub plant communities. 2-775 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Presidio manzanita (*Arctostaphylos montana ssp. ravenii*)	FE / SE / 1B.1	Chaparral | Coastal prairie | Coastal scrub | Ultramafic. Open, rocky serpentine slopes. 20-215 m.	Absent	No potential to occur. No suitable habitat is present within the footprint. Project locations are outside of known range and plant was not observed during surveys.	No Effect
Robust spineflower (*Chorizanthe robusta var. robusta*)	FE / - / 1B.1	Chaparral | Cismontane woodland | Coastal bluff scrub | Coastal dunes. Sandy terraces and bluffs or in loose sand. 5-245 m.	Absent	No potential to occur. One recorded occurrence within two miles of location 10, but observation is 100+ years old and consists of a 'best guess' of location. No suitable habitat is present within	No Effect

				the footprint and species not observed during surveys.	
Rose leptosiphon *(Leptosiphon rosaceus*)	- / - / 1B.1	Coastal bluff scrub.10-140 m.	Absent		-
Round-headed Chinese-houses (*Collinsia corymbosa*)	- / - / 1B.2	Coastal dunes. 0-30 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
San Bruno Mountain manzanita (*Arctostaphylos imbricata*)	- / SE / 1B.1	Chaparral | Coastal scrub. Mostly known from a few sandstone outcrops in chaparral. 275-305 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
San Francisco Bay spineflower (*Chorizanthe cuspidata var. cuspidata*)	- / - / 1B.2	Coastal bluff scrub | Coastal dunes | Coastal prairie | Coastal scrub. Closely related to C. pungens. Sandy soil on terraces and slopes. 2-550 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

San Francisco campion (*Silene verecunda ssp. verecunda*)	- / - / 1B.2	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie.Often on mudstone or shale; one site on serpentine. 30-645 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
San Francisco collinsia (*Collinsia multicolor*)	- / - / 1B.2	Closed-cone coniferous forest | Coastal scrub | Ultramafic.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
San Francisco lessingia (*Lessingia germanorum*)	FE / SE / 1B.1	Coastal scrub. On remnant dunes. Open sandy soils relatively free of competing plants. 3-155 m.	Absent	No potential to occur. No recorded observations within 2 miles of project locations. Project locations are outside of known range and species was not observed during surveys.	No Effect
San Francisco owl's-clover (*Triphysaria floribunda*)	- / - / 1B.2	Coastal prairie, coastal scrub, valley and foothill grassland.On serpentine and non-serpentine substrate (such as at Pt. Reyes). 1-150 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
San Mateo thorn-mint (*Acanthomintha duttonii*)	FE / SE / 1B.1	Chaparral, Ultramafic, and Valley & foothill grassland. Chaparral, Uncommon serpentinite vertisol clays; in relatively open areas. 50-185 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	No Effect

San Mateo woolly sunflower (*Eriophyllum latilobum*)	FE / SE / 1B.1	Cismontane woodland | Coastal scrub | Lower montane coniferous forest | Ultramafic. Often on roadcuts; found on and off of serpentine. 30-610 m.	Absent	No potential to occur. No recorded observations within 2 miles of project locations and species was not observed during surveys.	No Effect
Scouler's catchfly (*Silene scouleri ssp. scouleri*)	- / - / 2B.2	Coastal bluff scrub, coastal prairie, valley and foothill grassland.5-315 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Short-leaved evax (*Hesperevax sparsiflora var. brevifolia*)	- / - / 1B.2	Coastal bluff scrub, coastal dunes, coastal prairie. Sandy bluffs and flats. 0-640 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Two-fork clover (*Trifolium amoenum*)	FE / - / 1B.1	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 m.	Absent	No potential to occur. One recorded occurrence within two miles of location 10, but observation is 100+ years old, isolated by urban development, and occurrence record consists of a 'best	No Effect

				guess' of location. Species not observed during surveys.	
Water star-grass (*Heteranthera dubia*)	- / - / 2B.2	Marshes and swamps.Alkaline, still or slow-moving water. Requires a pH of 7 or higher, usually in slightly eutrophic waters. 15-1510 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
Western leatherwood (*Dirca occidentalis*)	- / - / 1B.2	Broadleaved upland forest | Chaparral | Cismontane woodland | Closed-cone coniferous forest | North coast coniferous forest | Riparian forest | Riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. 20-640 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-
White-rayed pentachaeta (*Pentachaeta bellidiflora*)	FE / SE / 1B.1	Valley and foothill grassland, cismontane woodland.Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 35-610 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	No Effect

Woodland woolythreads (*Monolopia gracilens*)	- / - / 1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest.Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns, but may have only weak affinity to serpentine. 120-975 m.	Absent	No potential to occur. No suitable habitat is present within the footprint.	-

Notes:

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

[b] Acronym definitions are as follows:

BSA Biological Study Area

United States Fish and Wildlife Service Designations:

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

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

California Department of Fish and Wildlife Designations:

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

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

California Native Plant Society (CNPS) Rankings:

1A Plant presumed extinct in California

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

CNPS threat categories:

.1 Seriously endangered in California.

