

**State Route 1/Calera Parkway/
Highway 1 Widening Project
(from South of Fassler Avenue to
North of Reina Del Mar Avenue
in the City of Pacifica)**

San Mateo County, California

04-SM-1

PM 41.7/43.0

EA 04-254600

Project ID: 0400000715

**DRAFT
ENVIRONMENTAL IMPACT REPORT/
ENVIRONMENTAL ASSESSMENT**

State Clearinghouse Number 2010022042



**Prepared by the
State of California Department of Transportation**

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.



August 2011

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State Clearinghouse Number 2010022042

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

**THE STATE OF CALIFORNIA
Department of Transportation**

7-28-11
Date of Approval



Bijan Sartipi
District Director
California Department of Transportation

General Information About This Document

What's in this document:

The California Department of Transportation (hereinafter "Department" or "Caltrans"), as assigned by the Federal Highway Administration (FHWA), has prepared this Environmental Impact Report/Environmental Assessment (EIR/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located within the city of Pacifica in San Mateo County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

What you should do:

Ø Please read this EIR/EA. Additional copies of this document as well as the technical studies are available for review at:

§ **Caltrans District 4**

Division of Environmental Planning & Engineering
111 Grand Avenue, Oakland, CA 94623

§ **San Mateo County Transportation Authority**

1250 San Carlos Avenue, San Carlos, CA 94070

§ **City of Pacifica**

170 Santa Maria Avenue, Pacifica, CA 94044

§ **Pacifica Public Library**

104 Hilton Way, Pacifica, CA 94044

Ø We welcome your comments. If you have any comments regarding the proposed project, please attend the September 22, 2011 public meeting and/or send your written comments by postal mail, e-mail, or fax to:

Yolanda Rivas, Branch Chief

Division of Environmental Planning & Engineering

California Department of Transportation District 4, Attn: Thomas Rosevear

111 Grand Avenue

Oakland, CA 94623

Fax: 510-286-5600

thomas_rosevear@dot.ca.gov

Deadline for Receipt of Comments: October 7, 2011

What happens next:

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

For individuals with sensory disabilities, this document can be made available in Braille, large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Yolanda Rivas, Office of Environmental Analysis, 111 Grand Avenue, Oakland CA 94623; (510) 286-5609 Voice, or use the California Relay Service 1 (800) 735-2929 (TTY), 1 (800) 735-2929 (Voice) or 711.

SUMMARY

S.1 OVERVIEW OF PROJECT AREA

The California Department of Transportation (“Department” or “Caltrans”), in conjunction with the San Mateo County Transportation Authority (SMCTA) and the City of Pacifica, proposes to widen Highway 1/State Route 1/Calera Parkway (hereinafter referred to as “SR 1”) in the city of Pacifica from four lanes to six lanes through the project limits. The portion of SR 1 proposed for widening is located between 400 feet and 3,200 feet east of the Pacific Ocean within the city of Pacifica and extends from approximately 1,500 feet south of Fassler Avenue to approximately 2,300 feet north of Reina Del Mar Avenue, a distance of approximately 1.3 miles.

The segment of SR 1 proposed for widening operated as a two-lane highway until 1965, when it was widened to a four-lane conventional highway with no median. In 1993, a median barrier was installed as a safety improvement. The existing roadway is four lanes with four-foot minimum outside shoulders, and a six-foot wide median with a concrete barrier.

S.2 PURPOSE AND NEED FOR THE PROJECT

The purpose of the proposed project is to improve traffic operations by decreasing traffic congestion and improving peak-period travel times along a congested segment of SR 1 within the city of Pacifica.

The project segment currently acts as a bottleneck to through travel on northbound and southbound SR 1. The current morning (AM) peak period congestion along SR 1 occurs between 7:00 am and 9:00 am, primarily in the northbound direction with traffic queues extending up to 1.15 miles from the Reina Del Mar Avenue intersection south to Crespi Drive. Morning queues also extend east on Fassler Avenue as much as 2,500 feet and east on Reina Del Mar Avenue as much as 1,000 feet for local traffic trying to enter SR 1 from these cross streets.

The evening (PM) peak period congestion occurs between 4:00 pm and 6:00 pm, primarily in the southbound (SB) direction with traffic queues extending up to 2.06 miles on SR 1 from the Fassler Avenue/Rockaway Beach Avenue intersection to north of Sharp Park Road.

With no improvements to the project area, the traffic projections forecast that by year 2035 the peak period maximum queues will grow from 1.15 miles to 2.28 miles in the AM peak period and from 2.06 miles to 2.80 miles in the PM peak period. The increased magnitude of the congestion will also increase the duration of both the AM and PM peak periods.

Regional and vicinity maps of the project area are shown in Figures 1.1, and 1.2, respectively, in the following section. An aerial photograph showing the site and surrounding land uses, is shown on Figure 1.3.

S.3 PROPOSED ACTION

The California Department of Transportation (“Department” or “Caltrans”), in conjunction with the San Mateo County Transportation Authority (SMCTA) and the City of Pacifica, proposes to widen Highway 1/State Route 1/Calera Parkway (hereinafter referred to as “SR 1”) in the city of Pacifica from four lanes to six lanes through the project limits. Numerous design alternatives for the project were considered and evaluated for their ability to improve traffic operations, decrease congestion and delay, and improve peak-period travel times along this segment of SR 1, at a reasonable cost, while avoiding or minimizing impacts to the adjacent land uses and coastal zone resources.

Under either of the Build Alternatives described below, the project would construct improvements to SR 1/Calera Parkway, the SR 1/Fassler Avenue/Rockaway Beach Avenue intersection, and the SR 1/Reina Del Mar Avenue intersection within the project reach. The footprint of the proposed roadway widening has been minimized in order to reduce right-of-way take and to avoid impacts to sensitive biological resource habitats and potential cultural resources (refer to Sections 2.15-2.19 and 2.8, Cultural Resources, of this EIR/EA, respectively, for additional detail regarding these resources).

Refer to Section *1.0 Proposed Project* of this document for additional detail regarding these proposed improvements.

S.4 PROJECT ALTERNATIVES

Given the right-of-way constraints, the minimum design criteria, the cost and funding considerations, and the environmental and regulatory constraints at the site such as sensitive habitat areas and adjacent coastal wetlands, there are two Build Alternatives evaluated further in this document. The alternatives considered further in this document are the “Narrow Median Build Alternative,” the “Landscaped Median Build Alternative,” and the “No-Build Alternative.”

S.4.1 No Build Alternative

The No Build Alternative would consist of not constructing the project, which would avoid all of the environmental impacts of the project, as described in this document. Under the No Build Alternative, it is assumed that all other planned and programmed improvements would be constructed and in place. The No Build Alternative would not improve traffic operations, decrease traffic congestion and delay, or improve peak-period travel times along this segment of SR 1. Under the No Build Alternative, projected increases in traffic would cause congestion to worsen and the existing problems that are described in Section *1.2.2, Need for the Proposed Project*, would be exacerbated.

S.4.2 Build Alternatives

The two Build Alternatives described in Section *1.3 Project Description* are the only practicable build alternatives, given the right-of-way constraints, the Department’s minimum design criteria, and the environmental and regulatory constraints at the site. The two Build Alternatives are the “Narrow Median Build Alternative” and the “Landscaped Median Build Alternative.” Either of these Build Alternatives would widen this segment of SR 1 from four lanes to six lanes (three lanes in each

travel direction) and would include three 12-foot-wide through-lanes in each direction, with standard 10-foot outside shoulders.

Between the two intersections, SR 1 would be widened primarily on the west side of the roadway to provide for the additional two lanes and widened, standard outside shoulders and median. New pavement would be constructed west of the existing edge of pavement and would vary from 20 feet to 50 feet wide. Approximately half of the length of this widening would be constructed on new embankment contained by retaining walls to prevent encroachment into environmentally sensitive areas, and the other half would be excavated into an existing, man-made embankment (immediately south of the Reina Del Mar Avenue intersection).

The existing roadway segment has a six-foot wide median with a three-foot-high concrete barrier dividing the northbound and southbound lanes. With the proposed widening, the median of the roadway would be shifted slightly to the west and a new median would be constructed.

There are two intersections located within the project area, one near the south end of the site (SR 1/Fassler Avenue/Rockaway Beach Avenue), and one near the north end of the site (SR 1/Reina Del Mar Avenue). The two Build Alternatives propose various improvements to the lane configurations at each of these intersections.

The main difference between the two Build Alternatives is the design of the proposed median in the SR 1 roadway between San Marlo Way and Reina Del Mar Avenue. The existing roadway segment has a six-foot wide median with a three-foot-high concrete barrier dividing the northbound and southbound lanes. Under the Narrow Median Build Alternative the existing roadway median would be widened from six (6) feet to 22 feet throughout the project limits and would include a single three-foot high concrete barrier to separate northbound and southbound lanes as well as ten-foot wide inside shoulders on both the northbound and southbound sides of the highway. Under the Landscaped Median Build Alternative, the median would be widened an additional thirty (30) feet between San Marlo Way and Reina Del Mar Avenue to provide space for a landscaped median. The landscaped median cross section would consist of sixteen (16) feet of landscaping between two three-foot high concrete barriers and a ten-foot wide inside shoulder on both the northbound and southbound sides of the highway. Figure 1.6 shows a typical cross-section of the Landscaped Median Build Alternative.

Refer to Section 1.3 Project Description of this document for additional detail regarding the components of the two proposed Build Alternatives.

S.4.3 Alternatives Considered but Eliminated from Further Discussion

During the development of the proposed project, several other potential solutions and alternative designs were considered and studied. Each was evaluated for its potential to meet the objectives of the project, its engineering feasibility in terms of its ability to meet minimum Caltrans design criteria, its cost, and its environmental impacts. A detailed discussion of the alternatives considered but eliminated is provided in Section 1.4 *Project Alternatives* of this document.

S.5 Joint CEQA/NEPA Document

The project is subject to federal, as well as SMCTA and state environmental review requirements because the SMCTA proposes the use of federal funds from the Federal Highway Administration (FHWA) and/or the project requires a FHWA approval action. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). SMCTA is the project proponent and the Department is the lead agency under CEQA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by the Department under its assumption of responsibility pursuant to Section 6005 of SAFETEA-LU codified at 23 U.S.C. 327(a)(2)(A). Effective July 1, 2007, FHWA has assigned, and the Department has assumed, all the USDOT Secretary's responsibilities under NEPA. The assignment applies to all projects on the State Highway System (SHS) and all Local Assistance Projects off the SHS within the State of California, with the exception of the responsibilities concerning certain categorical exclusions, which were assigned to the Department under the June 7, 2007 MOU, projects excluded by definition and specific project exclusions. Refer to Chapter 38 of the Department's Standard Environmental Reference (SER) for more information.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, it is quite often the case that a "lower level" document is prepared for NEPA. One of the most commonly seen joint document types is an Environmental Impact Report/ Environmental Assessment (EIR/EA).

Following receipt of public comments on the Draft EIR/EA and circulation of the Final EIR/EA, the Department will be required to take actions regarding the environmental document. Caltrans will determine whether to certify the EIR and issue Findings and a Statement of Overriding Considerations under CEQA and will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) under NEPA.

S.6 SUMMARY OF PROJECT IMPACTS

The following is a brief summary of the project impacts and avoidance, minimization, and/or mitigation measures. Because both of the Build Alternatives would widen this segment of SR 1 from four lanes to six lanes (three lanes in each travel direction) and would include three 12-foot-wide through-lanes in each direction, with standard 10-foot outside shoulders, many of the impacts summarized below would be similar under either Alternative. The reader is referred to the main body text of the EIR/EA for detailed discussions of the existing setting, impacts, and avoidance, minimization, and/or mitigation measures.

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Land Use (Section 2.1)				
Effects on Adjacent Land Uses	No effect.	The total additional right-of-way required for the Narrow Median Build Alternative would be approximately 78,500 square feet including both right-of-way and easement acquisitions. Along the west side of SR 1, right of way acquisition would affect 12 existing parcels, extending for about 1,400 feet immediately north of the Fassler Avenue/Rockaway Beach Avenue intersection. Eleven of these parcels would be full acquisitions, while parcel 018-150-150 (vacant former quarry site) would be a partial acquisition. Along the east side of SR 1, right of way acquisition would affect nine existing parcels. Two of these parcels are north of Harvey Way, one of which accommodates a Lutheran Church, while the other is a vacant parcel. The remaining seven affected parcels are along the east side of Harvey Way and	The total additional right-of-way required for the Landscaped Median Build Alternative would be approximately 101,000 square feet. This alternative would require the same property acquisitions as the Narrow Median Build Alternative, plus right-of way acquisition from five additional properties east of SR 1 and south of Reina Del Mar Avenue. The required acquisitions from the Lutheran Church and adjacent property to the north would be larger due to the additional widening needed in this area and easement space needed	Acquisition would be by the County of San Mateo, a certified agency. The owners of any properties acquired for project right-of-way will be compensated for the loss and/or use in accordance with Federal and State right-of-way requirements. No avoidance, minimization, or mitigation measures are proposed or required.

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		require right-of-way and/or permanent sidewalk easement acquisitions (refer to Section 1.4.3).	for utility relocations.	
Consistency with Plans and Programs	Inconsistent with local and regional transportation plans.	Consistent with state, regional, and local plans and programs.	Same as Narrow Median Build Alternative	No avoidance, minimization, or mitigation measures are proposed or required.
Growth (Section 2.2)				
Potential to Induce Growth	No effect.	The project would not result in any direct growth-inducing impacts, because no development is tied to the construction of the widening and intersection improvements. Indirect growth-inducing impacts would be minimal as the project does not include the construction of extended segments of new through lanes on the freeways or local streets.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed or required.

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Relocations and Real Property Acquisition Section 2.3)				
Number of Residential Relocations	No effect.	The Narrow Median Build Alternative will necessitate the relocation of the residents living in the one single-family dwelling located at 425 Old County Road.	The Landscaped Median Build Alternative would necessitate the same residential relocation as the Narrow Median Build Alternative.	The one residential property would be purchased at fair market value. Residents would receive relocation assistance in accordance with the provision of the Caltrans Relocation Assistance Program.
Environmental Justice (Section 2.4)				
Effects on Minority and Low-Income Populations	No effect.	The percentages of minority and low-income populations that are present in the project area are generally less than that of the community as a whole. No minority or low-income populations have been identified that would be adversely affected by the proposed project.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Utilities and Emergency Services (Section 2.5)				
Effect on Utilities	No effect.	Where necessary to construct the Narrow Median Build Alternative, some existing utility lines would be relocated, as is commonplace	Construction of the Landscaped Median Build Alternative would also result in the	No avoidance, minimization, or mitigation measures are proposed.

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		<p>for projects of this nature. Such utility work would not result in disruption of utility services in the project area because existing lines would not be disconnected prior to installation of the relocated lines.</p>	<p>relocation of existing utility lines, similar to the Narrow Median Build Alternative. Given that the Landscaped Median Build Alternative would have a wider footprint, the amount of utilities to be relocated would be greater.</p>	
<p>Effect on Emergency Services</p>	<p>No effect.</p>	<p>The Narrow Median Build Alternative would not impact the long-term operation of emergency services, nor would it require any right-of-way acquisition from the police station property or other emergency service facilities.</p> <p>Construction activities would occur in stages in order to minimize disturbance and to maintain circulation and access through the project area. While there could be some temporary incremental delay in response times through the site during</p>	<p>Same as Narrow Median Build Alternative.</p>	<p>No avoidance, minimization, or mitigation measures are proposed.</p>

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		construction activities, emergency services would indirectly and incrementally benefit from the Narrow Median Build Alternative due to reduced congestion through the alignment area.		
Traffic and Transportation (Section 2.6)				
Effect on SR 1 and Intersection Operations	No immediate effect. Existing congestion, delay and queuing will worsen over time as regional growth continues.	Construction activities would occur in stages in order to minimize disturbance and to maintain circulation and access through the project area. Except for temporary off-peak lane closures, the same number of traffic lanes will be maintained on SR 1 and local streets during the construction period. Narrowed lanes on SR 1 through the construction zone will be likely. No roadway or driveway access to businesses or residents is expected to be severed during the construction of the project. However, there would be some temporary incremental delay in travel times through the site during construction activities.	The Landscaped Median Build Alternative would result in the same effects on intersection operations as the Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		<p>In year 2035, the Narrow Median Build Alternative would increase capacity through the two study intersections and would reduce peak-hour congestion through the project area. The project would not change intersection level of service (LOS) in the AM peak hour, although congestion would be substantially reduced. The project would improve LOS at the intersection of SR 1/Reina Del Mar Avenue by two letter grades in the PM peak hour. Average vehicle delays would decrease by approximately 65 percent in both peak hours. Travel times through the corridor would improve by between 8 and 11 minutes.</p>		
<p>Pedestrian Facilities</p>	<p>No effect.</p>	<p>Because the intersections at both Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue would be widened, a pedestrian would require extra time to cross the street, which the traffic analysis assumes would be a minimum increase of eight seconds at each intersection. Pedestrian</p>	<p>The Landscaped Median Build Alternative would result in the same effects on pedestrian facilities as the Narrow Median Build Alternative.</p>	<p>No avoidance, minimization, or mitigation measures are proposed.</p>

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Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		sidewalks would be improved throughout the project reach as part of the project.		
Bicycle Facilities	No effect.	The existing two-way bicycle/pedestrian path adjacent to the westerly edge of the highway north of Reina Del Mar Avenue would be reconstructed along the west edge of the widened SR 1 roadway and would be upgraded to a Class 1 bike path. The existing two-way bicycle/pedestrian path west of the existing highway south of Rockaway Beach Avenue would not be altered or affected by the proposed roadway widening project.	The Landscaped Median Build Alternative would have the same effect as the Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Visual/Aesthetics (Section 2.7)				
Effects on Visual and Aesthetic Character	No effect.	The improvements proposed by the project would alter the visual character of portions of the project alignment due to the removal of structures, trees, and screening shrubs at the edges of the roadway, as well as the removal of portions of the existing vegetated soil	The Landscaped Median Build Alternative would result in similar effects on visual and aesthetic character as the Narrow Median Build	Minimization measures are proposed.

TABLE S-1

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Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		embankment. While the project would change the appearance at certain locations along the project alignment, the project would not substantially affect views or the aesthetics of the project corridor.	Alternative. This Alternative would, however, also include trees and shrubs within the median of the SR 1 roadway.	
Light and Glare	No effect.	Construction of the proposed improvements could require the use of nighttime lighting, which would temporarily increase light and glare in the site vicinity.	Construction of the Landscaped Median Build Alternative could also require the use of nighttime lighting, similar to the Narrow Median Build Alternative.	Nighttime construction lighting shall be directed downward, away from sensitive land uses, such as nearby residences.
Cultural Resources (Section 2.8)				
Effects on Archaeological Resources	No effect.	The project could potentially affect a cultural resource site (CA-SMa-268), which is eligible for the NRHP and CRHR, within the APE. Caltrans has determined a Finding of No Adverse Effect with Standard Conditions – Environmentally Sensitive Areas (ESAs), according to Section 106 PA Stipulation X.B(2) and 36 CFR	The Landscaped Median Build Alternative could affect the same cultural resource site as the Narrow Median Build Alternative.	Two separate Environmental Sensitive Areas (ESAs) are included as part of the project and will be maintained for each resource. ESA 1 (CA-SMa-162) Monitoring shall be undertaken within the Archaeological Monitoring Area (AMA) adjacent to the ESA boundary in association

TABLE S-1

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		800.5(b), is appropriate for this undertaking.		<p>with a Native American Consultant to ensure that the ESA is not compromised during the removal of the engineered fill embankment placed during road construction in the 1960s to allow for future highway improvement to Highway 1. The AMA includes the recorded site boundary of CA-SMA-162 and a small buffer.</p> <p>The ESA fence and AMA shall be professionally surveyed and marked. The AMA measures approximately 270 feet north-south by 80 feet east-west (19,000 square feet) and includes the boundary of CA-SMA-162 and a small buffer.</p> <p>The ESA boundary shall be marked with appropriate visible barrier fencing at least four (4) feet high and attached to temporary fence posts to indicate the presence of a “no-go” area.</p> <p>The ESA boundary fence shall be clearly signed every 25 feet to indicate that it is an ESA and no</p>

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Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>work is authorized beyond the marked ESA boundary.</p> <p>The ESA shall be marked on construction documents and contractual language shall be included indicating that no excavation or other ground disturbing activity is permitted within the ESA.</p> <p>Subsurface construction within the AMA shall not occur without the presence of a qualified Archaeological Monitor and a Native American Consultant. The Native American Consultant shall assist the Archaeological Monitor during construction and provide guidance in the event of the discovery of prehistoric artifacts and/or human remains.</p> <p>Monitoring of all earth disturbing construction within the AMA shall be conducted by a qualified Archaeological Monitor with regional experience with prehistoric cultural materials and experience in</p>

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				<p>identifying human bone. The San Mateo County Transportation Authority (SMCTA) Project Engineer and Project Inspector shall be responsible for implementation and enforcement of the archaeological monitoring requirements including notifying the Archaeological Monitor 48 hours in advance of any monitoring needs.</p> <p>The monitoring team shall have the authority to temporarily halt construction to examine any finds within the AMA and immediately adjacent areas. Diagnostic artifacts that could provide interpretive information for CA-SMA-162 shall be collected at the discretion of the Archaeological Monitor in consultation with the Native American Consultant.</p> <p>Monitoring shall be undertaken within the AMA for a minimum of five feet below the present ground surface and shall be deemed complete when no evidence of subsurface cultural materials is</p>

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				<p>noted in the sediments to be removed by construction.</p> <p>A pre-construction meeting shall be held with the Contractor and other project personnel to discuss the ESA requirements and the potential for the exposure of archaeological materials within the AMA. Procedures for any unanticipated discoveries shall be discussed with the Contractor and Environmental Construction Liaison and other pertinent parties.</p> <p>If buried cultural materials are encountered during construction within the AMA, work shall stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.</p> <p>An Archaeological Monitoring Closure Report shall be provided by the SMCTA Project Engineer or other designated entity to Caltrans District 04 within 30 calendar days of the completion of monitoring. The report shall provide information</p>

TABLE S-1

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Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>on the monitoring protocols, dates of monitoring, discoveries, results, etc, along with appropriate graphics and supplementary materials.</p> <p>ESA 2 (CA-SMa-268) No monitoring is recommended as analysis of the original ground surface as of 1940 with current elevations and proposed subsurface construction impacts indicates that all construction will occur within the existing fill prism with at least a three to five-foot buffer or more.</p> <p>The ESA shall be professionally surveyed and marked. The ESA western boundary is approximately 250 feet long; the eastern boundary is approximately 200 feet long; the southern boundary is 120 feet wide (Reina Del Mar Avenue); and, the north boundary is about 115 wide.</p> <p>The ESA shall be marked on construction documents and contractual language shall be included indicating that no excavation or other ground</p>

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				<p>disturbing activity is permitted below the approximate depth of the improvements proposed within the ESA.</p> <p>Earth disturbing construction within the ESA shall be checked on a daily basis by the Contractor and reported to the Environmental Construction Liaison to determine the depth to the 1940 grade. If the grade is within three feet or less, this information shall be reported to the Caltrans Professionally Qualified Staff (PQS) Archaeologist for review.</p> <p>A pre-construction meeting shall be held with the Contractor and other project personnel to discuss the ESA requirements and the potential for the exposure of archaeological materials within the ESA at depths below the approximate improvement depth. Procedures for penetration into the 1940 grade shall be discussed with the Contractor and Environmental Construction Liaison and other pertinent parties.</p>

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Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>If buried cultural materials are encountered during construction within the ESA, work shall stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.</p> <p>If human remains are exposed in the ESA during project construction, all work in that area must halt and the San Mateo County Coroner must be contacted, pursuant to California Public Resources Code Sections 5097.94, 5097.98, and 5097.99.</p> <p>An Archaeological Monitoring Closure Report for ESA 2 shall be provided by the SMCTA Project Engineer or other designated entity to Caltrans District 04 within 30 calendar days of the completion of work. The report shall provide information on the monitoring protocols, dates of monitoring, discoveries, results, etc, along with appropriate graphics and supplementary materials.</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Effects on Historic Resources	No effect.	The Narrow Median Build Alternative would not result in a substantial adverse change to any designated historic resources. The project is designed to incorporate the <i>Secretary of the Interior’s Standards for the Treatment of Historic Properties With Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings (Standards)</i> pursuant to CEQA Guidelines §15064.5(b). No effect.	Same as Narrow Median Build Alternative. No effect.	No avoidance, minimization, or mitigation measures are proposed.
Hydrology and Floodplain (Section 2.9)				
Effects of Flooding	No effect.	Portions of the project area are within the one percent probability storm event floodplain (sometimes known as the “100-year” event); however, the proposed project would have a minimal effect on the floodplains. The project would result in an increase in impervious area. This increase would be insignificant compared to the overall watershed	Effects on flooding and the amount of impervious surfaces added would be similar to the Narrow Median Build Alternative.	The project would increase storm drain capacities so that local ponding associated with the one percent probability storm event would not differ significantly from ponding under the existing condition. The final design will ensure that design storm flood extents will not encroach on the travelled way.