.2 Moderately threatened in California.

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

Sources:

CDFW. 2018 *California Natural Diversity Database (CNDDB) Rarefind 5*: Habitat Conservation Division. Sacramento, California. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data
CNPS. 2018. *The California Native Plant Society's Inventory of Rare and Endangered Plants of California* (Online edition, version 7.7). http://www.rareplants.cnps.org

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

List of Special-status Wildlife Species and their Potential to Occur in the BSA

Common Name (Scientific Name)	Federal Status	Habitat	Habitat Presence	Potential to Occur	Effect Determination
Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*)	Endangered	Found only in the saline emergent wetlands of San Francisco Bay and its tributaries. Salicornia is the primary habitat. Does not burrow, but builds loosely organized nests. Requires higher areas for flood escape.	Absent	**No:** The footprint does not contain suitable habitat.	No effect
Southern Sea Otter (*Enhydra lutris nereis*)	Threatened	Nearshore marine environments from about Ano Nuevo, San Mateo County. to Point Sal, Santa Barbara County. Needs canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates.	Absent	**No:** The Action will not occur in marine habitat.	No effect.
California clapper rail (*Rallus longirostris obsoletus*)	Endangered	Nests and forages in tidal marshes, and will occur in upland transitional habitats during high tides or flooding events when marshes are inundated.	Absent	**No:** The footprint does not contain suitable habitat.	No effect

Marbled Murrelet (*Brachyramphus marmoratus*)	Threatened	Marine subtidal and pelagic habits from Oregon to Point Sal, Santa Barbara. Uses stands of mature Douglas fir and redwoods up to 40 miles inland for nesting.	Absent	**No:** The footprint does not contain suitable habitat.	No effect
Short-tailed Albatross (*Phoebastria (=Diomedea) albatrus*)	Threatened	Nest on sloping grassy terraces on two rugged, isolated, windswept islands in Japan. After breeding, short-tailed albatrosses move to feeding areas in the North Pacific.	Absent	**No:** The footprint does not contain suitable habitat.	No effect.
Western Snowy Plover (*Charadrius nivosus nivosus*)	Threatened	Found on sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Absent	**No:** The footprint does not contain suitable habitat.	No effect
East Pacific Green Sea Turtle (*Chelonia mydas*)	Threatened	Marine species that needs adequate supply of seagrasses and algae. The species primarily uses three types of habitat: beaches for nesting open ocean convergence zones, and coastal areas for "benthic" feeding.	Absent	**No:** The Action will not occur in marine habitat.	No effect.

San Francisco Gartersnake (*Thamnophis sirtalis tetrataenia*)	Endangered	Freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	Present	**Yes:** Locations 9-2 and 6 do contain potential habitat.	May affect, not likely to adversely affect.
California Red-legged Frog (*Rana draytonii*)	Threatened	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Present	**Yes:** The Alpine Road location contains suitable habitat that may be utilized by CRLF.	May affect, not likely to adversely affect.
Delta Smelt (*Hypomesus transpacificus*)	Candidate	Euryhaline, nektonic and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	Absent	**No:** The Action will not occur in suitable aquatic habitat.	No effect.

Tidewater Goby (*Eucyclogobius newberryi*)	Endangered	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River, Humboldt County. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Absent	**No:** The Action will not occur in suitable aquatic habitat.	No effect.
Bay Checkerspot Butterfly (*Euphydryas editha bayensis*)	Threatened	Coastal dunes, and valley and foothill grassland. Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant, and *Orthocarpus densiflorus* and *O. purpurscens* are the secondary host plants.	Absent	**No:** The footprint does not contain suitable habitat.	No effect
Callippe Silverspot Butterfly (*Speyeria callippe callippe*)	Endangered	Open hillsides where wild pansy (*Viola pedunculata*) grows. Larvae feed on Johnny jump-up plants, whereas adults feed on native	Absent	**No:** The footprint does not contain suitable habitat.	No effect

		mints and non-native thistles.			
Mission Blue Butterfly (*Plebejus icarioides missionensis*)	Endangered	Hills and ridgetops, as well as slopes with southern exposure with caterpillar food plants, *Lupinus spp.*	Absent	**No:** The footprint does not contain suitable habitat.	No effect
Myrtle's Silverspot Butterfly (*Speyeria zerene myrtleae*)	Endangered	Coastal terrace prairie, coastal bluff scrub, and associated non-native grassland habitats where the larval foodplant, *Viola sp.*, occurs.	Absent	**No:** The footprint does not contain suitable habitat.	No effect
San Bruno Elfin Butterfly (*Callophrys mossii bayensis*)	Endangered	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is Sedum spathulifolium.	Absent	**No:** The footprint does not contain suitable habitat.	No effect

Appendix F: USFWS Species List

United States Department of the Interior

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

In Reply Refer To: April 17, 2020
Consultation Code: 08ESMF00-2020-SLI-1649
Event Code: 08ESMF00-2020-E-05116
Project Name: Caltrans 2K880 - Install Travel Time Elements Along SM-1

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

To Whom It May Concern:

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

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

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

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

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

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

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

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

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

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

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

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

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

Project Summary

Consultation Code: 08ESMF00-2020-SLI-1649

Event Code: 08ESMF00-2020-E-05116

Project Name: Caltrans 2K880 - Install Travel Time Elements Along SM-1

Project Type: TRANSPORTATION

Project Description: The purpose of this project is to improve the day to day traffic management capabilities for Caltrans, cities and first responders and provide traveler information to the traveling public on Route 1. This project would improve traffic operations, public safety, system performance, and minimize the duration and impacts of non-recurring congestion due to incidents and roadway and tunnel closures.

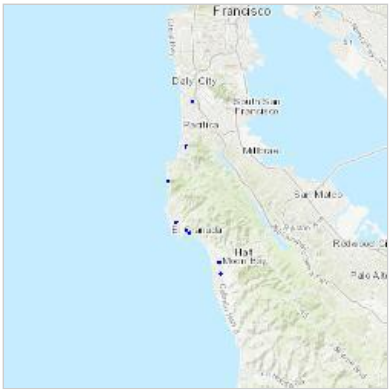
This project is located on State Route (SR) 1 in San Mateo county from Miramontes Point Road Intersection to Clarinada Avenue Undercrossing (postmile 26.4 - R47.3).

The proposed scope of work includes installing Wireless Detection Systems (WDS) in existing cabinets or on existing structures, ground mounting Variable Message Signs (VMS) onto wood poles, adding Midwest Guardrail System (MGS), and adding Maintenance Vehicle Pullouts (MVP) to assist with equipment maintenance. The work scope varies depending on the location (10 locations in total) and is displayed in the attached Footprint Maps. All VMS would be installed in dirt areas and the WDS sensors predominantly in paved areas . The existing Changeable Message Sign (CMS) at the Tom Lantos Tunnels (postmile R39.36) will also be set to display travel times when appropriate.

Work is expected to last 100 days and the project is scheduled to begin construction in 2022.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.67128178566197N122.47721290545286W



Counties: San Mateo, CA

Endangered Species Act Species

There is a total of 25 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

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

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered
Southern Sea Otter *Enhydra lutris nereis* No critical habitat has been designated for this species. ***This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.*** Species profile: https://ecos.fws.gov/ecp/species/8560	Threatened

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
San Francisco Garter Snake *Thamnophis sirtalis tetrataenia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Bay Checkerspot Butterfly *Euphydryas editha bayensis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2320	Threatened
Callippe Silverspot Butterfly *Speyeria callippe callippe* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3779	Endangered
Mission Blue Butterfly *Icaricia icarioides missionensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6928	Endangered
Myrtle's Silverspot Butterfly *Speyeria zerene myrtleae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6929	Endangered
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Flowering Plants

NAME	STATUS
Franciscan Manzanita *Arctostaphylos franciscana* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5350	Endangered
Hickman's Potentilla *Potentilla hickmanii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6343	Endangered
Presidio Manzanita *Arctostaphylos hookeri var. ravenii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7216	Endangered
Robust Spineflower *Chorizanthe robusta var. robusta* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9287	Endangered
San Francisco Lessingia *Lessingia germanorum (=L.g. var. germanorum)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8174	Endangered
San Mateo Woolly Sunflower *Eriophyllum latilobum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7791	Endangered
Showy Indian Clover *Trifolium amoenum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6459	Endangered
White-rayed Pentachaeta *Pentachaeta bellidiflora* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7782	Endangered

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
California Red-legged Frog *Rana draytonii* https://ecos.fws.gov/ecp/species/2891#crithab	Final