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		area and would have a negligible effect upon the floodplains associated with the water bodies that cross the project.		
Water Quality and Storm Water Runoff (Section 2.10)				
Storm Water Quality	No effect.	<p>Construction-related activities may affect storm water quality and, during construction, there is a potential for temporary impacts to occur due to increased erosion. There is also a potential for spills and leaks of lubricants and other fluids associated with vehicles and equipment during construction.</p> <p>Certain pollutants are associated with stormwater runoff from highways and increases in roadway and other impervious surfaces also result in increases in storm water runoff. The Narrow Median Build Alternative would result in an increase in the amount of roadway paving and other impervious surfaces. However, this increase would be minimal, especially in view of the fact that most of the</p>	The extent of construction activities and the amount of impervious surfaces added would be similar to the Narrow Median Build Alternative.	The design of the project includes Best Management Practices (BMPs) to reduce the pollutant component of stormwater runoff, as required by the Caltrans NPDES permit and the NPDES permit for general construction activities (see above discussion). In addition to the requirements of the NPDES permit, compliance with the requirements of the Caltrans Stormwater Management Plan (SWMP) is also required.

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		project site already consists of roadways (i.e., the existing freeway).		
Geology/Soils/Seismic/Topography (Section 2.11)				
Geologic Hazards	No effect.	The proposed project would involve typical highway excavation and grading practices necessary to construct the additional lanes and intersection modifications. There are no geologic features on the site that would pose special or unique hazards to users of the proposed improvements. The project would implement standard engineering practices to ensure that geotechnical and soil hazards do not result from its construction.	The Landscaped Median Build Alternative would require similar excavation and grading practices as the Narrow Median Build Alternative to construct the additional lanes and intersection modifications.	No additional avoidance, minimization, or mitigation measures are proposed.
Hazardous Waste/Materials (Section 2.12)				
Presence of Hazardous Materials or Hazardous Waste	No effect.	There are several sites in the vicinity of the project segment of SR 1 where hazardous materials are generated, used, or stored and/or where some type of	The same contamination sites near the project alignment would be in the vicinity of the	Prior to project development, a soils investigation shall be completed in areas of probable or suspect contamination to determine if petroleum hydrocarbons have

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		spill/leakage/contamination has occurred.	Landscaped Median Build Alternative.	<p>affected soils that will be excavated as part of the proposed project. Soil sampling shall also be completed within the man-made embankment on the west side of SR 1, north and south of the Reina Del Mar Avenue intersection.</p> <p>A health and safety plan shall also be prepared to provide general guidance to the work hazards that may be encountered during construction activities in these areas.</p> <p>Prior to project development, a groundwater investigation shall be completed in areas of probable or suspect contamination to determine if petroleum hydrocarbons have affected ground water that will be encountered as part of the proposed project excavation.</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
<p>Exposure to Aerially-Deposited Lead (ADL), Asbestos-Containing Materials, and/or Lead-Based Paint</p>	<p>No effect.</p>	<p>Soil with elevated concentrations of lead is likely to be present at the site.</p> <p>An embankment comprised of unknown fill materials is present within the project limits.</p> <p>Naturally-occurring asbestos may be present in rock within the project alignment.</p> <p>Structures located within the project alignment presumably will be demolished that may include asbestos-containing materials.</p>	<p>The Landscaped Median Build Alternative would have similar exposure to ADL, asbestos-containing materials, and lead-based paint as the Narrow Median Build Alternative.</p>	<p>Prior to project development, a soil investigation shall be completed to determine whether aerially-deposited lead (ADL) has affected soils that will be excavated as part of the proposed project. The investigation for ADL shall be performed in accordance with the Caltrans' Lead Testing Guidance Procedure (dated March 16, 2001).</p> <p>Soil sampling for asbestos shall be completed along the southern end of the alignment, as well as the within the man-made embankment on the west side of SR 1, north and south of the Reina Del Mar Avenue intersection.</p> <p>Asbestos-containing material surveys shall be completed following National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines at any structure proposed for demolition during project</p>

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				development that is known or suspected to have been constructed prior to 1990.
Air Quality (Section 2.13)				
Conformance with Clean Air Act	No effect.	The project can meet air quality conformity at the regional level because it is included in the Regional Transportation Plan and the Transportation Improvement Program, both of which have been found to conform to the Clean Air Act.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Effect on Emissions of Carbon Monoxide	No effect.	The Narrow Median Build Alternative would not cause or contribute to any localized carbon monoxide violations. It should be noted that improving the operations of this portion of SR 1 would reduce congestion and vehicle idling, which would slightly reduce air emissions from vehicles traveling through the site.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Effect on Emissions of PM ₁₀ and PM _{2.5}	No effect.	The Narrow Median Build Alternative would not result in additional emissions of fine particulate matter (PM ₁₀ and PM _{2.5}) in the long-term. The short-term emissions of particulate matter are addressed under Section 2.21 Construction Impacts.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Effect on Emissions of Air Toxics	No effect.	The Narrow Median Build Alternative would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing highway facility, or any other factor that would cause an increase or change in duration of air toxics emissions.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Noise and Vibration (Section 2.14)				
Changes in Noise Levels	No effect.	Noise levels would remain unchanged from existing levels, or would increase by 1-3 decibels. This increase would not be perceptible and would not exceed the threshold in the Department's <i>Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects</i> .	The projected increase in noise levels for the Landscaped Median Build Alternative would be the same as the Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Noise Levels Exceed Noise Abatement Criteria?	No effect.	Projected noise levels would, however, approach or exceed FHWA’s noise abatement criteria at four locations, two of which also approach or exceed the criteria under existing conditions.	Same as Narrow Median Build Alternative.	The feasibility and reasonableness allowances of noise abatement sound walls were considered.
Natural Communities (Section 2.15)				
Effect on Natural Communities of Concern	No effect.	<p>No natural communities of concern (i.e., shining willow riparian forest, aquatic, or seasonal wetlands) are located within areas of permanent or temporary project impacts. The Narrow Median Build Alternative would avoid these habitats by using retaining walls to constrain roadway fill so that construction will be outside of these habitats.</p> <p>SR 1 currently impedes the dispersal of terrestrial animal species between coastal habitats and inland areas along the project alignment.</p>	Same as Narrow Median Build Alternative. While the alignment would be shifted slightly for the Landscaped Median Build Alternative, this Alternative would also use retaining walls to constrain roadway fill so that construction will be outside of these habitats.	<p>All temporary staging areas and construction access roads will be located in upland areas or existing developed areas out of wetland, aquatic and riparian habitats.</p> <p>No equipment will be operated in the live stream channel of Calera Creek.</p> <p>The boundaries of the project will be clearly delineated with orange-colored plastic construction fencing (ESA) to prevent workers or equipment from inadvertently straying from the designated construction area. All construction personnel, equipment, and vehicle movement shall be confined within all designated construction areas.</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Wetlands and Other Waters (Section 2.16)				
Effect on Wetlands or Other Waters	No effect.	<p>No work or staging of equipment or materials is proposed within areas supporting wetlands or other waters as defined by U.S. Army Corps of Engineers or coastal wetlands as defined by the California Coastal Commission. Therefore, wetlands will not be filled or directly affected by the project.</p> <p>Indirect impacts on water quality in wetlands and other waters on-site or off-site are possible during and after construction of the project.</p> <p>A cantilevered bridge will be constructed over an existing culvert outfall where road widening of SR 1 approximately 700 feet north of Fassler Avenue will expand over wetland habitat. Although the cantilevered roadway section of the culvert area would create some shading, this would not be a substantial change because</p>	While the alignment would be shifted slightly for the Landscaped Median Build Alternative, this Alternative would result in the same effects on wetlands and other waters as the Narrow Median Build Alternative.	As described in Section 2.10.3 <i>Water Quality and Stormwater Runoff, Environmental Consequences</i> , in compliance with Caltrans' NPDES permit, the project includes feasible BMPs to treat stormwater runoff and control pollutants in runoff during the construction and post-construction periods. These measures will avoid indirect impacts to wetlands in the vicinity of the project.

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		this wetland area is currently shaded, and no vegetation is growing in this area under existing conditions. Therefore, the proposed cantilevered bridge would not indirectly affect wetlands.		
Plant Species (Section 2.17)				
Effect on Special-Status Plant Species	No effect.	No special-status plant species are present within the project impact area. Therefore, the project would not affect any special-status plant species.	While the alignment would be shifted slightly for the Landscaped Median Build Alternative, this Alternative would result in the same effects on special-status plant species as the Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Animal Species (Section 2.18)				
Effect on Special-Status Animal Species	No effect.	Habitat for the western pond turtle at the site is marginal, although it is possible that turtles may occur occasionally as dispersing	Same as Narrow Median Build Alternative.	The same avoidance and minimization measures included in the project for California red-legged frogs and San Francisco garter

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		individuals.		snakes in Section 2.19 <i>Threatened and Endangered Species</i> , would reduce the potential for individual turtles to be affected by construction activities.
Effect on Nesting Migratory Birds	No effect.	There is a potential that construction activities could affect nesting migratory birds that are protected under the Migratory Bird Treaty Act and California Fish & Game Code, including the loggerhead shrike, yellow warbler, San Francisco common yellowthroat, or white-tailed kite.	Construction activities for the Landscaped Median Build Alternative would result in similar effects as the Narrow Median Build Alternative.	Potential nesting substrate (e.g., bushes, trees, grass, and suitable artificial surfaces) will be removed during the non-breeding season (removal between September 1 and February 1), if feasible, to preclude nesting. If it is not feasible to schedule vegetation removal during the non-breeding season, then pre-construction surveys for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. This survey shall be conducted no more than seven days prior to the initiation of construction activities. During this survey the ornithologist will inspect trees, shrubs, and other potential nesting habitats in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>areas to be disturbed by these activities, the ornithologist, in consultation with CDFG, will determine the extent of a buffer zone to be established around the nests, typically 50-100 feet for passerine birds like yellow warblers and San Francisco common yellowthroats and up to 250 feet for white-tailed kites.</p> <p>If construction activities cease for more than one week during the nesting season and nesting habitat for these species remains, additional preconstruction surveys will be conducted.</p>
Threatened and Endangered Species (Section 2.19)				
Effect on California Red-Legged Frog	No effect.	The project would not result in direct permanent or temporary effects to aquatic, riparian, or wetland habitats used by California red-legged frogs. The hydrology of aquatic habitats outside the project area where California red-legged frogs could be present also would not be altered by the project.	The Landscaped Median Build Alternative would result in similar effects to California Red-Legged Frog as the Narrow Median Build Alternative. This Alternative would affect	To the extent practicable, nighttime construction will be minimized to avoid effects to nocturnally active listed species. When necessary in areas adjacent to California red-legged frog habitat, work lights will be directed away from adjacent habitat areas.

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		<p>Construction of the project would, however, disturb developed and roadside/ruderal grassland habitat that could be used for foraging and dispersal by frogs. The project would result in permanent impacts to 6.81 acres of potentially occupied habitat and temporary impacts to 3.75 acres of potentially occupied habitat.</p>	<p>an additional 0.27 acres of additional dispersal habitat beyond that described for the Narrow Median Build Alternative.</p>	<p>Wildlife exclusion fencing (WEF) shall be installed prior to the initiation of construction activities to exclude California red-legged frogs from the construction area. The WEF will consist of silt-fencing, plywood, or suitable material at least 36 inches high that is buried six (6) inches deep in the ground, or sealed in a like manner, to prevent incursion under the fencing. In addition, at the end of each fencing segment, the WEF will be installed to curve back away from the roadway. WEF will be located along the edge of construction impact areas wherever they are within 300 feet of Calera Creek or the off-site ditch that parallels southbound SR 1, northeast of San Marlo Way and south of Calera Creek.</p> <p>Prior to installation of the WEF, a preconstruction survey shall be conducted by a qualified biologist in the portions of the Biological Study Area (BSA) where equipment and construction activities will be</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>located. Additionally, a qualified biologist shall monitor the installation of the WEF to ensure that no California red-legged frogs are trapped within the construction area or harmed during installation. A post-installation survey shall be conducted to confirm the absence of frogs within the WEF. Any California red-legged frog found within the construction area (i.e., inside the WEF) will be relocated by the approved biologist to a safe location west of the BSA, which is preapproved by the USFWS and within Calera Creek or the Pacifica wastewater treatment ponds.</p> <p>The boundaries of the project shall be clearly delineated with orange-colored plastic construction fencing (ESA fencing) to prevent workers or equipment from inadvertently straying from the designated construction area. All construction personnel, equipment, and vehicle movement shall be confined within the designated construction, access, and staging areas. This fencing will</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>be installed concurrently with or after the WEF and will be located on the construction side of the WEF.</p> <p>Before any construction activities begin, a qualified biologist will conduct a training session with construction personnel to describe the California red-legged frog, its habitat, its conservation status, the specific measures being implemented to minimize effects to the species, and the boundaries of the Project area.</p> <p>Prior to the start of work each day, a qualified biologist, serving as a Biological Monitor, shall inspect the integrity of the WEF to ensure no holes or damage, and the area within the construction zone, focusing on pits that were left open overnight and under equipment and materials. After this time, a biological monitor shall be designated to monitor on-site compliance with all avoidance and minimization measures. The</p>

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>biologist shall ensure that this designated biological monitor receives training as outlined above and in the identification of California red-legged frogs and San Francisco garter snakes. The designated biological monitor shall conduct daily inspections prior to the start of work each day as described above.</p> <p>If a frog of any kind that could be a California red-legged frog is encountered during project construction, the following protocol will be implemented: 1) the Resident Engineer will be notified; 2) the Resident Engineer will ensure that all work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease; and 3) the approved-biologist, who will be on-site monitoring construction, will identify the species and may remove the individual to a preapproved safe location nearby, if necessary.</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>To offset the approximately 6.81-7.08 acres of potential upland dispersal habitat that will be permanently affected by the project and the approximately 3.75 acres that will be temporarily affected during construction, the project proposes a mitigation package in cooperation with the Golden Gate National Recreation Area (GGNRA). The GGNRA staff has approved this mitigation proposal in concept; however, specific details will need to be approved by the National Park Service (NPS). The proposed concept is to preserve a 5.1 acre parcel owned by the City of Pacifica that is west of the Pacifica waste water treatment plant and south of the GGNRA.</p> <p>In addition to preservation of the 5.1 acres of upland habitat, the upland habitat will be enhanced from the preserved parcel, over the saddle within the GGNRA (approximately 5.46 acres in size), and down to a bowl area adjacent to GGNRA California red-legged frog breeding</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>ponds.</p> <p>Installation of WEF and ESA fencing will cause damage to sensitive and steeply sloping habitat, and thus, these measures will not be implemented during enhancement activities at the mitigation site. However, the following measures are included as part of the project and will minimize effects to California red-legged frogs during construction of the enhancement features.</p> <p><i>Measure 1: Pre-construction Survey and Construction Monitoring of Mitigation Enhancement Installation.</i> Prior to installation of enhancement features in the mitigation area, a pre-construction survey will be conducted by a qualified biologist in the portions of the mitigation area where equipment and construction activities will be located. Additionally, a qualified biologist will monitor during development and enhancement of the mitigation</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>area, searching the path and placement locations immediately before equipment is moved or workers advance. California red-legged frogs found within the construction area may be relocated by the approved biologist to a safe location nearby, preapproved by the USFWS, if necessary.</p> <p><i>Measure 2: Construction Area Limitation.</i> All construction personnel, equipment, and vehicle movement shall be confined within the minimum construction, access, and staging areas necessary for construction.</p> <p><i>Measure 3: Construction Worker Education Program.</i> Before any construction activities begin, a qualified biologist will conduct a training session with construction personnel to describe the California red-legged frogs, its habitat, its conservation status, the specific measures being implemented to minimize effects to the species, and the boundaries of the Project area.</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p><i>Measure 4: Inspection and Discovery.</i> While on-site in compliance with Measure 1, a qualified Biologist, serving as a Biological Monitor, will inspect the areas within the construction zone, focusing in pits and under equipment and materials left overnight. If a frog thought to be a red-legged frog is encountered during project construction, the following protocol will be implemented:</p> <p>1) the Resident Engineer will be notified; 2) the Resident Engineer will ensure that all work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease; and 3) the approved-biologist, who will be on-site monitoring construction, will identify the species and may remove the individual to a preapproved safe location nearby, if necessary.</p> <p>As a part of the project, areas of temporary habitat loss shall be seeded with native plants to</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				<p>reestablish habitat of equal value within one year of construction.</p> <p>As a part of the project, areas of temporary habitat loss shall be seeded with native plants to reestablish habitat of equal value within one year of construction.</p> <p>Take of California red-legged frogs or San Francisco garter snakes is only permitted through consultation with the USFWS. Section 7 consultation with the USFWS shall be completed prior to project approval.</p>
<p>Effect on San Francisco Garter Snake</p>	<p>No effect.</p>	<p>The presence of San Francisco garter snakes is unlikely; however they could occur within the project construction area. The project would not result in direct permanent or temporary effects to aquatic, riparian, or wetland habitats used by San Francisco garter snakes. Construction of the proposed project would disturb ruderal grassland and non-native woodland habitat between Mori</p>	<p>The Landscaped Median Build Alternative would result in similar effects to San Francisco garter snakes as the Narrow Median Build Alternative.</p>	<p>Same as mitigation described above for California red-legged frogs, with the exception that if any San Francisco garter snakes are found on-site during construction, the snake will be allowed to leave on its own accord.</p>

TABLE S-1				
SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES				
Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		Point Road and San Marlo Way that could be used for dispersal by garter snakes.		
Effect on American Peregrine Falcon and Bank Swallow	No effect.	The project would not affect American peregrine falcon and bank swallow.	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.
Invasive Species (Section 2.20)				
Effect on Invasive Plant Species	No effect.	None of the species on the California list of noxious weeds is currently used by the Department for erosion control or landscaping in San Mateo County. Therefore, the project is very unlikely to propagate invasive species in the site area.	Same as Narrow Median Build Alternative.	<p>Landscaping and erosion control included in the project will not use species listed as noxious weeds.</p> <p>Prior to grading, infested areas will be cleared of vegetation and all vegetative material destroyed off-site, taking care to prevent any seed dispersal in the process.</p> <p>Native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground.</p> <p>All areas of ground disturbance within the project area will be monitored and maintained for a period of at least two years</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
				following project implementation. Maintenance may include removal of re-sprouts, treatment of cut invasive trees with systemic herbicides, and removal of seedlings.
Short-Term Construction Impacts (Section 2.21)				
Traffic and Transportation/ Pedestrian and Bicycle Facilities	No effect.	<p>Narrowed lanes on SR 1 through the construction zone will be likely during several phases of construction, and at times the roadway will be temporarily shifted to allow work on other portions.</p> <p>The existing two-way bicycle/pedestrian path adjacent to the west edge of the highway north of Reina Del Mar Avenue would be reconstructed along the west edge of the widened highway and upgraded to a Class 1 bike path.</p> <p>No roadway or driveway access to businesses is expected to be severed during the construction of the project.</p>	Because the nature of the construction work would be similar, the Landscaped Median Build Alternative would result in similar construction impacts as the Narrow Median Build Alternative.	Prior to construction, a Transportation Management Plan (TMP) will be prepared. The TMP will address all traffic-related aspects of construction including, but not limited to, the following: traffic handling in each stage of construction, pedestrian safety/access, and bicycle safety/access. A component of the TMP will involve public dissemination of construction-related information through notices to the neighborhoods, press releases, and the use of changeable message signs.

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
<p>Water Quality and Storm Water Runoff</p>	<p>No effect.</p>	<p>Excavation and grading activities have the potential to degrade water quality in the form of sedimentation, erosion, and fuels/lubricants from equipment.</p>	<p>Because the nature of the construction work would be similar, the Landscaped Median Build Alternative would result in similar construction impacts as the Narrow Median Build Alternative.</p>	<p>Best Management Practices (BMPs) will be utilized by the contractor(s) during construction. The BMPs will be incorporated into a Storm Water Pollution Prevention Plan for the project, as required by the Caltrans NPDES permit and the NPDES permit for general construction activities.</p> <p>Soil stabilization measures are also included.</p> <p>Temporary cover of disturbed surfaces or temporary slope protection measures will be provided per regulatory requirements and Caltrans' guidelines to help control erosion.</p> <p>In order to prevent the tracking of mud and dirt offsite, stabilized construction entrances/exits will be placed at multiple points throughout the project area. Street sweeping will also be utilized to remove tracked sediment.</p>

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SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Air Quality	No effect.	Construction-related dust and air emissions, including fine particulate matter (PM ₁₀ and PM _{2.5}), are generally short-term in duration but may still cause adverse air quality impacts unless proper emission control measures are implemented.	Because the nature of the construction work would be similar, the Landscaped Median Build Alternative would result in similar construction impacts as the Narrow Median Build Alternative.	The Department's Standard Provisions to construction contracts would minimize air quality impacts. These include requiring emission controls on construction equipment and spraying water on exposed surfaces to minimize dust.
Noise and Vibration	No effect.	Construction activities would temporarily increase noise levels in the site vicinity.	Because the nature of the construction work would be similar, the Landscaped Median Build Alternative would result in similar construction impacts as the Narrow Median Build Alternative.	The Department's Standard Provisions to construction contracts would control and minimize noise during project construction.
Cumulative Impacts (Section 2.22)				
Cumulative Traffic and Transportation Effects	No effect.	Cumulative development has resulted in a significant increase in traffic on SR 1, Fassler Avenue, Reina Del Mar Avenue, and in the project area as a whole, and future increases are projected to occur. The improvements that would be	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		<p>constructed under the Narrow Median Build Alternative would only incrementally increase traffic volumes; rather, they would improve traffic operations for these vehicle trips. Therefore, the project would not result in a substantial cumulative traffic impact.</p>		
<p>Cumulative Visual and Aesthetics Effects</p>	<p>No effect.</p>	<p>The Narrow Median Build Alternative would remove mature landscape trees along the western side of SR 1, between San Marlo Way and Reina Del Mar Avenue. This change will be visible from the roadway itself, as well as from many locations on the east side of SR 1. (It should be noted that while the Build Alternatives would result in the removal of these trees, which are a visual resource along the alignment, removal of these trees would also improve the views of the coastal areas from locations east of SR 1.)</p> <p>Although the above-described visual impacts of the project will</p>	<p>Similar to the Narrow Median Build Alternative. Because of the wider footprint, the Landscaped Median Build Alternative would affect one additional mature tree (at station 47+50) on the east side of SR 1.</p>	<p>No avoidance, minimization, or mitigation measures are proposed.</p>

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		<p>be substantial, there will be no cumulative visual effects at these locations because there are no other recently-constructed, approved, and/or pending projects that would contribute to this impact.</p>		
<p>Cumulative Air Quality Effects</p>	<p>No effect.</p>	<p>The Narrow Median Build Alternative will not contribute to the region's emissions because it will not generate additional vehicle trips or lead to unplanned growth. Rather, the project is expected to reduce area-wide emissions by decreasing congestion and vehicle delay. Therefore, the cumulative air quality impact would not be substantial.</p>	<p>Same as Narrow Median Build Alternative.</p>	<p>No avoidance, minimization, or mitigation measures are proposed.</p>
<p>Cumulative Noise and Vibration Effects</p>	<p>No effect.</p>	<p>The Narrow Median Build Alternative would incrementally contribute to overall noise levels; however, future increases in noise will not be substantial. Therefore, the cumulative noise impact would not be substantial.</p>	<p>Same as Narrow Median Build Alternative.</p>	<p>No avoidance, minimization, or mitigation measures are proposed.</p>

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
Cumulative Effects on Biological Environment and Resources	No effect.	<p>The proposed Narrow Median Build Alternative would not directly affect natural communities of concern, such as riparian or aquatic habitats. The project will not create new substantial barriers to the movement of wildlife and/or fish passage. The project will not affect wetland habitat or other waters in the vicinity of the proposed roadway improvements.</p> <p>With the mitigation measures outlined in Sections 2.15, <i>Natural Communities</i>, 2.16, <i>Wetlands and Other Waters</i>, 2.17, <i>Plant Species</i>, 2.18, <i>Animal Species</i>, 2.19, <i>Threatened and Endangered Species</i>, and 2.20, <i>Invasive Species</i>, of this document, the project will not affect any special-status plant species. In addition, there are no other recently-constructed, approved, and/or pending projects that would contribute to the cumulative loss of biological resources in this area.</p>	Same as Narrow Median Build Alternative.	No avoidance, minimization, or mitigation measures are proposed.

TABLE S-1

SUMMARY OF ENVIRONMENTAL IMPACTS AND AVOIDANCE, MINIMIZATION AND/OR MITIGATION MEASURES

Impact	No Build Alternative	Narrow Median Build Alternative	Landscaped Median Build Alternative	Avoidance, Minimization and/or Mitigation Measures
		For these reasons, while the proposed Build Alternatives would have impacts of their own, the project would not result in substantial cumulative biological resources impacts.		

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CHAPTER 1 PROPOSED PROJECT

1.1 INTRODUCTION

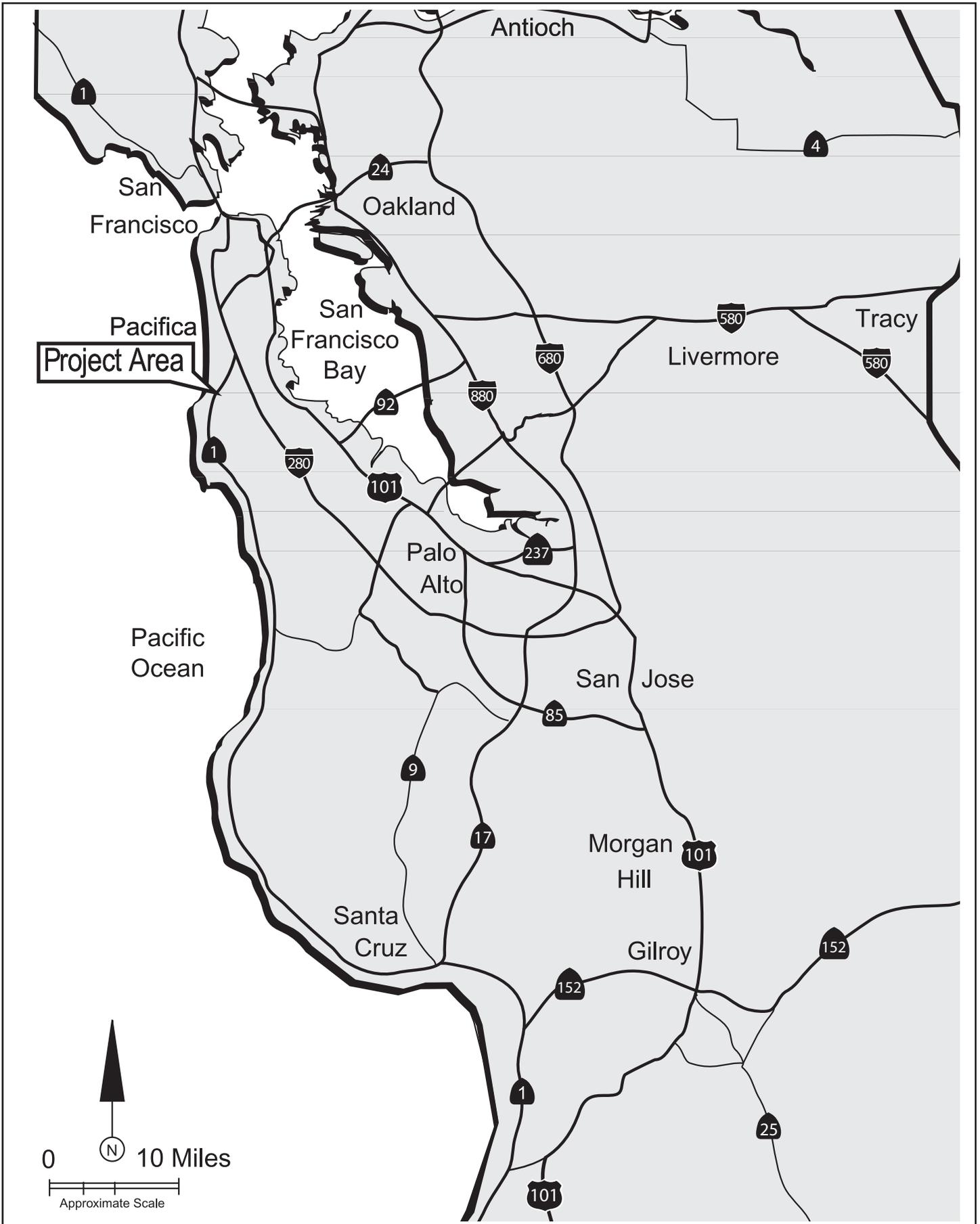
The California Department of Transportation (“Department” or “Caltrans”), in conjunction with the San Mateo County Transportation Authority (SMCTA) and the City of Pacifica, proposes to widen Highway 1/State Route 1/Calera Parkway (hereinafter referred to as “SR 1”) in the city of Pacifica from four lanes to six lanes through the project limits. The portion of SR 1 proposed for widening is located between 400 feet and 3,200 feet east of the Pacific Ocean within the city of Pacifica and extends from approximately 1,500 feet south of Fassler Avenue to approximately 2,300 feet north of Reina Del Mar Avenue, a distance of approximately 1.3 miles.

The city of Pacifica is a coastal city located in northern San Mateo County. The city of Daly City is located to the north; the city of Montara is located to the south; and the city of San Bruno is located to the east. Residential and commercial uses are located along the east side of the project alignment. The Rockaway Beach commercial district, a former quarry, and Pacifica’s sewer treatment plant are located to the west of the alignment. Golden Gate National Recreation Area property is located to the east and west of the alignment, near Mori Point. Regional and vicinity maps of the project area are shown in Figures 1.1 and 1.2, respectively. An aerial photograph showing the site and surrounding land uses is shown on Figure 1.3.

The segment of SR 1 proposed for widening operated as a two-lane highway until 1965, when it was widened to a four-lane conventional highway with no median. In 1993, a median barrier was installed as a safety improvement. The existing roadway is four lanes with four-foot minimum outside shoulders, and a six-foot wide median with a concrete barrier.

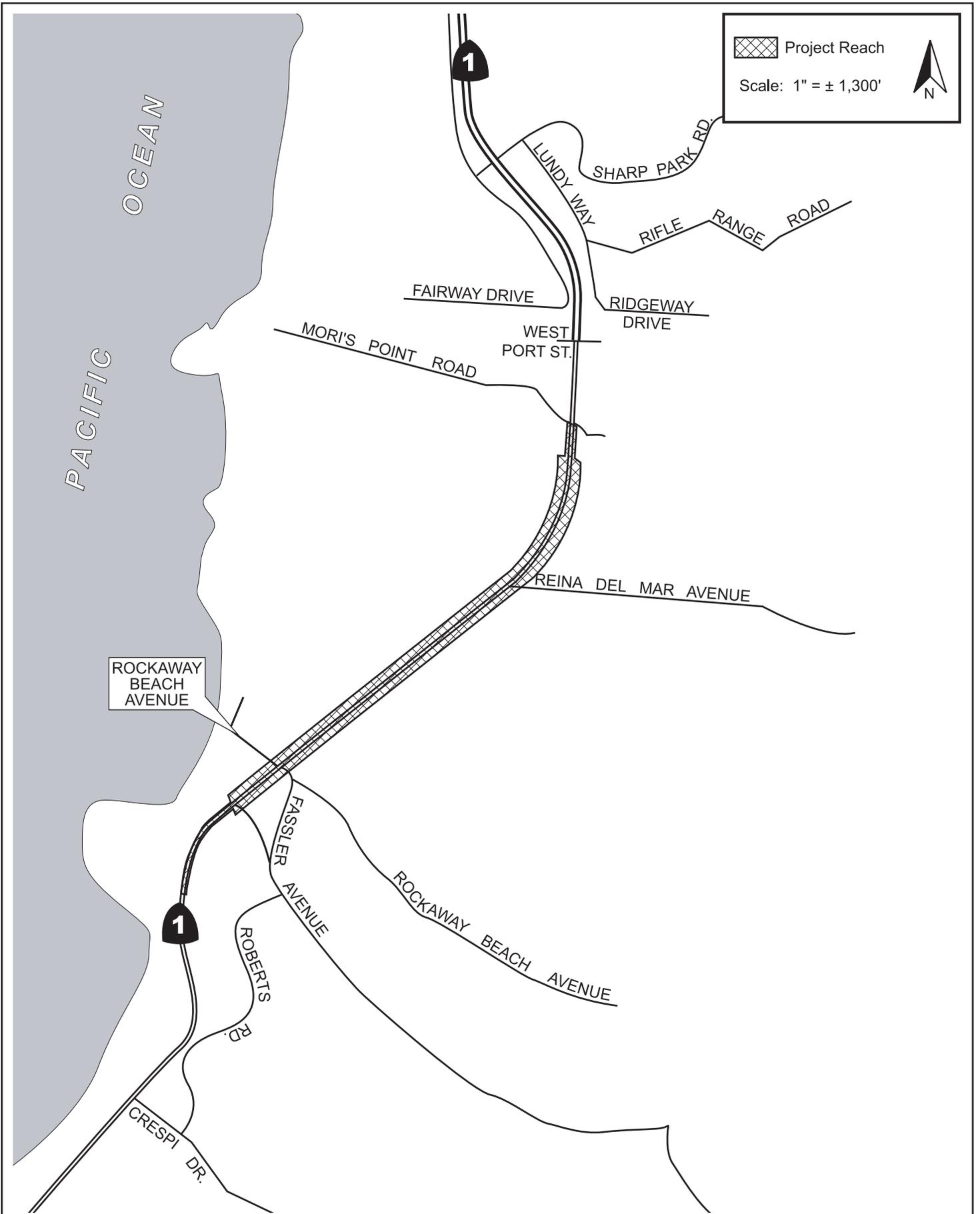
In 1988, voters of San Mateo County approved a 20-year half-cent sales tax measure known as Measure A. Measure A was extended for another 25 years in 2004. Measure A funds have been allocated towards projects throughout the County, including transit, local streets, paratransit programs and highway improvements. The SMCTA administers Measure A projects and programs. A Project Study Report (PSR) was completed for the proposed operational improvements to SR 1 by the City of Pacifica and approved by Caltrans in July 1999. The 1999 PSR proposed to add one additional lane in each direction between Fassler Avenue and Reina Del Mar Avenue with a transition from three (3) lanes back to two (2) lanes occurring just past the intersections in each direction.

The Metropolitan Transportation Commission’s (MTC’s) current Regional Transportation Plan (RTP) for the San Francisco Bay Area, known as *Transportation 2035*, was adopted by MTC on April 22, 2009. The project is included in the approved Transportation Plan 2035. The project is also included in the adopted 2011 Transportation Improvement Program (TIP) for the San Francisco Bay Area.



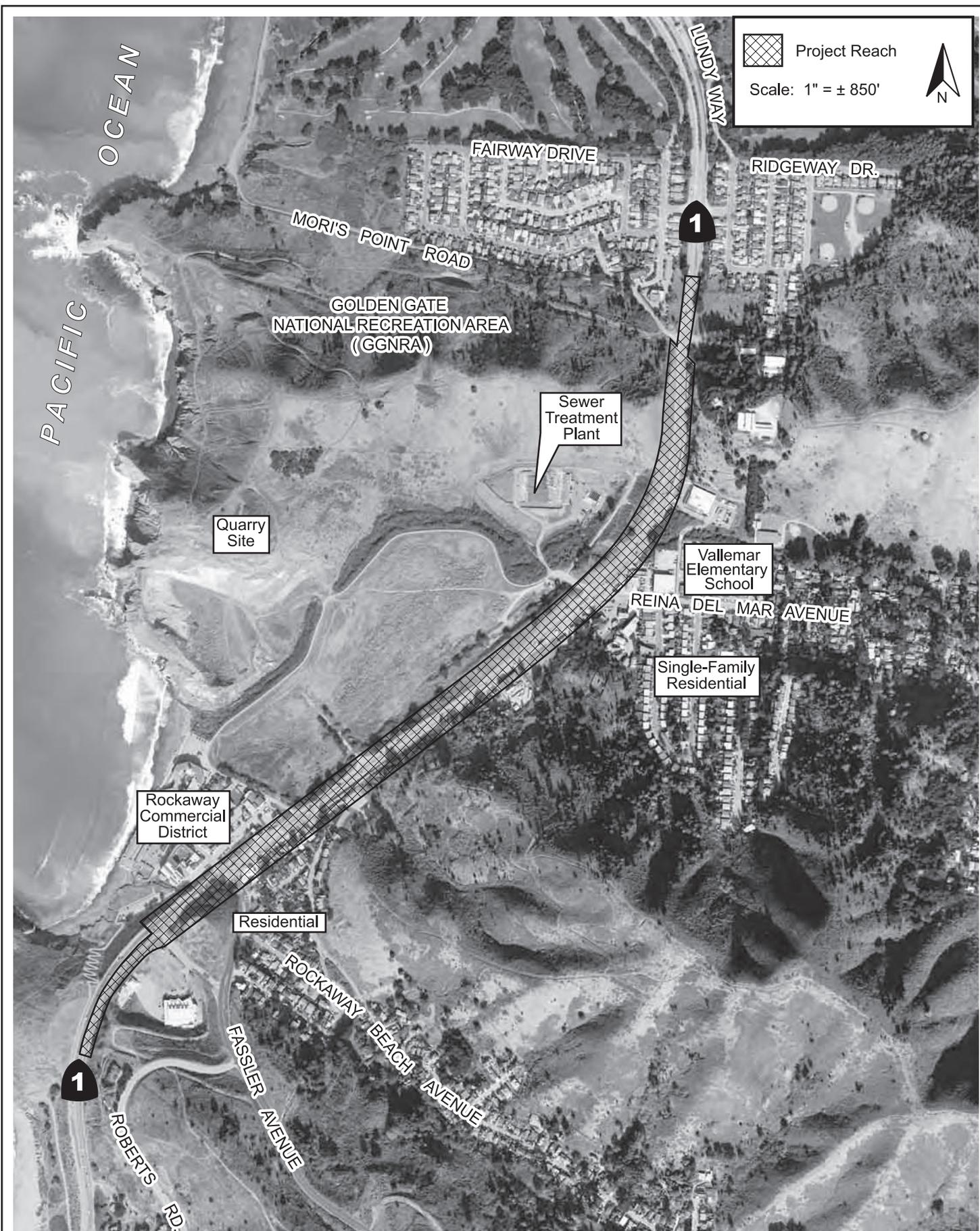
REGIONAL MAP

FIGURE 1.1



VICINITY MAP

FIGURE 1.2



AERIAL PHOTOGRAPH

FIGURE 1.3

1.2 PURPOSE AND NEED FOR THE PROPOSED PROJECT

1.2.1 Purpose of the Proposed Project

The proposed project has the following purpose:

- The purpose of the proposed project is to improve traffic operations by decreasing traffic congestion and improving peak-period travel times along a congested segment of SR 1 within the city of Pacifica.

1.2.2 Need for the Proposed Project

1.2.2.1 *Current Conditions*

The latest traffic analysis (July 2008) shows that the current morning (AM) peak period congestion along SR 1 occurs between 7:00 am and 9:00 am, primarily in the northbound (NB) direction with traffic queues extending up to 1.15 miles from the Reina Del Mar Avenue intersection south to Crespi Drive. Morning queues also extend east on Fassler Avenue as much as 2,500 feet and east on Reina Del Mar Avenue as much as 1,000 feet for local traffic trying to enter SR 1 from these cross streets.

The evening (PM) peak period congestion occurs between 4:00 pm and 6:00 pm, primarily in the southbound (SB) direction with traffic queues extending up to 2.06 miles on SR 1 from the Fassler Avenue/Rockaway Beach Avenue intersection to north of Sharp Park Road.

The signalized intersections within the city of Pacifica are operated by Caltrans, however it has traditionally been Caltrans' policy to adhere to locally adopted operational performance standards. The City of Pacifica has adopted a standard of LOS D¹ or better for signalized intersections. The existing signalized intersection LOS condition at SR 1/ Reina Del Mar Avenue operates at LOS E during the AM peak hour and LOS F during the PM peak hour, while the existing signalized intersection LOS condition at SR 1/Fassler Avenue/Rockaway Beach Avenue operates at LOS F during both the AM and PM peak hours (see Table 1.1). Therefore these intersections currently operate unacceptably, based on the City of Pacifica's performance standards.

	Peak-Hour	Delay	LOS
SR1 @ Reina Del Mar Avenue	AM	66	E
	PM	138	F
SR1 @ Fassler Avenue	AM	195	F
	PM	117	F

Source: SR 1/Calera Parkway Project Traffic Operations Report, 2008.

¹ Roadway performance is typically measured using the "level of service" (LOS) concept, whereby traffic demand is evaluated in the context of capacity. Level of service is a graded scale and ranges from "LOS A," representing free-flow conditions, to "LOS F," representing jammed/over-saturated conditions. Refer also to Table 2.2 in Section 2.6, *Traffic and Transportation/Pedestrian and Bicycle Facilities*, for LOS definitions.

Table 1.2 below shows the existing peak period queue lengths on SR 1 at the Reina Del Mar Avenue and Fassler Avenue/Rockaway Beach Avenue intersections, as well as peak period travel times on SR 1 through the project area.

TABLE 1.2 EXISTING SR 1 TRAVEL TIMES AND QUEUE LENGTHS					
	Travel Time (minutes)*	Average Reina Del Mar Avenue Queue (feet)	Maximum Reina Del Mar Avenue Queue (feet)	Average Fassler Avenue Queue (feet)	Maximum Fassler Avenue Queue (feet)
AM Northbound	5.1	1,031	2,805	1,535	3,260
PM Southbound	8.4	2,929	7,685	2,478	3,206
Travel times measured from just north of Crespi Drive to just north of Reina Del Mar Avenue (for AM Northbound, a distance of 1.6 miles), and from about 1.8 miles north of Reina Del Mar Avenue to just south of Fassler Avenue (for PM Southbound, a distance of 2.5 miles).					
Source: SR 1/Calera Parkway Project Traffic Operations Report, 2008.					

Examining the entire network, the average delay per vehicle that travels through the network can also be determined, whether that vehicle travels through one or both intersections. The average current time delay² per vehicle traveling through the project roadway network is 127 seconds in the AM peak hour and 128 seconds in the PM peak hour.³

1.2.2.2 Future “No Project” Conditions

With no improvements to the project area, the traffic projections forecast that by year 2035 the peak period maximum queues will grow from 1.15 miles to 2.28 miles in the AM peak period and from 2.06 miles to 2.80 miles in the PM peak period. The increased magnitude of the congestion will also increase the duration of both the AM and PM peak periods.

By 2035, if no roadway improvements are made, the SR 1/Fassler Avenue/Rockaway Beach Avenue intersection is projected to operate at LOS F during the AM and PM peak hours. The SR1/Reina Del Mar Avenue intersection is projected to operate at LOS E during the AM peak hour, and at LOS F during the PM peak hour (see Tables 1.3 and 1.4 below). The average queue lengths at the SR 1/Fassler Avenue intersection would be 4,946 feet in the northbound direction during the AM peak hour and 2,567 feet in the southbound direction during the PM peak hour. Average queue lengths at the SR1/Reina Del Mar Avenue intersection would be 1,095 feet in the northbound direction during the AM peak hour and 6,907 feet in the southbound direction during the PM peak hour.

² This is the additional travel time experienced by a driver, passenger or pedestrian due to circumstances that impede the desirable movement of traffic. It is measured as the time difference between actual travel time and free-flow travel time. (2009 AASHTO Transportation Glossary).

³ Fehr & Peers, SR 1/Calera Parkway Project Traffic Operations Report, July 2008.

		Travel Time⁴ (minutes)	Avg Queue Length on SR 1 at Reina Del Mar Avenue (feet)	Avg Queue Length on SR 1 at Fassler Avenue (feet)
Year 2015	AM – Northbound	5.9	1,074	4,361
	PM – Southbound	9.5	4,893	2,627
Year 2035	AM – Northbound	12.6 ⁵	1,095	4,946
	PM – Southbound	15.4 ³	6,907	2,567

Source: Fehr & Peers, 2007-2011.

		Year 2015		Year 2035	
		Delay (seconds)	LOS	Delay (seconds)	LOS
SR1 @ Reina Del Mar Avenue	AM	68	E	70	E
	PM	202	F	251	F
SR1 @ Fassler Avenue	AM	345	F	389	F
	PM	124	F	112	F

Source: Fehr & Peers, 2007-2011.

1.2.3 Independent Utility and Logical Termini

In developing a project concept that can be advanced through the stages of planning, environmental review, design, and construction, the project sponsor needs to consider a “whole” or integrated project. This project should satisfy an identified need such as safety, rehabilitation, economic development, or capacity improvements, and should be considered in the context of the local community concerns and socioeconomics, topography, the future travel demand, and other infrastructure improvements in the area. The Federal Highway Administration (FHWA) regulations outline three general principles at 23 CFR 771.111(f) that are to be used to frame a highway project. In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, the action evaluated shall:

⁴ Travel times measured from just north of Crespi Drive to just north of Reina del Mar Avenue (for AM Northbound, a distance of 1.6 miles), and from about 1.8 miles north of Reina del Mar Avenue to just south of Fassler Avenue (for PM Southbound, a distance of 2.5 miles).

⁵ Queue extends beyond model limits. Length increased to estimate full queue length by adding 25 feet per unserved vehicle. Travel time increased by assuming nine mph average speed in queue.

- (1) Connect logical termini and be of sufficient length to address environmental matters on a broad scope;
- (2) Have independent utility or independent significance (i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made); and
- (3) Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

Logical termini for project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts. The environmental impact review frequently covers a broader geographic area than the strict limits of the transportation improvements. In the past, the most common termini have been points of major traffic generation, especially intersecting roadways.

The project has independent utility, which means the proposed improvements can be implemented within the project limits and completion of other projects would not be required in order to realize the operational benefits of the proposed improvements. Establishing independent utility is important to avoid “project segmentation.”⁶

The project has logical starting and ending points or termini. The end points were selected to contain the length of the existing traffic “bottleneck” created by the two signalized intersections at Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue. All of the proposed roadway improvements necessary under either Build Alternative to improve operations for this segment of SR 1 are included within the project limits.

For this project, the Department is the Lead Agency under both CEQA and NEPA.

1.3 PROJECT DESCRIPTION

This section describes the proposed action and the design alternatives that were developed to meet the identified need through accomplishing the defined purpose, while avoiding or minimizing environmental impacts. The alternatives are the “Narrow Median Build Alternative,” the “Landscaped Median Build Alternative,” and the “No-Build Alternative.”

The portion of SR 1 proposed for widening is located within the city of Pacifica and extends from approximately 1,500 feet south of Fassler Avenue to approximately 2,300 feet north of Reina Del Mar Avenue, a distance of approximately 1.3 miles. Within the project limits, SR 1 runs diagonal to the Pacific Ocean coast line, varying in distance from approximately 400 feet at the southern end of the project to approximately 3,200 feet at the northern end of the project. This segment of SR 1 operated as a two-lane highway until 1965, when it was widened to a four-lane conventional highway with no median. In 1993 a median barrier was installed as a safety improvement. The existing roadway is four lanes (two through lanes in each direction) with four-foot minimum outside shoulders, and a six-foot minimum width median with a concrete barrier.

⁶ “Project Segmentation” would occur if a project were defined such that the proposed improvements (and/or benefits resulting from the proposed improvements) would be contingent upon the completion of additional projects. NEPA and CEQA require agencies to analyze “the whole of the action” and do not allow a project to be broken into smaller segments unless it can be demonstrated that each of the segments has independent utility.

As described in Section 1.2, the purpose of the proposed project is to improve traffic operations by decreasing congestion and improving peak-period travel times along a congested segment of SR 1 within the city of Pacifica.

The footprint of the proposed roadway widening has been minimized in order to reduce right-of-way acquisition and to avoid impacts to sensitive biological resource habitats and potential cultural resources (refer to 2.8, *Cultural Resources* and Sections 2.15-2.19, *Biology*, of this EIR/EA, respectively, for additional detail regarding these resources).

After the public circulation period, all comments will be considered and the Department, SMCTA, and the City of Pacifica will identify a preferred alternative. The Department will certify that the project complies with CEQA, prepare findings for all significant impacts identified, prepare a Statement of Overriding Considerations for impacts that will not be mitigated below a level of significance (if necessary), and certify that the findings and Statement of Overriding Considerations have been considered prior to project approval. The Department will then approve the project and file a Notice of Determination with the State Clearinghouse that will identify whether:

- Findings were made;
- The project will have significant impacts;
- Mitigation measures were included as conditions of approval;
- Statement of Overriding Considerations was adopted.

Similarly, if the Department, as assigned by FHWA, determines that NEPA action does not significantly affect the environment, the Department will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.4 PROJECT ALTERNATIVES

Numerous design alternatives for the project were considered and evaluated for their ability to improve traffic operations, decrease congestion and delay, and improve peak-period travel times along this segment of SR 1, at a reasonable cost, while avoiding or minimizing impacts to the adjacent land uses and coastal zone resources. Given the right-of-way constraints, the Caltrans minimum design criteria, the cost and funding considerations, and the environmental and regulatory constraints at the site such as sensitive habitat areas and adjacent coastal wetlands, there are two Build Alternatives evaluated further in this document. The two Build Alternatives are described in detail below.

1.4.1 Common Design Features of the Build Alternatives

Under both of the Build Alternatives, the Department, in cooperation with the SMCTA and the City of Pacifica, would construct improvements to SR 1/Calera Parkway, the SR 1/Fassler Avenue/Rockaway Beach Avenue intersection, and the SR 1/Reina Del Mar Avenue intersection within the project reach. This section describes the improvements that are common to both Build Alternatives. The following section describes those improvements that are unique to each Build Alternative. Conceptual plans for the Build Alternatives are shown on Figures 1.4 and 1.5. The main components of the two Build Alternatives are described below.



LEGEND

- Existing Wetland
- Proposed Roadway Improvements
- Proposed Retaining Wall
- Proposed Bridge Structure
- Existing State Right of Way
- Proposed State Right of Way

NOTE: THIS INFORMATION IS A PRELIMINARY ASSESSMENT AND SHOULD NOT BE USED AS OFFICIAL RECORD.

CONCEPTUAL PLAN - NARROW MEDIAN BUILD ALTERNATIVE

FIGURE 1.4



LEGEND

- Existing Wetland
- Proposed Roadway Improvements
- Proposed Retaining Wall
- Proposed Bridge Structure
- Existing State Right of Way
- Proposed State Right of Way
- Landscape Median

NOTE: THIS INFORMATION IS A PRELIMINARY ASSESSMENT AND SHOULD NOT BE USED AS OFFICIAL RECORD.

CONCEPTUAL PLAN - LANDSCAPED MEDIAN BUILD ALTERNATIVE

FIGURE 1.5

1.4.1.1 State Route 1 Roadway Widening

The segment of SR 1 proposed for widening currently consists of two through-lanes in both directions (north/south) with non-standard shoulders (inside and outside) and median widths. The two Build Alternatives would widen this segment of SR 1 from four lanes to six lanes (three lanes in each travel direction). The proposed SR 1 roadway would include three 12-foot-wide through-lanes in each direction, with standard 10-foot inside and outside shoulders.

To minimize the required widening and to optimize the lane configurations with the traffic patterns, the third southbound lane is added to the left of the two southbound through lanes north of Reina Del Mar Avenue and is dropped at the left turn lanes to Fassler Avenue. Only two lanes extend south of Fassler Avenue.

Between the two intersections, SR 1 would be widened primarily on the west side of the roadway to provide for the additional two lanes and widened, standard outside shoulders and median. New pavement would be constructed west of the existing edge of pavement and would vary from 20 feet to 70 feet wide. Approximately half of the length of this widening would be constructed on new embankment contained by retaining walls to prevent encroachment into environmentally sensitive areas, and the other half would be excavated into an existing, man-made embankment (immediately south of the Reina Del Mar Avenue intersection).

The existing roadway segment has a minimum six-foot wide median with a three-foot-high concrete barrier dividing the northbound and southbound lanes. With the proposed widening, a new median barrier would be constructed to the west of the existing median barrier. The proposed median width for the Narrow Median Build Alternative would vary from 12 feet to 29 feet, while the proposed median width for the Landscaped Median Build Alternative would vary from 12 feet to 40 feet.

Retaining walls would be constructed to contain portions of the roadway widening within the existing right-of-way (R/W) or to prevent encroachment into environmentally sensitive areas (refer to Figures 1.4 and 1.5). A permanent exclusion barrier would also be constructed on the west side of SR 1 between Calera Creek and San Marlo Way (with the exception of the driveway access to the former quarry property and the western leg of the Reina Del Mar Avenue intersection) so that special-status species are less likely to enter the roadway.

The existing Class 1 bicycle/pedestrian path adjacent to SR 1, north of Reina Del Mar Avenue, would be reconstructed along the western edge of the widened highway. The path would be upgraded by widening it from 8 feet to 10 feet, by increasing the separation between edge of path and edge of traveled way from 9 feet to 16 feet, and by installing a fence to provide a physical separation between the bicycle path and the highway. A concrete drainage ditch between the bicycle path and the hillside would also be reconstructed. The existing two-way bicycle/pedestrian path west of the existing highway and the former quarry property, as well as further south of Rockaway Beach Avenue, would not be altered or affected by the proposed roadway widening under either Build Alternative.

The existing sidewalk and paved path that currently extends from Reina Del Mar Avenue south to the Harvey Way frontage road on the east side of the highway would be replaced with a new sidewalk. A new sidewalk would be constructed along the east side of Harvey Way to complete the pedestrian connection between Fassler Avenue and Reina Del Mar Avenue. The sidewalk would be upgraded by placing it further from the new edge of traveled way of the SR 1 northbound lanes.

A small area of wetland created by a culvert outfall is located adjacent to the highway approximately 750 feet north of the Fassler Avenue/SR 1 intersection on the western side of SR 1. To avoid filling and affecting this wetland area a small bridge structure would be constructed to carry the widened roadway over the wetland. The bridge structure would be approximately 40 feet long by 50 feet wide.

Storm water treatment facilities such as biofiltration swales and biofiltration strips would be added along segments of the highway to provide improved treatment of storm water runoff from the paved highway surfaces.

1.4.1.2 Intersection Improvements

As described above there are two intersections located within the project area, one near the south end of the site (SR 1/Fassler Avenue/Rockaway Beach Avenue), and one near the north end of the site (SR 1/Reina Del Mar Avenue). The improvements proposed at each of these intersections are described below.

The SR 1/Fassler Avenue/Rockaway Beach Avenue intersection currently provides two left-turn lanes in the southbound direction and one left-turn lane in the northbound direction. The Build Alternatives propose the following improvements for the SR 1 and Fassler Avenue/Rockaway Beach Avenue intersection:

- The northbound SR 1 approach (south leg of the intersection) would be widened from four lanes to five lanes which would include one left-turn lane, three through lanes, and one right-turn lane. No additional right-of-way would be required at this location.
- The westbound Fassler Avenue approach (east leg of the intersection) would remain the same with three lanes, including one left-turn/through lane and two right-turn lanes. No additional right-of-way would be required at this location.
- The southbound SR 1 approach (north leg of the intersection) would remain the same with five lanes, including two left-turn lanes, two through lanes, and one right-turn lane. These improvements would require additional right-of-way.
- The eastbound Rockaway Beach Avenue approach (west leg of the intersection) would remain the same with two lanes, including one left-turn/through lane and one right-turn lane. No additional right-of-way would be required at this location.
- The existing SR 1 and Fassler Avenue crosswalks on the south and east sides of the intersection would be upgraded to meet current ADA standards. A sidewalk bulb-out would be constructed on the east side of SR 1 between Fassler Avenue and the Harvey Way frontage road to provide better access for the bus stop and improved sight distance south on SR 1 for the Fassler Avenue signalized stop bar.
- On the north side of Rockaway Beach Avenue, the entrance to Old County Road at the intersection would be converted to one-way only in the northbound direction (refer to Figures 1.4 and 1.5).

- Between Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue, San Marlo Way would be converted to a one-way exit from southbound SR 1 (refer to Figures 1.4 and 1.5).

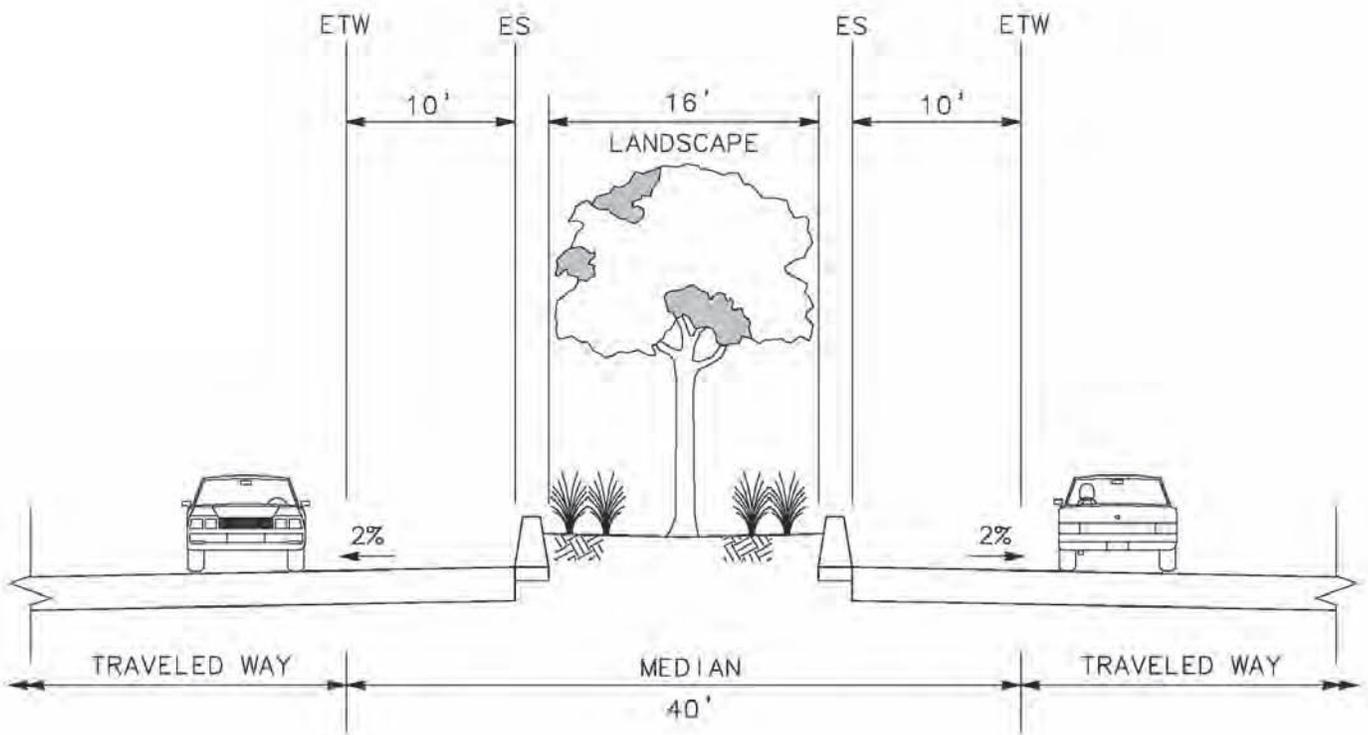
The SR 1/Reina Del Mar Avenue intersection currently provides left-turn lanes in the northbound and southbound directions. The Build Alternatives propose the following improvements at the SR 1/Reina Del Mar Avenue intersection, which would not require any additional right-of-way:

- The northbound SR 1 approach (south leg of the intersection) would be maintained at four lanes, including one left-turn lane, two through lanes, and one through/right-turn lane.
- The westbound Reina Del Mar Avenue approach (east leg of the intersection) would remain the same with two lanes, including one left-turn/through/right-turn lane, and one right-turn lane.
- The southbound SR 1 approach (north leg of the intersection) would be widened from three lanes to five lanes which would include one left-turn lane, three through lanes, and one right-turn lane.
- The eastbound Reina Del Mar Avenue approach (west leg of the intersection) would remain the same with one lane approaching the intersection.
- A sidewalk bulb-out would be added at the southeast corner of the intersection to minimize the SR 1 crosswalk crossing distance.

The existing intersection traffic signal equipment at both the SR 1/Fassler Avenue/Rockaway Beach Avenue and the SR1/Reina Del Mar Avenue intersections would be replaced with new signals to match the new intersection geometry.

1.4.2 Unique Features of the Build Alternatives

The main difference between the two Build Alternatives is the design of the proposed median in the SR 1 roadway between San Marlo Way and Reina Del Mar Avenue. The existing roadway segment has a six-foot wide median with a three-foot-high concrete barrier dividing the northbound and southbound lanes. Under the Narrow Median Build Alternative, the median within this segment would be widened from six (6) feet to 22 feet and would include a single three-foot high concrete barrier to separate northbound and southbound lanes as well as ten-foot wide inside shoulders on both the northbound and southbound sides of the highway. Under the Landscaped Median Build Alternative, the median within this segment would be widened an additional eighteen (18) feet between San Marlo Way and Reina Del Mar Avenue to provide space for a landscaped median. The landscaped median cross section would consist of sixteen (16) feet of landscaping between two three-foot high concrete barriers (two-feet wide each) and a ten-foot wide inside shoulder on both the northbound and southbound sides of the highway. Figure 1.6 shows a typical cross-section of the Landscaped Median Build Alternative.



LEGEND

ES Edge of Shoulder

ETW Edge of Traveled Way

TYPICAL CROSS-SECTION OF LANDSCAPE MEDIAN

FIGURE 1.6

Because of the sensitive habitat areas that are present along the western side of SR 1 north of San Marlo Way (refer to Sections 2.15-2.19 of this document) and the existing land uses that are present along the eastern side of SR 1 south of Reina Del Mar Avenue, the SR 1 alignment would have to be shifted slightly eastward between San Marlo Way and Reina Del Mar Avenue to accommodate the wider median. The additional widening would occur primarily on the east side of existing SR 1 for the portion north of San Marlo Way and primarily on the west side of SR 1 for the portion south of Reina Del Mar Avenue (refer to Figure 1.5).

1.4.3 Right-of-Way Requirements

Most of the proposed improvements would be constructed within the existing Caltrans and City of Pacifica rights-of-way. There are several locations, however, under both alternatives, where the improvements would require additional right-of-way. The right-of-way requirements would be less under the Narrow Median Build Alternative than under the Landscaped Median Build Alternative.

Based on the preliminary Build Alternative designs, the locations where additional right-of-way would be required are listed in Table 1.5 and described below.

TABLE 1.5*				
PRELIMINARY RIGHT-OF-WAY REQUIREMENTS				
Assessor's Parcel Number (APN)	Address	Owner	Existing Use	Right-of-Way Needed (in s.f.)
<i>Requirements the same for both Build Alternatives</i>				
022-022-030	Adjacent to 4408 Cabrillo Highway	Private	Vacant land	1,800 (acquisition)
022-022-060	Adjacent to 4408 Cabrillo Highway	Private	Vacant land	2,000 (acquisition)
022-022-070	Adjacent to 4408 Cabrillo Highway	Private	Vacant land	1,900 (acquisition)
022-022-190	4408 Cabrillo Highway	Private	Vacant restaurant	11,000 (acquisition)

022-022-100	N/A	Private	Vacant land	3,500 (acquisition)
022-022-110	N/A	Private	Vacant land	3,400 (acquisition)
022-022-120	425 Old County Road and 4430 Coast Highway	Private	Two buildings- Vacant Commercial/Office	6,300 (acquisition)
022-022-130	N/A	Private	Vacant land	3,000 (acquisition)
022-022-140	N/A	Private	Vacant land	5,700 (acquisition)
022-022-150	N/A	Private	Vacant land	4,400 (acquisition)
022-022-200	N/A	State of California	Vacant land	9,500 (acquisition)
022-031-180	451 Harvey Way	Private	Commercial	480 (sidewalk easement)
022-031-190	439 Harvey Way	Private	Residence	480 (sidewalk easement)
022-031-340	427 Harvey Way	Private	Commercial	720 (sidewalk easement)
022-031-330	419 Harvey Way	Private	Commercial	400 (sidewalk easement)
022-031-240	411 Harvey Way	Private	Residence	80 (acquisition) 400 (sidewalk easement)

022-031-250	407 Harvey Way	Private	Residence	240 (acquisition) 430 (sidewalk easement)
022-031-260	N/A	Private	Vacant land	140 (acquisition) 170 (sidewalk easement)
<i>Requirements specific to the Narrow Median Build Alternative</i>				
018-150-150	Vacant (adjacent to southbound SR 1, north of San Marlo Way)	Private	Vacant land	19,800 (acquisition)
018-140-090	4400 Coast Highway	Private	Lutheran Church	1,600 (acquisition)
018-140-230	Vacant (north of 4400 Coast Highway)	Private	Vacant land north of Lutheran Church	1,050 (acquisition)
Parcel 28797	N/A	State of California	Vacant land	9,600 (acquisition)
<i>Requirements specific to the Landscaped Median Build Alternative</i>				
018-150-150	Vacant (adjacent to southbound SR 1, north of San Marlo Way)	Private	Vacant land	22,000 (acquisition)
018-140-090	4400 Coast Highway	Private	Lutheran Church	1,800 (acquisition) 6,300 (utility easement)

018-140-230	Vacant (north of 4400 Coast Highway)	Private	Vacant land north of Lutheran Church	1,500 (acquisition) 3,300 (utility easement)
018-140-060	4320 Coast Highway	Private	Store Building	1,000 (acquisition) 1,250 (utility easement)
018-140-070	4300 Coast Highway	Private	Office Building	900 (acquisition) 1,250 (utility easement)
018-140-050	4275 Coast Highway	Private	Lumber Yard	3,000 (acquisition)
018-140-470	Vacant (north of Lumber Yard)	Private	Vacant land	800 (acquisition)
018-140-460	Vacant (north of Lumber Yard)	Private	Vacant land	1,900 (acquisition)
Parcel 28797	N/A	State of California	Vacant land	16,400 (acquisition) 18,500 (utility easement)
*Information in this table is preliminary and is subject to minor revision during final design.				

1.4.3.1 *Narrow Median Build Alternative Right-of-Way Requirements*

Along the west side of SR 1, right of way acquisition would affect 12 existing parcels, extending for about 1,400 feet immediately north of the Fassler Avenue/Rockaway Beach Avenue intersection. Eleven of these parcels would be full acquisitions, while parcel 018-150-150 (vacant former quarry site) would be a partial acquisition. One of the parcels is owned by the State of California. The remaining parcels are privately owned and vacant land, with the exception of parcel 022-022-120 which has two owner-occupied structures on it, and parcel 022-022-190 which has a vacant restaurant on it. The project would require the demolition of all three of these buildings.

Along the east side of SR 1, right of way acquisition would affect 10 existing parcels. Three of these parcels are north of Harvey Way, one of which accommodates a Lutheran Church, while the other two are vacant parcels. One of these vacant parcels is owned by the State of California. The remaining seven affected parcels are along the east side of Harvey Way and require right-of-way and/or permanent sidewalk easement acquisitions.

The total additional right-of-way required for the Narrow Median Build Alternative would be approximately 88,100 square feet including both right-of-way and easement acquisitions. A qualified agency or consultant will be contracted to conduct right of way activities.

1.4.3.2 Landscaped Median Build Alternative Right-of-Way Requirements

The first 18 parcels listed in the table above would have the same amount of acquisition as the Narrow Median Build Alternative. This includes the eleven full parcel acquisitions on the west side of SR1 and the seven parcels along the east side of SR 1 (along Harvey Way) that require right-of-way and/or permanent sidewalk easements acquisitions.

Along the east side of SR 1, the required acquisitions from the Lutheran Church and adjacent vacant parcels to the north would be larger due to the additional widening needed in this area and easement space needed for utility relocations. Likewise along the west side of SR 1, parcel 018-150-150 (vacant former quarry site) would require a larger acquisition for additional widening needed in this area.

There are five additional properties east of SR 1 and south of Reina Del Mar Avenue, which would require utility easement and/or right-of-way acquisitions under the Landscaped Median Build Alternative.

The total additional right-of-way required for the Landscaped Median Build Alternative would be approximately 136,000 square feet including both right-of-way and easement acquisitions. Acquisition would be by the County of San Mateo, a qualified agency.

1.4.4 Project Cost and Schedule

The estimated cost for construction, right-of-way acquisition, and environmental mitigation for the Narrow Median Build Alternative is \$30.4 million. The Project Report also estimates \$10.5 million for support costs and \$4.5 million for escalation, for a total cost of \$45.4 million for the Narrow Median Build Alternative.

The estimated cost for construction, right-of-way acquisition, and environmental mitigation for the Landscaped Median Build Alternative is \$34.9 million. The Project Report also estimates support costs of \$11.5 million and \$5.2 million for escalation, for a total cost of \$51.6 million for the Landscaped Median Build Alternative.

If approved and funded fully, construction of the project is estimated to commence in spring of 2014. The duration of construction would be approximately two years. The proposed improvements would be constructed in phases. The proposed construction staging area is located along the west side of SR 1, approximately 600 feet south of Reina Del Mar Avenue, within the state right-of-way. Construction equipment used on this project would include scrapers, bulldozers, backhoe loaders, cement trucks, cranes, and asphalt/paving/concrete equipment.

1.4.5 Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives

Various transportation system management (TSM) and transportation demand management (TDM) strategies and alternatives were considered. These include such strategies as metering, providing additional auxiliary or turning lanes, providing reversible lanes, and traffic signal coordination. Other TDM strategies considered include encouraging carpooling and ridesharing as well as providing additional bicycle and pedestrian improvements. While such strategies could reduce the cost and environmental impacts of the project, TSM and TDM strategies such as these would not reduce congestion and improve the level of service on SR 1 through the project site.

Although TSM and TDM measures alone could not satisfy the purpose and need of the project, the following measures have been incorporated into the two Build Alternatives: 1) additional turning lane capacity; and 2) improvement of pedestrian and bicycle facilities along the project alignment.

1.4.6 No Build Alternative

The No Build Alternative would consist of not constructing the project, which would avoid all of the environmental impacts of the project, as described in this document. Under the No Build Alternative, it is assumed that all other planned and programmed improvements would be constructed and in place. The No Build Alternative would not improve traffic operations, decrease traffic congestion and delay, or improve peak-period travel times along this segment of SR 1. Under the No Build Alternative, projected increases in traffic would cause congestion to worsen and the existing problems that are described in Section 1.2.2 *Need for the Proposed Project*, would be exacerbated.

1.4.7 Comparison of Alternatives

This section highlights the differences between the Narrow Median Build Alternative, the Landscaped Median Build Alternative, and the No Build Alternative. The key differences are shown in Table 1.6.

**TABLE 1.6
COMPARISON OF ALTERNATIVES**

	Narrow Median Build Alternative	Landscaped Median Build Alternative	No Build Alternative
Summary of Improvements	<p>Widen the existing SR 1 roadway segment from four lanes to six lanes (three lanes in each travel direction) and provide improvements at the Fassler Avenue/Rockaway Beach Avenue and the Reina Del Mar Avenue intersections.</p> <p>The existing six-foot wide median would be widened and would vary from 12 feet to 29 feet, and would include a three-foot high concrete barrier.</p>	<p>Same as Narrow Median Alternative, but this alternative proposes a median, which would vary from 12 to 40 feet wide throughout the project reach, with two three-foot high barriers and ten-foot inside shoulders on both the northbound and southbound sides of the highway. Between San Marlo Way and Reina Del Mar Avenue, the median would also include a 16-foot wide landscaped area between the barriers (refer to Figure 1.6).</p>	No improvements
Overall Changes in Traffic Patterns	Improvement in operations. No change in overall patterns.	Improvement in operations. No change in overall patterns.	No change
Effect on Existing Congestion & Delay	Substantial reduction in existing and projected congestion, delay, and peak-period travel times.	Substantial reduction in existing and projected congestion, delay, and peak-period travel times.	Congestion will worsen over time as planned and projected regional growth continues.
Average Vehicle Delay during weekday peak in 2035	<p><u>Fassler Ave/Rockaway Beach Ave:</u> AM peak = 90 sec PM peak = 73 sec</p> <p><u>Reina Del Mar Ave:</u> AM peak = 69 sec PM peak = 53 sec</p>	<p><u>Fassler Ave/Rockaway Beach Ave:</u> AM peak = 90 sec PM peak = 73 sec</p> <p><u>Reina Del Mar Ave:</u> AM peak = 69 sec PM peak = 53 sec</p>	<p><u>Fassler Ave/Rockaway Beach Ave:</u> AM peak = 389 sec PM peak = 112 sec</p> <p><u>Reina Del Mar Ave:</u> AM peak = 70 sec PM peak = 251 sec</p>

Right-of-Way Needs	The total additional right-of-way required would be approximately 78,500 square feet including both right-of-way and easement acquisitions. Along the west side of SR 1, right of way acquisition would affect 12 existing parcels, extending for about 1,400 feet immediately north of the Fassler Avenue/Rockaway Beach Avenue intersection. Along the east side of SR 1, right of way acquisition would affect nine existing parcels.	The total additional right-of-way required would be approximately 101,000 square feet. This alternative would require the same property acquisitions as the Narrow Median Build Alternative, plus right-of way acquisition from five additional properties east of SR 1 and south of Reina Del Mar Avenue. The required acquisitions from the Lutheran Church and adjacent property to the north would be greater due to the additional widening needed in this area and easement space needed for utility relocations.	None
Cost	\$29.2 million	\$34.7 million	None
Duration of Construction	Approximately two years	Approximately two years	None

1.4.8 Alternatives Considered but Eliminated from Further Discussion

During the development of the proposed project, several other potential solutions and alternative designs were considered and studied. Each was evaluated for its potential to meet the objectives of the project, its engineering feasibility in terms of its ability to meet minimum Caltrans design criteria, its cost, and its environmental impacts. These are briefly described below and are summarized in the matrix table at the end of this section.

1.4.8.1 *Widen SR 1 From Four to Six Lanes for 0.8 miles*

This alternative would widen SR 1 from four lanes to six lanes for 0.8 miles, extending from 460 feet south of Fassler Avenue to 660 feet north of Reina Del Mar Avenue (see Figure 1.7). Under this alternative, the highway would have 12-foot wide lanes, 10-foot wide inside and outside shoulders, and a 26-foot wide median between the paved inside shoulders. The widened median would extend from approximately 600 feet north of Fassler Avenue to just south of Reina del Mar Avenue. This alternative was studied in the 1999 Project Study Report (PSR) for this project.

This alternative would not provide a comparable level of traffic benefit to the year 2035 compared to the proposed Build Alternatives because the third lane would not extend far enough south of the Fassler Avenue intersection or far enough north of the Reina Del Mar intersection to provide adequate merge space past the intersections.

Because this alternative would involve extensive widening on the west side of SR 1, this alternative would result in impacts to sensitive species habitat (California Red-legged Frog [CRLF] and San Francisco Garter Snake [SFGS]) west of SR 1, as well as jurisdictional wetlands west of SR 1. This alternative could also affect sensitive cultural resource sites west of SR 1. This alternative design would result in aesthetics impacts, similar to the proposed Build Alternatives, due to the removal of mature trees and screening vegetation along the east and west sides of SR 1. This alternative would result in increased hydrology and water quality impacts due to an increase in impervious areas. This alternative would also result in impacts from exposure of possibly contaminated soils during construction, temporary increases in noise levels along SR 1 from construction, and minor increases in noise levels along SR 1 due to moving traffic closer to adjacent receptors and increased travel speeds during the peak hours, similar to the proposed Build Alternatives.

This option would also result in right-of-way impacts because it would require acquisition of property/right-of-way from south of Fassler Avenue to north of Reina Del Mar Avenue. The estimated construction cost of this alternative is approximately \$25 million.⁷

This alternative was primarily rejected because it would result in impacts to coastal wetlands and would result in considerably less traffic benefit than the proposed Build Alternatives.

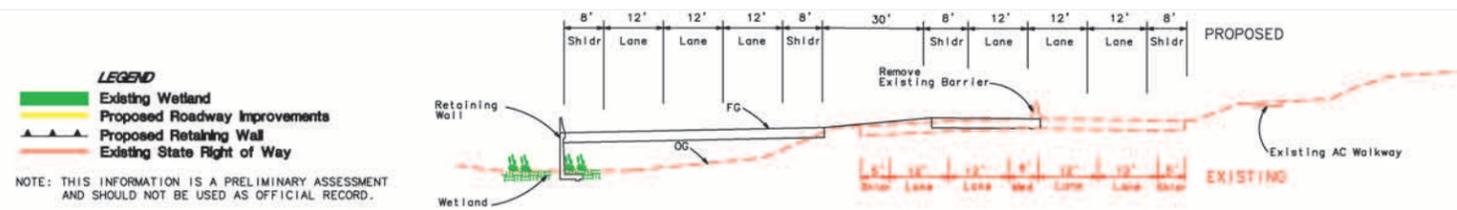
1.4.8.2 *Widen SR 1 From Four to Six Lanes for 1.0 miles*

This alternative would widen SR 1 from four lanes to six lanes for 1.0 mile from 500 feet south of Fassler Avenue to 1,700 feet north of Reina Del Mar Avenue (see Figure 1.8). This alternative would be a variation on the previous alternative with the widening extending further at the north end of the project. A variation of this alternative included splitting northbound and southbound directions of the roadway through the Quarry Site to reduce existing wetland impacts.

This design would not provide a comparable level of traffic benefit to the year 2035 compared to the proposed Build Alternatives because the third lane does not extend far enough south of the Fassler Avenue intersection or far enough north of the Reina Del Mar intersection to provide adequate merge space past the intersections.

Because this alternative would involve extensive widening on the west side of SR 1, this alternative would result in impacts to sensitive species habitat (CRLF and SFGS) west of SR 1, as well as jurisdictional wetlands west of SR 1. This alternative could also affect sensitive cultural resource sites west of SR 1. This alternative design would result in aesthetics impacts, similar to the proposed Build Alternatives, due to the removal of mature trees and screening vegetation along the east and west sides of SR 1, and would result in similar hydrology and water quality impacts due to an increase in impervious areas. This alternative would also result in impacts from exposure of possibly contaminated soils during construction, temporary increases in noise levels along SR 1 from construction, and minor increases in noise levels along SR 1 due to moving traffic closer to adjacent receptors and increased travel speeds during the peak hours, similar to the proposed Build Alternatives. The variation of this alternative which splits the northbound and southbound lanes

⁷ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.



ALTERNATIVE 2 - WIDEN SR 1 FROM FOUR TO SIX LANES FOR 1.0 MILES

FIGURE 1.8

around the wetlands in the Quarry site would reduce the amount of wetland impacts but not eliminate them and would increase the amount of impact to sensitive species habitat.

This alternative would have greater right-of-way impacts than the proposed Build Alternatives because it would require acquisition of property/right-of-way from the Rockaway Beach Area and the Quarry property. The variation with split roadways would require even greater right-of-way acquisition from the Quarry property. The estimated construction cost of this alternative is approximately \$25-\$40 million.⁸

This alternative was primarily rejected because it would result in impacts to special status species habitat and wetlands and because it would have considerably less traffic benefit than the proposed Build Alternatives.

1.4.8.3 Widen SR 1 From Four to Six Lanes for 1.3 miles with a Pedestrian Overcrossing

This alternative would involve widening SR 1 from four lanes to six lanes for 1.3 miles, extending from 1,500 feet south of Fassler Avenue to 2,300 feet north of Reina Del Mar Avenue similar to the proposed Build Alternatives (see Figure 1.9). However, this alternative explored adding a Pedestrian Overcrossing over SR 1 at Reina Del Mar Avenue in lieu of a pedestrian crosswalk at grade. Under this alternative, the third southbound lane would be added on the outside and dropped at Fassler Avenue and the alignment would shift east to avoid wetland impacts. Restoring the Calera Creek undercrossing was also explored under this alternative.

Similar to the proposed Build Alternatives, this alternative would achieve substantial benefits to peak hour traffic operations by increasing the length of the six-lane section far enough to substantially increase vehicle capacity through the bottlenecks at Fassler Avenue and Reina Del Mar Avenue. Although the intersections would operate at LOS E or F during one or more peak hours in year 2035 conditions, the corridor would function better, serving nearly 95 percent of peak hour traffic demand, compared to approximately 75 percent if no improvements were made to the corridor. AM peak hour travel times through this corridor would improve to four minutes and 24 seconds, and PM peak hour travel times would improve to four minutes and 12 seconds.

Traffic operational analysis showed that the pedestrian overcrossing would not appreciably enhance traffic operations. Furthermore, the pedestrian overcrossing could actually degrade the quality of the pedestrian environment compared to the proposed Build Alternatives because it would require pedestrians to climb to a bridge to cross SR 1 instead of using an at-grade crossing.

Because this alternative would involve widening on the west side of SR 1, this alternative would result in impacts to sensitive species habitat (CRLF and SFGS) west of SR 1. The variation of this alternative which explored restoration of the Calera Creek crossing would affect jurisdictional wetlands and sensitive cultural resource sites. This alternative design would result in aesthetics impacts, similar to the proposed Build Alternatives, due to the removal of mature trees and screening vegetation along the east and west sides of SR 1. This alternative would result in additional visual and aesthetic impacts due to the height of the pedestrian overcrossing. This alternative would result in similar hydrology and water quality impacts as the Build Alternatives, due to an increase in impervious areas. This alternative would also result in impacts from exposure of possibly contaminated soils during construction, temporary increases in noise levels along SR 1 from construction, and minor increases in noise levels along SR 1 due to moving traffic closer to

⁸ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.



ALTERNATIVE 3 - WIDEN SR 1 FROM FOUR TO SIX LANES FOR 1.3 MILES

FIGURE 1.9

adjacent receptors and increased travel speeds during the peak hours, similar to the proposed Build Alternatives.

This alternative would have right-of-way impacts since it would require acquisition of property/right-of-way from south of Fassler Avenue to north of Reina Del Mar Avenue. The estimated construction cost of this alternative is approximately \$32-\$40 million.⁹

This alternative was primarily rejected because it would be more expensive to construct compared to the Build Alternatives, would substantially degrade the quality of the pedestrian environment, and it would result in essentially the same traffic benefits as the Build Alternatives.

1.4.8.4 Partial Widening at Reina Del Mar Avenue

This alternative would widen SR 1 from four lanes to five or six lanes for short segments north and south of the Reina Del Mar Avenue intersection with a four-lane segment between the two intersections (see Figure 1.10). There would be no improvements at the Fassler Avenue intersection under this alternative. Several variations of this alternative were analyzed, which considered widening for different length segments:

- four lanes to five lanes for 800 feet (northbound right-turn lane in/out of Reina Del Mar Avenue);
- four lanes to six lanes for 1,100 feet;
- four lanes to six lanes for 1,700 feet; and
- four lanes to six lanes for 2,300 feet.

This alternative would improve capacity at the Reina Del Mar Avenue intersection, but would shift the traffic bottleneck south to the Fassler Avenue intersection.

Because this alternative would involve widening on the west side of SR 1, this alternative would also result in impacts to sensitive species habitat (CRLF and SFGS) west of SR 1, as well as jurisdictional wetlands west of SR 1. This alternative could also affect sensitive cultural resource sites west of SR 1. This alternative design would not result in aesthetics impacts as significant as the Build Alternatives because the widening is restricted to the vicinity of the Reina Del Mar Avenue intersection and would not remove the tree line along the west side of SR 1 north of San Marlo Way. This alternative would result in some increased hydrology and water quality impacts due to an increase in impervious areas. This alternative would also result in impacts from exposure of possibly contaminated soils during construction, temporary increases in noise levels along SR 1 from construction, and minor increases in noise levels along SR 1 due to moving traffic closer to adjacent receptors and increased travel speeds during the peak hours, similar to the proposed Build Alternatives.

This alternative would not have right-of-way impacts because all work could be done within the existing Caltrans right-of-way. The estimated construction cost for this alternative is approximately \$6-\$10 million.¹⁰

⁹ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.

¹⁰ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.

This alternative was primarily rejected because it would not alleviate the traffic bottleneck at the SR 1/Fassler Avenue intersection, and it would not result in a substantial traffic benefit to the corridor

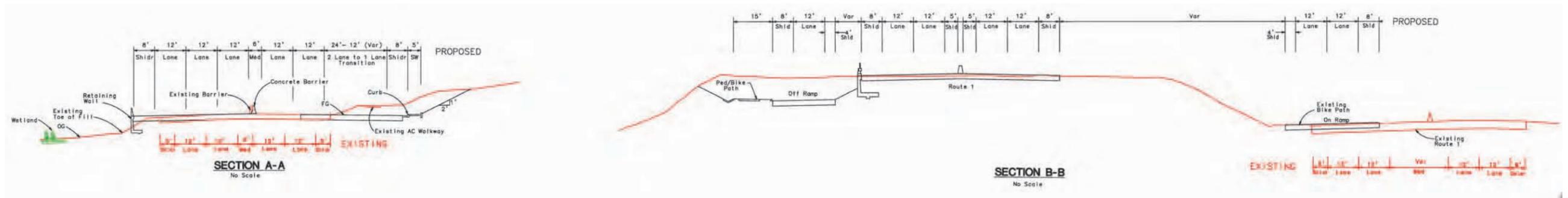
1.4.8.5 *Grade Separation at Reina Del Mar Avenue*

This alternative would shift the SR 1 alignment west on top of the existing embankments at Reina Del Mar Avenue creating a grade separated interchange to separate SR 1 from Reina Del Mar Avenue and would require the use of retaining walls to minimize impacts. Under this alternative, SR 1 would also be widened north and south of the intersection with Fassler Avenue/Rockaway Beach Avenue, to increase its capacity (see Figure 1.11). This design alternative also included creek crossing restoration. Several variations of this grade separation alternative were evaluated including:

- A “compact-diamond” interchange with east side business driveways accessing SR 1 directly to/from the northbound highway on and off ramps;
- A compact-diamond interchange with a one-way frontage road on the east side of SR 1 extending north from the Harvey Way frontage road;
- A southbound compact-diamond interchange with northbound “hook” ramps and a two-way frontage road south of Reina Del Mar Avenue on the east side.
- A compact-diamond interchange with SR 1 remaining at grade and Reina Del Mar Avenue depressed below SR 1.
- Additional variations of grade separations were evaluated through the Value Analysis process.

This design alternative would provide a vertical separation between SR 1 and Reina Del Mar Avenue. Direct conflict between SR 1 and Reina Del Mar Avenue would be eliminated and access would be provided by interchange on and off ramps, creating stop-sign controlled intersections on Reina Del Mar Avenue for traffic entering and exiting SR 1. Northbound and southbound through traffic on SR 1 would no longer have to pass through a signalized intersection at Reina Del Mar Avenue. This alternative would provide the most substantial travel time benefits for traffic on SR 1. Year 2035 AM peak hour travel times through the area would average three minutes and eighteen seconds, and PM peak hour travel times would average three minutes and 30 seconds. However, these travel times would only be marginally better than the Build Alternatives, and the construction cost would be substantially higher than the Build Alternatives.

Because this alternative would involve widening on both sides of SR 1, this alternative would result in impacts to sensitive species habitat (CRLF and SFGS) west of SR 1, as well as jurisdictional wetlands west and east of SR 1. This alternative could also affect sensitive cultural resource sites west of SR 1. This alternative design would result in aesthetics impacts, similar to the proposed Build Alternative, due to the removal of mature trees and screening vegetation along the east and west sides of SR 1, and would result in greater aesthetic impacts due to the construction of the elevated interchange. This alternative would result in similar hydrology and water quality impacts due to an increase in impervious areas. This alternative would also result in impacts from exposure of possibly contaminated soils during construction, temporary increases in noise levels along SR 1 from construction, and minor increases in noise levels along SR 1 due to moving traffic higher up in the air near adjacent receptors and increased travel speeds during the peak hours, similar to the proposed Build Alternatives.



LEGEND

- Existing Wetland
- Proposed Roadway Improvements
- Proposed Retaining Wall
- Proposed Bridge Structure
- Existing State Right of Way

NOTE: THIS INFORMATION IS A PRELIMINARY ASSESSMENT AND SHOULD NOT BE USED AS OFFICIAL RECORD.



ALTERNATIVE 5 - GRADE SEPARATION AT REINA DEL MAR

FIGURE 1.11

This alternative would have right-of-way impacts because it would require acquisition of property/right-of-way from the Rockaway Beach Area, the Quarry property, and, depending on the variation, the Reina Del Mar Avenue area. The estimated construction cost for this alternative is approximately \$50-\$65 million.¹¹

A grade separation would provide the most substantial traffic operations benefit but would require on and off ramps with controlled access to the highway, which means residential and business driveways could not have access directly to and from the on- and off-ramps. The first variation of this alternative with a simple compact-diamond design would not be feasible because Caltrans policy would not allow private or business driveway access directly to/from the on and off ramps. A separate access to all private properties adjacent to the interchange area would have to be provided from Reina Del Mar Avenue via frontage roads or other means. The other alternative variations would have much higher cost due to additional frontage road requirements and would result in much greater environmental impacts to sensitive biological resources and cultural resources than the proposed Build Alternatives. The raised roadway would also create additional visual and noise impacts. The City of Pacifica was not supportive of additional northbound “out of direction” travel to access businesses on east side at Reina Del Mar Avenue with the northbound hook ramps variation.

The Reina Del Mar Avenue “underpass” alternative variation, where SR 1 would remain at grade and Reina Del Mar Avenue would be depressed under the highway, was raised by the public during the scoping process as another grade separation alternative. This variation would not be feasible because the distance required to angle Reina Del Mar Avenue down under the highway would cut off access to adjacent properties and the on and off ramps connecting to SR 1 north would not be able to clear the Calera Creek crossing. This variation would also result in greater environmental impacts to sensitive biological and cultural resources west of SR 1.

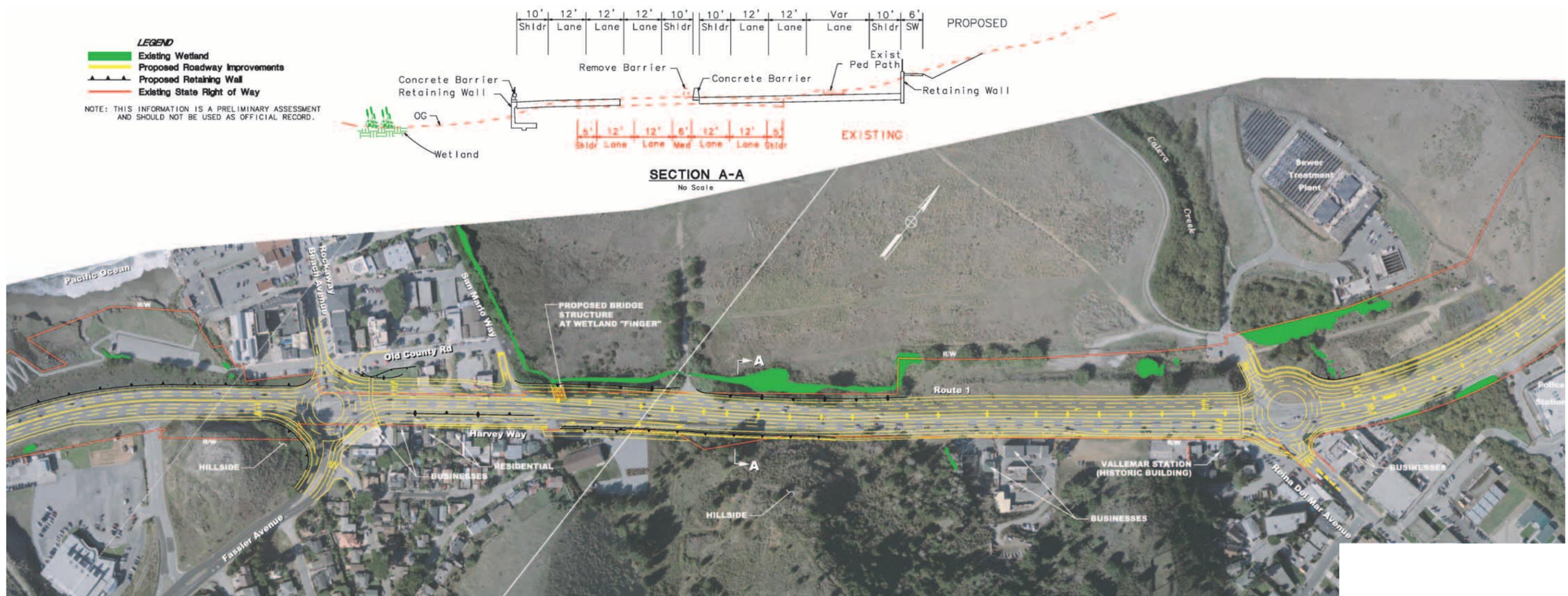
The grade separation alternative was primarily rejected because of the substantial additional cost to make a workable interchange and because of the increased environmental and right-of-way impacts.

1.4.8.6 Roundabout

This alternative would install roundabouts in place of signals at either one or both intersections. Roundabouts with two and three lanes were analyzed for this alternative (see Figure 1.12). Additional right-turn bypass lanes would be needed. This alternative could ease the stop-and-go traffic associated with a traffic signal; however, this alternative would be problematic for three primary reasons:

1. Roundabouts are usually designed for lower travel speeds – typically between 15 and 25 miles per hour. In this circumstance, even though the stop delay associated with the signal would be removed, the bottleneck would likely remain due to the substantially lower capacity associated with a roundabout at these locations.

¹¹ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.



ALTERNATIVE 6 - ROUNDABOUT

FIGURE 1.12

2. The roundabout at the Reina del Mar intersection would be located adjacent to an elementary school to the east on Reina del Mar Avenue. Collision statistics have shown that multi-lane roundabouts are generally less safe for pedestrians than signalized intersections. (This is not to say that multi-lane roundabouts should never be installed; in fact, there are many locations where multi-lane roundabouts serve important functions. However, given that this intersection is close to an elementary school, it is not recommended.)
3. This would be the first roundabout installed in Pacifica, and would be the first one along SR 1.
 1. Generally, it is not a recommended practice to introduce a multi-lane roundabout in an area with no single-lane roundabouts.

Two-lane roundabouts at either or both intersections would not provide enough capacity to improve traffic congestion through the project area. Three-lane roundabouts with supplemental right-turn bypass lanes would provide sufficient capacity to meet future traffic projections but would be substantially more complicated to navigate for vehicles, pedestrians, and bicyclists (refer to Figure 1.12). Full widening to six-lanes would still be needed on SR 1 between Fassler Avenue and Reina Del Mar Avenue to make either or both roundabouts work and result in traffic benefits. The multi-lane roundabouts required to meet traffic demand would be less safe for pedestrian crossing and bicycle traffic due to the large number of uncontrolled traffic lanes a pedestrian or bicyclist would need to cross.

Because these alternative designs would also involve widening on both sides of SR 1, this alternative would result in impacts to sensitive species habitat (CRLF and SFGS) west of SR 1, as well as jurisdictional wetlands west and east of SR 1, particularly in the vicinity of the Reina Del Mar Avenue intersection. This alternative could also affect sensitive cultural resource sites west of SR 1. This alternative design would result in aesthetics impacts, similar to the proposed Build Alternative, due to the removal of mature trees and screening vegetation along the east and west sides of SR 1, and could result in greater aesthetic impacts due to the potential footprint area necessary to accommodate the large roundabouts at Fassler Avenue and Reina Del Mar Avenue. This alternative would result in greater hydrology and water quality impacts due to an increased amount of impervious area over the Build Alternatives. This alternative would also result in impacts from exposure of possibly contaminated soils during construction, temporary increases in noise levels along SR 1 from construction, and minor increases in noise levels along SR 1 due to moving traffic closer to adjacent receptors during the peak hours, similar to the proposed Build Alternatives.

This alternative would result in right-of-way impacts since it would require acquisition of property/right-of-way from the properties adjacent to the intersections, the Rockaway Beach Area, and the Quarry property. The estimated construction cost for this alternative is approximately \$40-\$50 million.¹²

This alternative was primarily rejected because of the significant additional cost and right-of-way impacts that would be necessary at the two intersections to accommodate the three-lane roundabouts, as well as the highly complicated traffic flow and potential bicycle and pedestrian safety problems that would be created by such large roundabouts. The two-lane roundabouts would have less significant impacts but would not provide a substantial traffic benefit and could even cause traffic congestion to worsen.

¹² San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.

1.4.8.7 Frontage Road on West Side of SR 1

This alternative would construct a two-way frontage road through the Quarry property on the west side of SR 1, from Dondee Way to Reina Del Mar Avenue (see Figure 1.13). The frontage road would create an alternate connection to SR 1 between the Rockaway Beach area and the Vallemar neighborhoods. This alternative would have a minimal traffic benefit for highway through traffic.

This alternative would result in greater environmental impacts than the Build Alternatives to sensitive species habitat (CRLF and SFGS) west of SR 1, and to wetlands west of SR 1. This alternative could also affect sensitive cultural resource sites west of SR 1. This alternative design would result in aesthetics impacts due to the installation of a new roadway in a currently undeveloped area. This alternative would result in similar hydrology and water quality impacts due to an increase in impervious areas. This alternative could also result in impacts from exposure to possibly contaminated soils during construction and temporary increases in noise levels at San Marlo Way due to construction. This alternative would result in right-of-way impacts because it requires acquisition of property/right-of-way from the Quarry Site between San Marlo Way and Reina Del Mar Avenue.

The estimated construction cost of this alternative is approximately \$8 million.¹³ This alternative would provide only minimal traffic benefit and was primarily rejected because of the extensive environmental impacts to sensitive species habitat.

1.4.8.8 Signal Interconnect & Signal Timing Improvements without Roadway Widening

This alternative would install signal interconnect cable between the Fassler Avenue/Rockaway Beach Avenue and the Reina Del Mar Avenue signals to coordinate timing of green phases. A variation of this alternative would also include widening to add a third lane in the northbound direction.

The environmental and property right-of-way impacts for this alternative would be minimal. The estimated construction cost for this alternative for signal interconnect only is approximately \$0.3 million.¹⁴ Signal interconnect would not, however, provide an appreciable benefit due to the distance between the two signals. This alternative was primarily rejected because the traffic operation benefit would be considerably less than the proposed Build Alternatives.

1.4.8.9 Increased or Modified Transit Service

The ability to meet the purpose of the project by providing additional transit service and access through the site, including bus, light rail, and train access, (without any roadway widening) was also considered and evaluated. This alternative would consist of providing increased transit service to areas and points both north and south via additional bus routes, increased bus headways (more buses), additional park-n-ride lots, and additional feeder shuttles. The existing transit and bus service (Routes 14, 16, 100, 112, 294, CX and DX) through the area currently run well below capacity, with an average ridership of 50 percent of available capacity in the morning peak period and 40 percent in the evening peak period.¹⁵

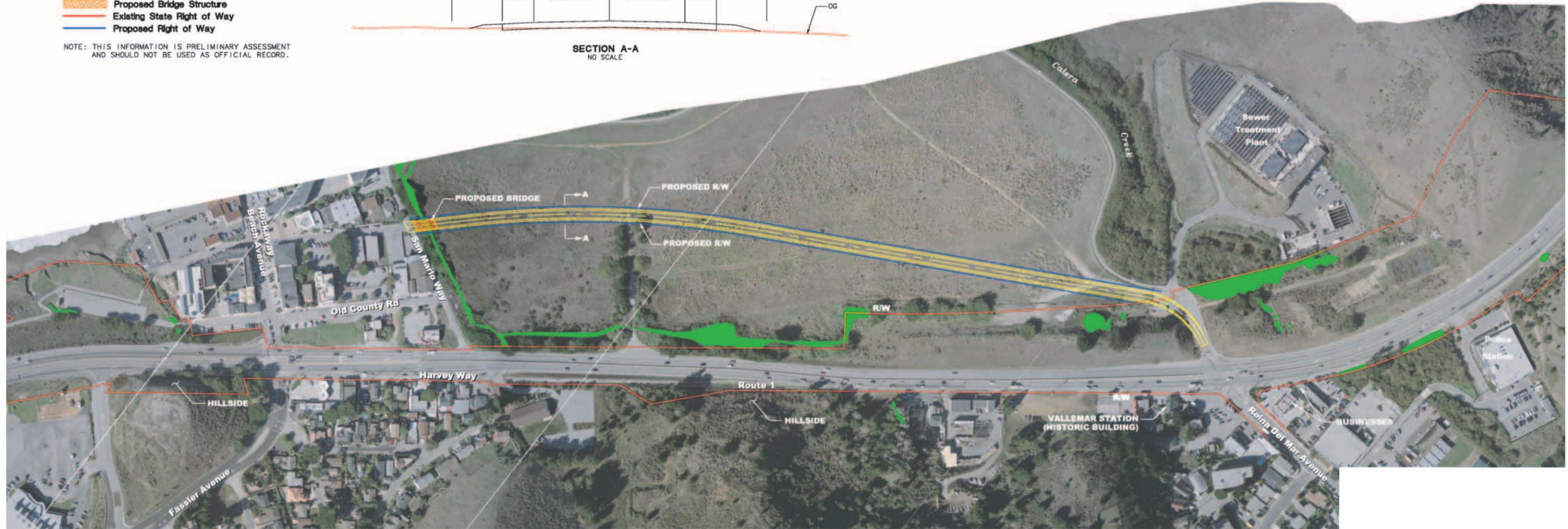
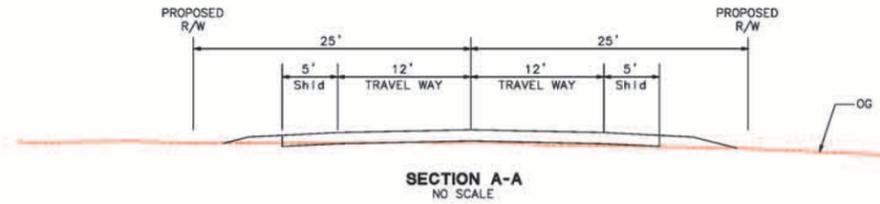
¹³ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.

¹⁴ San Mateo County Transportation Authority and Mark Thomas & Company. Written communications. 2010.

¹⁵ San Mateo County Transportation Authority. Written communications. 2010.

- LEGEND**
- █ Existing Wetland
 - █ Proposed Roadway Improvements
 - █ Proposed Bridge Structure
 - █ Existing State Right of Way
 - █ Proposed Right of Way

NOTE: THIS INFORMATION IS PRELIMINARY ASSESSMENT AND SHOULD NOT BE USED AS OFFICIAL RECORD.



ALTERNATIVE 7 - FRONTAGE ROAD ON WEST SIDE OF SR 1

FIGURE 1.13

Additional transit analysis was conducted which evaluated how much transit service would be required to induce drivers to switch to transit such that the existing roadway could accommodate 100 percent of the forecasted demand through the project corridor. In order to accomplish this, an additional 88 buses per hour would be required in the AM peak hour and an additional 77 buses per hour would be required in the PM peak hour. These increases would be comparable to a completely new transit system, not just minor service increases, and would require substantial new ongoing funding for operations and maintenance costs.

This alternative would likely have minimal environmental impacts, but could have some, scattered right-of-way impacts because it may require acquisition of property/right-of-way from the properties along SR 1 in order to provide bus and transit facilities along the highway. The addition of some type of rail transit line through the project would result in extensive right-of-way and environmental impacts.

Increasing bus routes or headway times by lesser amounts would provide only a nominal increase in ridership. Based on: 1) the existing land use and commute patterns through this area; 2) the locations of destination uses (residential and employment areas); 3) the low existing transit ridership through this corridor; and 4) the minimal amount of right-of-way available, it is unlikely that service updates in this area could achieve a similar level of congestion relief as the Build Alternatives, and these options were not considered feasible. This alternative was primarily rejected because of the high operating cost over time, the high initial cost for some transit options, and the minimal improvement in congestion relief.

1.4.8.10 School Bus Service to Elementary School at Vallemar

This alternative would provide increased school bus service to the elementary school on Reina Del Mar Avenue. The anticipated traffic benefits for this alternative would primarily be in the AM peak hour. The existing bus service is well-used, but is not over capacity. Increased service would likely provide only a marginal improvement, and would likely be very expensive to operate. Finally, it is important to note that school-related traffic congestion primarily affects the AM peak commute period. The evening congestion in the area generally occurs well after school hours and would not benefit by this additional service. This alternative could provide a small benefit for a portion of the AM peak commute congestion (northbound) but not enough to significantly reduce backups through the corridor.

This alternative was primarily rejected because it would not provide considerable benefit for the AM or PM commute period (northbound or southbound).

1.4.8.11 Moveable Cones or Barrier/Reversible Lane

This alternative was identified during the public input and scoping process and would involve installing a moveable concrete barrier to provide three lanes in the peak direction and one lane in the off-peak direction. Variations of this alternative include using moveable cones instead of a barrier and widening SR 1 to five lanes with movable cones or a barrier (providing a 3/2 lane split).

The variation with moveable cones would not be feasible for this location because it does not provide a positive physical barrier between oncoming lanes of traffic. The existing concrete median barrier was originally installed due to safety problems along this segment of SR 1. The use of a moveable barrier on the existing 4 lanes would provide a 3/1 split of the lanes during the peak hours. The

single lane in the off-peak direction would not likely be adequate to handle the traffic demands and maneuverability for safety vehicles in the off-peak direction during emergencies.

The five-lane with movable barrier variation would likely provide adequate traffic capacity, but has the following associated complications:

1. Widening to provide the additional lane and standard shoulders would still be required.
2. Providing adequate signage, roadway striping, and traffic signal infrastructure to safely indicate the operation of turn lanes at varying times of the day would likely result in a highly confusing situation and would likely be considered a safety concern.
3. This alternative would require a steady revenue stream to pay for the ongoing operations and maintenance costs. The moveable barrier would need to be shifted at least twice per day, and perhaps up to four times per day. This operation is relatively labor-intensive and requires specialized equipment that would have to be purchased and maintained.
4. A qualified, ongoing labor force would have to be funded and maintained to operate the equipment and conduct the lane changes.

Because widening to five lanes would likely be necessary to meet the purpose of the project, this alternative would likely still result in impacts to sensitive species habitat (CRLF and SFGS) west of SR 1. Depending on the ultimate extent of widening necessary, it is not known whether the potential impacts to cultural resources and aesthetics would be similar to or less than the Build Alternatives. This alternative would result in some additional hydrology and water quality impacts due to an increase in impervious area. This alternative would have similar noise impacts, due to moving traffic closer to adjacent receptors and due to increased travel speeds during the peak hours, as the proposed Build Alternatives, as well as potential increased noise from moving a moveable barrier.

This alternative could have similar right-of-way impacts as the proposed Build Alternatives, since it may require acquisition of property/right-of-way from the properties along SR 1.

This alternative was primarily rejected because it would be very difficult to implement at the signalized intersections, and may result in a safety concern due to the complexity of signage and/or striping required. Because this design would require both an initial capital investment for the roadway widening and specialized equipment and ongoing operational cost, the long-term cost of this alternative would be much higher than the proposed Build Alternatives. There would also be traffic impacts in the off-peak direction if a fifth lane is not added.

1.4.8 Comparison of Alternatives Considered but Eliminated

Each of the alternatives was dropped from further consideration because either: 1) they did not provide traffic benefits that reasonably and considerably exceeded the project performance of the identified build alternatives; and/or 2) they were determined to be infeasible due to the substantial additional right-of-way, construction, and/or ongoing operational and maintenance costs; and/or 3) they would result in significant additional environmental impacts beyond those of the proposed Build Alternatives, including additional visual and aesthetic impacts, impacts to sensitive biological resources, and potential impacts to cultural resources. Refer to the matrix in Table 1.7 for a summary of the reasons each alternative was eliminated from further consideration.

TABLE 1.7 SUMMARY MATRIX OF ALTERNATIVES CONSIDERED BUT WITHDRAWN

Concept		Description	Feasibility / Effectiveness	Further Study
A	Widen 4-lane to 6-lane - 0.8 miles	This alternative would widen from 4 lanes to 6 lanes from 460 feet south of Fassler Ave to 660 feet north of Reina Del Mar Ave.	This alternative would impacts wetlands and special status species habitat. This alternative would not provide traffic benefit to Year 2035 because third lane does not extend far enough south of Fassler Ave. intersection or far enough north of Reina Del Mar Ave. intersection.	No
B	Widen 4-lane to 6-lane - 1.0 miles	Variations on the 1999 PSR version were explored in mid 2000s, such as widening 4 lanes to 6 lanes from 500 ft south of Fassler Ave to 1,700 ft north of Reina Del Mar Ave. <i>(Exhibit B1)</i> - A variation of this idea includes splitting NB and SB directions of roadway through Quarry Site to go around existing wetlands.	This alternative would have Impacts to wetlands and special status species habitat. This alternative does not provide traffic benefit to Year 2035 because the third lane does not extend far enough south of Fassler Ave intersection or far enough north of Reina Del Mar intersection. It was determined during Coastal Commission consultations that impacting wetlands is not allowed.	No
C	Widen 4-lane to 6-lane - 1.3 miles	This alternative would widen from 4 lanes to 6 lanes from 1,500 feet south of Fassler Ave to 2,300 feet north of Reina Del Mar Ave. The alignment was shifted alignment east to eliminate wetland impacts. The design team explored the idea of restoring the Calera Creek crossing. - A second variation (C2) of this idea included a pedestrian overcrossing at Reina Del Mar Avenue. - A third variation (C3) of this idea drops the 3rd southbound lane at Fassler Avenue and only two lanes continue south of Fassler. Calera Creek restoration idea is dropped under this variation. - A fourth variation (C4), similar to C3, includes a landscaped median between San Marlo Way and Reina Del Mar Avenue.	This would provide improvement in traffic operations over existing conditions out to Year 2035 and would not impact wetlands like Concepts A and B. The pedestrian overcrossing at Reina Del Mar would not appreciably enhance traffic operations and would create a pedestrian safety problem since some people will likely still try to cross at grade (without a crosswalk and signal delay to protect them). The landscaped median variation (C4) would have more impacts and cost than the narrow median (C3) but with the same traffic operations.	C1 - No C2 - No C3 - Yes C4 - Yes
D	Partial Widening at Reina Del Mar Avenue	This alternative consists of a five-lane or six-lane widening for a short segment north and south of Reina Del Mar intersection with a four-lane segment between the two intersections. Variations of this idea analyzed widening for different length segments: - 4 to 5 lanes for 800 ft (NB right-turn lane in/out of Reina Del Mar Avenue) - 4 to 6 lanes for 1,100 ft - 4 to 6 lanes for 1,700 ft - 4 to 6 lanes for 2,300 ft	This alternative would improve capacity at Reina Del Mar Ave., but would shift the bottleneck to the south to the SR 1/Fassler Avenue intersection.	No
E	Grade Separation at Reina Del Mar Avenue	This would shift the SR 1 alignment on top of embankments at Reina Del Mar Avenue to separate highway from Reina Del Mar Ave. and use retaining walls to minimize impacts. This included the creek crossing restoration idea. Several variations on this theme were evaluated including: - Tight diamond interchange with east side business driveways accessing directly to/from on and off ramps - Tight diamond with one-way frontage road on the east side extending north from Harvey Way - Southbound tight diamond with northbound hook ramps and two-way frontage road south of Reina Del Mar Ave. on east side	A grade separation would provide the most significant traffic operations benefit but would require on and off ramps with controlled access so driveways could not access directly to/from the ramps. The first variation with a simple tight diamond would not be feasible due to controlled access of the ramps. The other two variations would have much higher cost due to additional frontage road requirements. The City is not supportive of additional NB "out of direction" travel to access businesses on east side at Reina Del Mar Avenue with NB hook ramps option. The raised highway would create additional visual and noise impacts. There is also a potential for additional cultural resource impacts.	No
F	Roundabout (Traffic Circle)	This alternative includes installing a roundabout in place of the traffic signal at either one or both intersections.	This would have significant business and R/W impacts at intersections with a roundabout/widening large enough to meet traffic demand. Additional right-turn slip ramps would be needed. The full six-lane widening would still be needed on SR 1 between Fassler Ave. and Reina Del Mar Ave. to make either or both roundabouts work. The multi-lane roundabouts required to meet traffic demand would be unsafe for pedestrian crossing and bicycle traffic due to the large number of uncontrolled traffic lanes a pedestrian or bicyclist would need to cross.	No
G	Frontage Road on West Side	This alternative would construct a two-way frontage road through the Quarry site from Dondee Way to Reina Del Mar Avenue.	This alternative would have a very high right of way cost, with minimal traffic benefit for highway through traffic.	No
H	Signal Interconnect & Signal Timing Improvements	This alternative would install signal interconnect cable between the two signals to coordinate timing of the green phases. <i>(no exhibit)</i> - A variation of this idea includes widening to add a 3rd lane in only the northbound direction.	The signal interconnect alternative would not provide an appreciable benefit due to the distance between the two signals. Traffic signal retiming would improve congestion initially based on existing traffic volumes, but then the benefit would dissipate by about Year 2015 and would offer little benefit as traffic demand increases in the future.	No
I	Increased or Modified Transit Service	This alternative would provide increased transit service to areas and points both north and south via additional bus routes, increased bus headways (more busses), additional park-n-ride lots, additional feeder shuttles, etc.	This alternative would have a high operating cost over time, a high initial cost for some options, and would not provide significant improvement in congestion relief.	No
J	School Bus Service to Elementary School at Vallemar	This alternative would provide increased school bus service to the elementary school on Reina Del Mar Avenue.	This could provide a small benefit for a portion of AM peak commute congestion (NB), but not enough to significantly reduce backups. This would not provide benefit for any of the PM commute congestion (SB).	No

After comparing and weighing the benefits and impacts of all of the feasible alternatives, the project development team has identified the proposed project Build Alternatives described in Section 1.3 *Project Description*, above as the preferred alternatives, subject to public review. Final identification of a preferred alternative will occur after the public review and comment period.

1.5 PERMITS AND APPROVALS NEEDED

Construction of the proposed project will require permits/approvals from the governmental agencies listed in Table 1.8 below.

TABLE 1.8 PERMITS AND APPROVALS NEEDED		
Agency	Permit/Approval	Status
U.S. Fish and Wildlife Service	Section 7 Consultation for Threatened and Endangered Species (Biological Opinion) Review and comment on USACE Section 404 Permit	Biological Assessment will be submitted during environmental review process
United States Army Corps of Engineers (Corps)	Section 404 permit for temporary and/or permanent work in the low-flow channel of Calera Creek and adjacent wetland areas	Section 404 permit application will be submitted during final design
California Department of Fish and Game	Streambed Alteration Agreement (Section 1601-03) for work in Calera Creek and wetlands	Application for 1601-1603 will be submitted during final design
California Coastal Commission	Encroachment permits for work extending onto California Coastal Commission jurisdiction	Application will be submitted during final design
Regional Water Quality Control Board	Section 401 Water Quality Certification/Waiver for work with potential impact to waters of the State Compliance with the Caltrans and the General Construction Section 402 National Pollutant Discharge Elimination System	Section 401 permit application will be submitted during final design Compliance with the Department's Storm Water Management Plan (SWMP) and submittal of a Notice of

	(NPDES) permits	Construction (NOC) to the RWQCB to obtain coverage under the Construction General Permit
Golden Gate National Recreation Area (GGNRA)	TBD	TBD

Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) addresses storm water and non-storm water discharges

CHAPTER 2 **AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, & AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES**

Introductory Note: *As part of the scoping and environmental analysis conducted for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, there is no further discussion regarding these issues in this document:*

<ul style="list-style-type: none"> ▪ <u>Farmlands</u> 	There are no farmlands located within or adjacent to the proposed improvements.
<ul style="list-style-type: none"> ▪ <u>Timberlands</u> 	There are no timberlands located in the project vicinity.
<ul style="list-style-type: none"> ▪ <u>Community Cohesion</u> 	The project will widen an existing highway that runs through the City and improve congestion. The improvements will not divide any community or neighborhood.
<ul style="list-style-type: none"> ▪ <u>Paleontology</u> 	There are no known paleontological resources located in the project area.
<ul style="list-style-type: none"> ▪ <u>Wild & Scenic Rivers</u> 	There are no waterways designated as Wild & Scenic Rivers in the project area. The closest rivers with this designation are over 100 miles from the project area.
<ul style="list-style-type: none"> ▪ <u>Energy</u> 	The project would not open new areas to development or result in a long-term increase in energy usage. When balancing energy used during construction and operation against energy saved by relieving congestion and other transportation efficiencies, the project would not have substantial energy impacts.

HUMAN ENVIRONMENT

2.1 LAND USE

2.1.1 Existing and Future Land Use

The project segment of SR 1 extends from approximately 1,500 feet south of Rockaway Beach Avenue/Fassler Avenue to approximately 2,300 feet north of Reina Del Mar Avenue, a distance of approximately 1.3 miles. The entire project segment of SR 1 lies within the incorporated city of Pacifica.

Along the west side of SR 1, existing land uses consist of retail/commercial development along the highway. The Rockaway Beach commercial/retail area is opposite Fassler Avenue, where the street name changes to Rockaway Beach Avenue, and contains hotels, restaurants, and beach access. South of San Marlo Way, between Old County Road and SR 1, the area of future SR 1 widening consists of undeveloped land, one lane of public parking, an Indian restaurant with an attached residence, and a closed former Kentucky Fried Chicken restaurant.

North of San Marlo Way, the west side of the SR 1 project alignment consists of undeveloped privately owned land (a former quarry) with mature trees along the SR 1 right-of-way. Near the Reina Del Mar Avenue intersection, there is an existing embankment along the western edge of the SR 1 roadway. This embankment is approximately 30 feet high and extends from approximately 1,000 feet north of the SR 1/Reina Del Mar Avenue intersection to approximately 700 feet south of the intersection (refer to Figures 1.3 through 1.5 and see Photo Simulation 5). Also west of the SR 1 project segment is the City of Pacifica Calera Creek Water Recycling/Waste Water Treatment Plant.

Retail/commercial uses, a church, restaurants, a few residences, and the City's Police Substation occupy parcels along the project alignment east of SR 1. Immediately north of Fassler Avenue, the development east of SR 1 is accessed via a short frontage road, Harvey Way.

There are no development projects under construction or pending approval in the vicinity of the SR 1 project segment. There is one application on file with the City of Pacifica for a 63 unit condominium/commercial development at the southeast corner of Fassler Avenue and SR 1. This development application is currently in "inactive" status.¹⁶

2.1.2 Environmental Consequences

2.1.2.1 *Land Use Changes*

Most of the project would be constructed within the existing Caltrans or City of Pacifica right-of-way. However, as shown in Table 1.5, right-of-way acquisition will be necessary at a number of locations under either Build Alternative.

The total additional right-of-way required for the Narrow Median Build Alternative amounts to approximately 88,100 square feet. West of SR 1, right-of-way acquisition would be required from 12 existing parcels, extending for about 1,600 feet immediately north of the Fassler Avenue/Rockaway Beach Avenue intersection. East of SR 1, a proposed soil-nail retaining wall would encroach onto two parcels (018-14-090 and 018-014-230). However, because the height of these retaining walls and barriers would not exceed the height of the remaining embankments, the wall would not block views. See photo simulations 1 through 7 in Section 2.7 *Visual/Aesthetics*, which illustrate the views before and after implementation of the project at several vantage points along the project alignment. A five-foot wide right-of-way acquisition strip and a 20-foot wide easement for utility relocation

¹⁶ APN #022-012-020, 4545 Coast Highway, Source:
<http://www.cityofpacific.org/civica/filebank/blobload.asp?BlobID=2592>, February 2009.

would be required from these two privately owned parcels (Our Savior's Lutheran Church and the adjacent parcel to the north) for approximately 380 feet (refer to Section 1.4.3). This acquisition would impact the landscaping between the church parking lot and the existing pedestrian path but would not impact the size or location of the existing parking lot. There would be a temporary impact to access and parking during construction of the retaining wall and the utility relocations. The available landscaping strip would become narrower and have to be replaced with new landscaping. There would be no impact to the church structure.

The total additional right-of-way required for the Landscaped Median Build Alternative would amount to approximately 136,000 square feet. Under the Landscaped Median Build Alternative, the first 18 properties listed in Table 1.5 would have the same amount of right-of-way acquisition as the Narrow Median Build Alternative, because full acquisition is required for these parcels. The Lutheran Church property on the east side of SR 1 would also have the same right-of-way acquisition because the retaining wall for the landscaped median is in front of the sidewalk. Even though the sidewalk encroaches more onto the church property, because the retaining wall is further away, both alternatives require the same amount of right-of-way acquisition.

The property adjacent to the Lutheran Church and the Quarry site would have a larger area of right-of-way acquisition. There are five additional properties east of SR 1, near the Lumber Yard property, which would require right-of-way acquisition under the Landscaped Median Build Alternative (refer to Section 1.4.3).

Acquisition would be by the County of San Mateo. The owners of any properties acquired for project right-of-way will be compensated for the loss and/or use in accordance with federal and state right-of-way requirements.

Indirect land use impacts such as noise and visual/aesthetics are discussed under their own headings in this document.

2.1.2.2 *Consistency with State, Regional, and Local Plans and Programs*

Regional Transportation Plan

The project is listed in, and therefore consistent with, the Metropolitan Transportation Commission's *Transportation 2035*, which is the Regional Transportation Plan (RTP). It is also included in the adopted 2009 Transportation Improvement Program (TIP) for the San Francisco Bay Area.

City of Pacifica Local Coastal Land Use Plan

The project is consistent with the City of Pacifica Local Coastal Land Use Plan, which states that highway improvements should also increase the safety of existing intersections along SR 1, including access to the quarry (opposite Reina Del Mar Avenue) and Rockaway Beach Avenue. It also states that SR 1 should be considered a multi-modal travel corridor and pedestrian, bicycle, bus transit, and emergency vehicle access should be included in any planned improvements.

Rockaway Beach Redevelopment Plan

The project is consistent with the Redevelopment Plan for the Rockaway Beach Project Area, which calls for construction of right-of-way, intersection, and traffic control improvements to enhance vehicular and pedestrian circulation on Highway (SR) 1.

Pacifica Bicycle Plan

The project is consistent with the Pacifica Bicycle Plan, because the existing two-way bicycle/pedestrian path adjacent to the west edge of the highway north of Reina Del Mar Avenue would be reconstructed along the west edge of the widened highway and upgraded to a Class 1 bike path. Bicycle/pedestrian access between Reina Del Mar Avenue and Rockaway Beach Avenue is served by an alternate Class I trail that leaves the highway at the main quarry road and extends in a curving route south to Pacifica State Beach. The existing two-way bicycle/pedestrian path west of the existing highway south of Rockaway Beach would not be altered by the highway widening.

Pacifica General Plan

The project is also consistent with the general plan of the City of Pacifica, which identifies SR 1 as a major transportation facility. The *Pacifica General Plan* contains a number of policies that are relevant to the proposed project:

Circulation Element Policy #4: Provide access which is safe and consistent with the level of development. The project is consistent with this policy since it proposes access and safety improvements to accommodate existing and projected traffic volumes.

Circulation Element Policy #9: Development of safe and efficient bicycle, hiking, equestrian and pedestrian access within Pacifica and to local points of interest. The project is consistent with this policy since it provides improved bicycle and pedestrian access within the project segment.

Circulation Element Policy #11: Safety shall be a primary objective in street planning and traffic regulations. The project is consistent with this policy since the proposed roadway and intersection modifications will improve vehicle, bicycle, and pedestrian safety within the project segment.

Circulation Element Policy #15: Promote orderly growth in land uses and circulation. The project is consistent with this policy since it will increase SR 1 capacity within the project segment to accommodate existing and projected traffic volumes, however; the project would not create any new connections to other roadways or areas, and the project would not open any new areas to development.

Scenic Highways Element Policy #4: Encourage appropriate multiple recreational uses along scenic highways and routes other than auto. The project is consistent with this policy since it provides improved bicycle and pedestrian access, as well as vehicle access, within the project segment.

2.1.2.3 Coastal Zone

Regulatory Setting

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

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA; they include the protection and expansion of public access and recreation, the protection, enhancement and restoration of environmentally sensitive areas, protection of agricultural lands, the protection of scenic beauty, and the protection of property and life from coastal hazards. The California Coastal Commission (CCC) is responsible for implementation and oversight under the California Coastal Act. The CCC policies that are most relevant to the project and the site, as well as the project's consistency with those policies, are summarized in Table 2.1.

Just as the federal CZMA delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments (15 coastal counties and 58 cities) to enact their own local coastal programs (LCPs). LCPs determine the short- and long-term use of coastal resources in their jurisdiction consistent with the California Coastal Act goals. Either of the project Build Alternatives will require approval from the California Coastal Commission. A federal consistency determination may be needed as well.

The City of Pacifica Local Coastal Land Use Plan calls for safety and operational improvements to the southern portion of SR 1, the subject reach. Because SR 1 is considered Pacifica's lifeline, and its appearance and safety are critical to the City and its future, the following LCP policies are relevant to the project:

- § *Safety and operational improvements and any future improvements shall ensure erosion control, protect coastal views and improve the visual edge of the highway.*
- § *Highway 1 shall be considered as a multi-modal travel corridor. Consideration in planning improvements shall include pedestrian, bicycle, bus transit, and emergency vehicle access within the corridor.*
- § *Landscaping shall be included in highway improvements to ensure erosion control, protect coastal views and improve the visual edge of the highway.*

**TABLE 2.1
CONSISTENCY OF PROJECT WITH CALIFORNIA COASTAL ACT POLICIES
(PUBLIC RESOURCES CODE DIVISION 20)**

Article	Section and Policies	Project Consistency
Article 2 Public Access	<p><i>Section 30210 Access; recreational opportunities; posting</i> In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project would not impede or interfere with existing coastal access and recreational opportunities.</p>
	<p><i>Section 30211 Development not to interfere with access</i> Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project would not impede or interfere with existing coastal access.</p>
	<p><i>Section 30212 New development projects</i> (a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project would not impede or interfere with existing coastal access. The existing two-way Class 1 bicycle/pedestrian path adjacent to SR 1, north of Reina Del Mar Avenue, would be reconstructed and upgraded along the western edge of the widened highway. The existing two-way bicycle/pedestrian path west of the existing highway and the former quarry property, as well as further south of Rockaway Beach Avenue, would not be altered or impacted by the proposed roadway widening under either build alternative. In addition, the sidewalks along the west side of SR 1 would be completed and upgraded to improve pedestrian connection (refer to Section 1.4.1.1).</p>

	<p><i>Section 30214 Implementation of public access policies; legislative intent</i> (a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following: (1) Topographic and geologic site characteristics. (2) The capacity of the site to sustain use and at what level of intensity. (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses. (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.</p>	<p>As described above, the project Build Alternatives have been designed to maintain and improve access, accounting for the site characteristics and management of access areas. The project has also been designed to minimize impacts on sensitive natural and biological resources including Environmentally Sensitive Habitat Areas (refer to Section 2.15-2.20).</p>
Article 3 Recreation	<p><i>Section 30220 Protection of certain water-oriented activities</i> Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project would not impede or interfere with existing water-oriented recreational activities.</p>
	<p><i>Section 30221 Oceanfront land; protection for recreational use and development</i> Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project would not impact or impede the future use of Oceanfront land for recreational use.</p>
	<p><i>Section 30223 Upland areas</i> Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project would not change the land use of upland areas necessary to support recreational uses.</p>
Article 4 Marine Environment	<p><i>Section 30231 Biological productivity; water quality</i> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project has been designed to minimize impacts on runoff and water quality, as well as sensitive biological resources and habitat areas (refer to Sections 2.9-2.10 and 2.15-2.20).</p>

	vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.	
	<i>Section 30232 Oil and hazardous substance spills</i> Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.	Either of the project Build Alternatives would be consistent with this policy, as the project includes mitigation and avoidance measures to minimize potential impacts related to hazardous substances (refer to Section 2.12).
	<i>Section 30236 Water supply and flood control</i> Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.	Either of the project Build Alternatives would be consistent with this policy, as the project has been designed to minimize impacts on runoff and water quality, as well as sensitive biological resources and habitat areas, including Environmentally Sensitive Habitat Areas (refer to Sections 2.9-2.10 and 2.15-2.20).
Article 5 Land Resources	<i>Section 30240 Environmentally sensitive habitat areas; adjacent developments</i> (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.	Either of the project Build Alternatives would be consistent with this policy, as the project has been designed to minimize impacts on sensitive biological resources and habitat areas, including Environmentally Sensitive Habitat Areas (refer to Sections 2.15-2.20).
	<i>Section 30244 Archaeological or paleontological resources</i> Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.	Either of the project Build Alternatives would be consistent with this policy, as the project includes mitigation and avoidance measures to minimize potential impacts to cultural resources (refer to Section 2.8).
Article 6 Development	<i>Section 30250 Location; existing developed area</i> (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be	Either of the project Build Alternatives would be consistent with this policy, as the project consists of widening the existing SR 1 roadway within a developed area.

	<p>permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.</p>	
	<p><i>Section 30251 Scenic and visual qualities</i> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.</p>	<p>The two Build Alternatives would result in minor changes to visual resources within the project limits. The urban and natural character of the SR 1 project alignment would remain similar to the existing character. Generally, this change would not affect the roadway users or those who view the roadway and intersections from adjacent communities.</p> <p>While the project would result in the removal of mature trees along the west side of SR 1, views of the coastal areas on the western side of the roadway could be enhanced with the removal of this vegetation. The new roadway and hardscape features would not displace the existing natural features. The Landscaped Median Build Alternative would partially screen the commercial and residential development adjacent to the roadway for the traveler.</p> <p>The project would require additional right-of-way boundaries along some portions of the alignment; however these areas would be constructed on new embankment or excavated into existing man-made embankments and would not proportionally displace existing natural features.</p> <p>For these reasons, the project Build Alternatives would generally be consistent with this policy (refer to Section 2.7 and 2.22).</p>

	<p><i>Section 30252 Maintenance and enhancement of public access</i> The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing nonautomobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project has been designed to facilitate transit and non-automobile circulation along the alignment. The project would not change the intensity of nearby land uses or overload nearby coastal recreation areas.</p>
	<p><i>Section 30253 Minimization of adverse impacts</i> New development shall do all of the following: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard. (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. (c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development. (d) Minimize energy consumption and vehicle miles traveled. (e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.</p>	<p>Either of the project Build Alternatives would be consistent with this policy, as the project has been designed to minimize risks to life and property. Geotechnical, flooding, erosion, and air quality analyses have been completed as part of the review process for this project (refer to Sections 2.9-2.11 and 2.13).</p> <p>The proposed roadway improvements would not change the location or intensity of existing land uses in the area, and therefore, would not significantly increase energy consumption or vehicle miles traveled.</p>
	<p><i>Section 30254 Public works facilities</i> New or expanded public works facilities shall be designed and limited to accommodate needs generated by development or uses permitted consistent with the provisions of this division; provided, however, that it is the intent of the Legislature that State Highway Route 1 in rural areas of the coastal zone remain a scenic two-lane road. Special districts shall not be formed or expanded except where assessment for, and provision of, the service would not induce new</p>	<p>Either of the project Build Alternatives would be generally consistent with this policy, as the project consists of widening the existing SR 1 roadway within a developed area. The project would not induce development or open additional areas to development. The project is proposed to remove an existing bottleneck for</p>

	<p>development inconsistent with this division. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.</p>	<p>traffic congestion and improve the level of service operation in the immediate project area. While the proposed widening and intersection improvements would improve traffic operations, the overall capacity of SR 1 would not substantially change because the SR 1 segments north and south of the project would remain unchanged.</p> <p>As described above, the project would not change the type or intensity of land uses near the alignment and would not impact public recreation, commercial recreation, or visitor-serving land uses.</p>
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The project would be consistent with these policies since either Build Alternative would provide improved bicycle and pedestrian access, as well as vehicular access, within the project segment (refer to Section 2.6 *Traffic & Transportation/Pedestrian & Bicycle Facilities*). The project would also include erosion control and storm water detention measures (refer to Section 2.9 *Hydrology and Floodplain* and 2.10 *Water Quality and Storm Water Runoff*). While the two Build Alternatives would require the removal of mature landscaping and trees along the highway, particularly the mature trees west of SR 1 north of San Marlo Way, the project would include new landscape planting and would protect and/or improve coastal views (refer to Section 2.7 *Visual/Aesthetics*).

2.1.2.4 *Parks and Recreational Facilities*

Within the project limits, there are two public parks located adjacent to SR 1: Mori Point, a 105-acre public park of the Golden Gate National Recreation Area (GGNRA), is located west of SR 1, north of the water treatment plant; and the larger (1,158-acre) Sweeney Ridge GGNRA is located on the east side of SR 1, at the north end of the project alignment. Both of these parks are largely undeveloped and consist of trails and protected wildlife areas.

The project will not require right-of-way from either the Mori Point or Sweeney Ridge GGNRA under either Build Alternative. Indirect effects (e.g., noise and visual) at these parks will not be substantial; see Section 2.7 *Visual/Aesthetics*, and Section 2.14 *Noise* for details. Some mitigation for impacts to biological resources is proposed on the Mori Point GGNRA property (refer to Section 2.16 *Wetlands and Other Waters* and Section 2.19 *Threatened and Endangered Species*).

2.1.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed.

2.2 GROWTH

2.2.1 Regulatory Setting

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

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

2.2.2 Environmental Consequences

The project is located within an urbanized area of the city of Pacifica and its construction would not open additional areas to development. The project is proposed to remove an existing bottleneck for traffic congestion and improve the level of service operation in the immediate project area. While the proposed widening and intersection improvements would improve traffic operations, the overall capacity of SR 1 would not substantially change because the SR 1 segments north and south of the project would remain unchanged. The project would not create any new connections to other roadways or areas, and the project would not open any new areas to development. Similarly, the overall capacity of Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue will not substantially change because the project would not add any new through lanes to those roadways.

There are no pending or recently-approved projects whose construction is conditioned upon the implementation of the project. Given the project's location and physical constraints, as well as resource agency jurisdictions, the project would have little influence on future growth in the region.

The project would not result in any direct growth-inducing impacts because no development is tied to the construction of the widening and intersection improvements. Indirect growth-inducing impacts would be minimal as the project does not include the construction of extended segments of new through lanes on the freeways or local streets.

2.2.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed.

2.3 RELOCATIONS AND REAL PROPERTY ACQUISITION

2.3.1 Regulatory Setting

Caltrans' Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S.C. 2000d, et seq.). Please see Appendix B for a copy of Caltrans' Title VI Policy Statement.

2.3.2 Affected Environment

Most of the proposed improvements would be constructed within the existing Caltrans and City of Pacifica rights-of-way. There are several locations, however, under both alternatives, where the

improvements would require additional right-of-way (refer to Table 1.5 in Section 1.4.3 of this document). The right-of-way requirements would be less under the Narrow Median Build Alternative than under the Landscaped Median Build Alternative.

There is one single-family residence that would be acquired by the project, located at 425 Old County Road. This residence is attached to a commercial (restaurant) building fronting SR 1, at 4430 Coast Highway, via a covered walkway. There are no other residences in the immediate vicinity of this structure.

The residence and attached restaurant were constructed in 1952. The residence, an approximate 1,200-1,500 square foot, wood-frame, two-story house, is a simply detailed, stucco-covered cube shape with a flat roof. The residence occupies approximately one-half of the 6,284 square foot lot.

2.3.3 Environmental Consequences

The project will necessitate the relocation of the residents living in the one single-family dwelling located at 425 Old County Road.

2.3.4 Avoidance, Minimization, and/or Mitigation Measures

If, after consideration of all public comments in light of project impacts, Caltrans approves either of the Build Alternatives, one residential property would be acquired at fair market value. Residents would receive relocation assistance in accordance with the provision of the Caltrans RAP. The type of relocation assistance provided would vary on a case-by-case basis, depending on such factors as whether the occupant is an owner or renter, how long the occupant has lived in the home, cost differential between existing and replacement housing, etc. For a summary of the RAP, please see Appendix C of this document.

The size and type of residence being acquired is relatively common in neighborhoods in Pacifica and San Mateo County. Therefore, obtaining replacement housing for the residents would not be problematic.

2.4 ENVIRONMENTAL JUSTICE

2.4.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President Clinton on February 11, 1994. This Executive Order directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services (HHS) poverty guidelines. The 2011 Annual Update for the HHS Poverty Guidelines included \$22,350 annual income for a family of four.

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

2.4.2 Affected Environment

For the purpose of determining whether the project would result in disproportionate impacts to minority and/or low-income populations, an "environmental justice" study area was defined consisting of the census blocks (subsets of one census tract) that encompass the land uses located adjacent to SR 1 within the project limits, as shown on Figures 1.4 and 1.5. The demographic characteristics of the population within the study area were then compared to that for the city of Pacifica as a whole.

As shown in Table 2.2, the percentage of each minority population within the study area is lower than, or the same as, that found throughout the city of Pacifica as a whole. Similarly, the percentage of the population with income below the DHHS poverty guideline is lower (two percent) within the project census tract than for the city of Pacifica as a whole (three percent). Therefore, there would be no disproportionate economic impacts due to the Build Alternatives. . Therefore, this project is not subject to the provisions of Executive Order 12898, Environmental Justice.

2.4.3 Environmental Consequences

As discussed above, the percentages of minority and low-income populations that are present in the project area are generally less than that of the community as a whole. No minority or low-income populations would be disproportionately and adversely affected by the proposed project.

2.4.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed.

**TABLE 2.2
 EXISTING DEMOGRAPHICS IN THE PROJECT AREA**

	City of Pacifica	Census Blocks Adjacent to Proposed Project
POPULATION		
Estimated (2000)	38,390	1,597
ETHNICITY (2000)		
African American	3%	1%
American Indian	>1%	>1%
Asian	15%	5%
Pacific Islander	>1%	>1%
White	70%	86%
Other	4%	3%
Multi Racial	7%	5%
% Minority of Total Population	30%	14%
Hispanic (of any race)*	15%	10%
HOUSEHOLDS (2000)		
Total Number	13,994	608
Persons/Household	2.73	2.62
	City of Pacifica	Project Census Tract #6031*
ECONOMICS**		
Labor Force Participation (2000)	72%	74%
Median Household Income (1999)***	\$71,731	\$72,321
% of Population Living Below Poverty Line (2000)	3%	2%
<p>Note: Numbers may not total 100% due to rounding. Some entries are actual based upon reported data, while others are estimated.</p> <p>* “Hispanic or Latino” is not considered a “race” by the Census. Rather, it is a cultural/ethnic classification that overlaps with race. Persons who identified themselves as “Hispanic or Latino” also identified themselves with a race or combination of races.</p> <p>** No census block-specific data was available for comparison regarding economics. Economic issues were considered using statistics from the city of Pacifica as a whole, compared with overall census data from the primary tract where the proposed project would take place.</p> <p>*** The US Census Bureau defines income levels as follows:</p> <ul style="list-style-type: none"> Low Income (less than \$50,000) Moderately Low Income (\$50,000-\$69,999) Moderately High Income (\$70,000-\$89,999) High Income (\$90,000 or more) <p>Sources: US Census Bureau, American Fact Finder</p>		

2.5 UTILITIES/EMERGENCY SERVICES

2.5.1 Affected Environment

Various utility lines (e.g., gas, electric, water, communications, sanitary sewer, stormwater, etc.) are located within or cross under SR 1 in the project area. Utility lines are also located within the local streets near SR 1 in the project vicinity.

The City of Pacifica's sewer treatment plant is located adjacent to the project alignment, just west of SR 1 and north of the SR 1/Reina Del Mar Avenue intersection (refer to Figure 1.3). The City of Pacifica's police station is located just east of SR 1 and north of the Reina Del Mar intersection.

2.5.2 Environmental Consequences

Where necessary to construct the proposed project, some existing utility lines would be relocated under either Build Alternative. Given the additional right-of-way acquisition needed, the Landscaped Median Build Alternative would require more utility relocation than the Narrow Median Build Alternative. Such utility work would not result in disruption of utility services in the project area because existing lines would not be disconnected prior to installation of the relocated lines.

The project would not affect the operation of the Pacifica sewer treatment plant, nor would it require any right-of-way acquisition from the sewer treatment plant property. Similarly, the project would not affect the operation of the police station, nor would it require any right-of-way acquisition from the police station property.

Prior to project construction, emergency service providers would be contacted to ensure that proper emergency access is maintained. Construction activities would occur in stages in order to minimize disturbance and maintain circulation and access through the project area on SR 1. Emergency services would indirectly and incrementally benefit from the proposed project in that, by reducing peak commute period congestion, emergency vehicle response times would be reduced.

2.5.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed.

2.6 TRAFFIC AND TRANSPORTATION/ PEDESTRIAN AND BICYCLE FACILITIES

The information in this section is based primarily on a technical “Traffic Operations Analysis Report” that was prepared for the project in July 2008 and addenda to that report completed in April 2011. Copies of the study and addenda are available for review at the locations listed inside the front cover of this document.

2.6.1 Regulatory Setting

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

The Department is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

2.6.2 Affected Environment

The study area for the traffic and transportation analysis was defined to include the project limits and the adjacent areas that will (or could) be affected by the proposed improvements. The study area includes the segment of SR-1 in the project vicinity, as well as nearby local streets and intersections.

2.6.2.1 Existing Roadway Network

State Route 1 (SR 1) is a north-south roadway that extends along the California coastline. Generally, SR 1 is a two-lane roadway, winding along the state’s coastal bluffs. In Pacifica, near the study area, SR 1 widens to four lanes. Just north of the study area, SR 1 becomes a freeway for a short segment before merging with Interstate 280. Within the study area, SR 1 experiences peak period congestion in the northbound direction during the morning peak periods and in the southbound direction in the evening.

Fassler Avenue is a two-lane roadway that extends east of SR 1 into the hills above Pacifica. A number of residential streets connect to Fassler, which provides access from residential areas to SR 1. Near its intersection with SR 1, Fassler Avenue widens to four lanes. Fassler Avenue experiences congestion in the westbound direction (approaching SR 1) in the morning peak period. Fassler Avenue is relatively uncongested in the evening peak period because traffic flow is constrained along SR 1 approaching Fassler Avenue.

Rockaway Beach Avenue extends west of SR 1 from the Fassler Avenue intersection and provides access to a small business and shopping district and serves relatively small traffic volumes.

Reina Del Mar Avenue is a short two-lane street extending east of SR 1. Several small streets connect to Reina Del Mar Avenue, which provides access to SR 1. Vallemar Elementary School is located on the north side of Reina Del Mar Avenue, east of SR 1. In the morning peak period, a relatively high volume of traffic uses Reina Del Mar to access the elementary school. The signal at SR 1/Reina Del Mar limits the amount of traffic that can enter SR 1 from Reina Del Mar Avenue. As a result, during the peak period near the start of school, substantial queuing occurs on Reina Del Mar Avenue from parents departing the school after dropping off students.

2.6.2.2 Existing Public Transit

Transit service in Pacifica is provided by the San Mateo County Transit District, known as SamTrans. SamTrans operates four bus routes in Pacifica, all of which travel on SR 1 and have stops at Crespi Drive, Fassler Avenue, and/or Reina Del Mar Avenue. Paratransit services are also provided by SamTrans to residents throughout San Mateo County with disabilities and mobility impairments.

2.6.2.3 Existing Bicycle and Pedestrian Facilities

Pedestrian facilities can include sidewalks, crosswalks, and pedestrian signals. North of Reina Del Mar Avenue, there is a sidewalk on the west side of SR 1; between Reina Del Mar Avenue and Fassler Avenue, the sidewalk is on the east side of SR 1. South of Fassler Avenue, there is a sidewalk on the west side of SR 1. Popular recreational trails are located west of the project site and provide waterfront access. Crosswalks with pedestrian signals are installed at Crespi Drive, Reina Del Mar Avenue, and Fassler Avenue. The existing pedestrian facilities are not compliant with the latest Americans with Disabilities Act (ADA) requirements.

There is an existing two-way bicycle/pedestrian path that extends along the west side of SR 1 from the northern project limit south to Reina Del Mar Avenue, where it leaves the highway alignment and turns westerly to meet a Class 1 bicycle path which follows Calera Creek down to the Pacific Ocean and connects with the Rockaway Beach neighborhood. This segment of the bicycle/pedestrian path is a transportation facility within Caltrans right-of-way and is not, therefore, a Section 4(f) recreational facility.

Class II Bicycle Lanes are located on both sides of SR 1 from Crespi Drive to Fassler Avenue. The remainder of SR 1 is designated as a Class III Bicycle Route with a shoulder that accommodates bicycles. The shoulders on SR 1 would be striped as Class II Bicycle Lanes with the implementation of the *San Mateo County Comprehensive Bicycle Route Plan*.

2.6.2.4 Existing Traffic Conditions

Intersection Levels of Service

Local street performance is measured using the “level of service” (LOS) concept, whereby traffic demand is evaluated in the context of capacity. Since intersections are a key factor in determining the capacity of local streets, the adopted procedures of most jurisdictions focus on peak-hour operations at intersections. The methodology computes a level of service taking into account factors such as the demand for each traffic movement (i.e., left turns, straight, right turns), the number of lanes, and (where applicable) signal timing. As summarized in Table 2.3, level of service can range

from “LOS A,” representing free-flow conditions, to “LOS F,” representing jammed/over-saturated conditions.

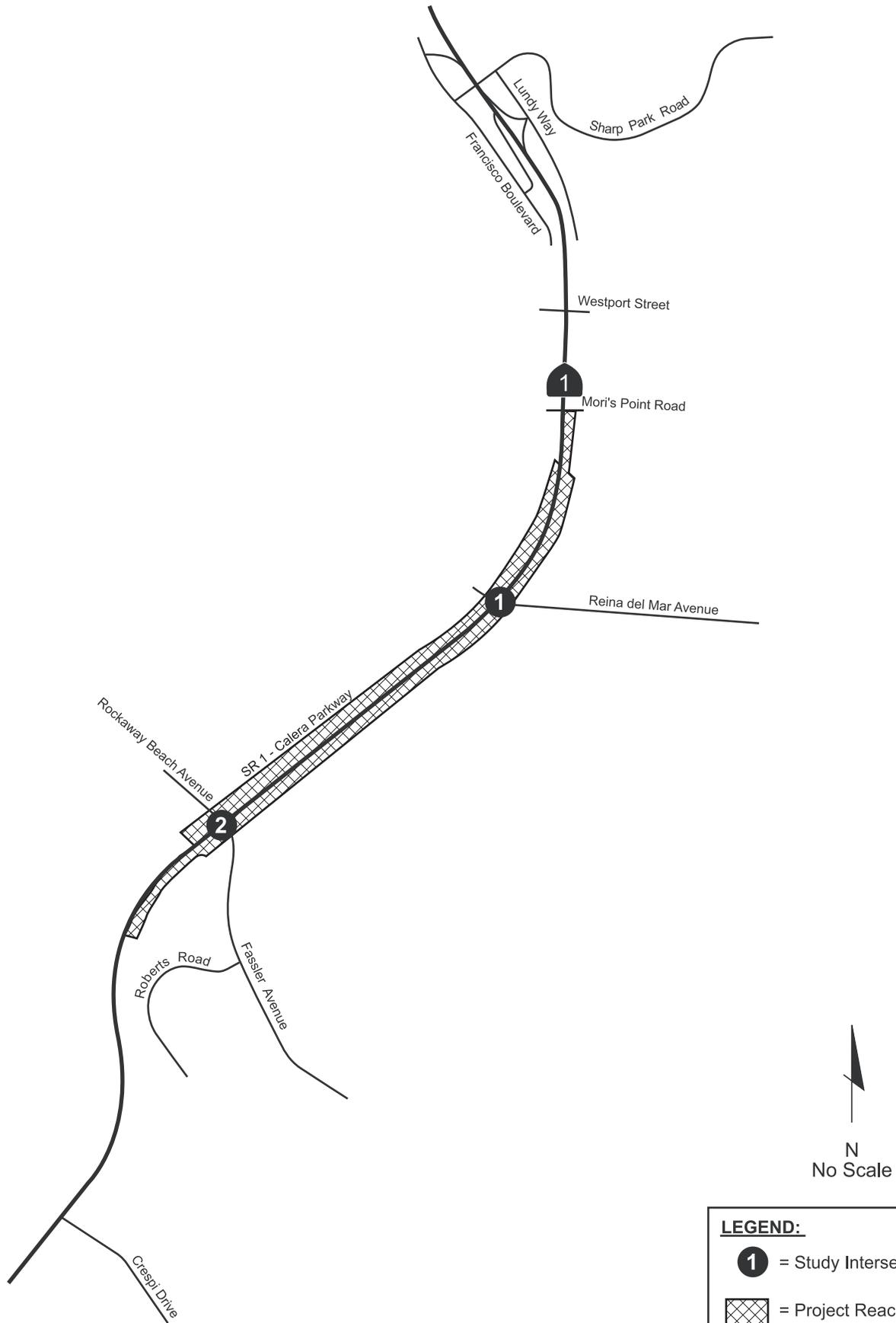
Although the intersections near the project site are operated by the Department, it has traditionally been the Department’s policy to adhere to locally adopted operational performance standards. The City of Pacifica has adopted a standard of LOS D or better for signalized intersections.

The traffic analysis prepared for this project evaluated the peak-hour operations at the two intersections within the project area, which were chosen based on their proximity to the proposed improvements. These two intersections are shown on Figure 2.1.

TABLE 2.3 SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS		
Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Insignificant delays: No approach phase is fully utilized and no vehicle waits longer than one red indication.	Up to 10.0
B	Minimal delays: An occasional approach phase is fully utilized. Drivers begin to feel restricted.	10.1 to 20.0
C	Acceptable delays: Major approach phase may become fully utilized. Most drivers feel somewhat restricted.	20.1 to 35.0
D	Tolerable delays: Drivers may wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	35.1 to 55.0
E	Significant delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long vehicle queues from upstream.	55.1 to 80.0
F	Excessive delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	Greater than 80.0
Source: Transportation Research Board, <i>2000 Highway Capacity Manual</i> , (Washington D.C. 2000)		

Peak-Hour Traffic Volumes

As described previously in Section 1.2.2 *Need for the Project*, the project area currently experiences heavy volumes of traffic on SR 1 with levels of service (LOS) E and F. Table 2.4 shows the existing peak-hour LOS at the study intersections. Under existing conditions, during the AM and PM peak hours, the two study intersections in the immediate project area (SR 1/Reina Del Mar Avenue and SR 1/Fassler Avenue/Rockaway Beach Avenue) currently operate at LOS E or F. Therefore, both of the studied intersections are currently operating below acceptable levels of service, based on City of Pacifica and Caltrans performance standards.



TRAFFIC STUDY INTERSECTIONS

FIGURE 2.1

**TABLE 2.4
 EXISTING INTERSECTION LEVEL OF SERVICE AND EFFECTS OF PROJECT ON
 EXISTING CONDITIONS¹**

Intersection ²	AM Peak Hour			PM Peak Hour		
	Delay (seconds)	LOS	Peak Hour Demand Served ³	Delay (seconds)	LOS	Peak Hour Demand Served ³
SR 1/Reina Del Mar Avenue (without Project)	66	E	93%	138	F	89%
SR 1/Reina Del Mar Avenue (with Project)	43	D	100%	32	C	100%
SR 1/Fassler Avenue (without Project)	195	F	93%	117	F	88%
SR 1/Fassler Avenue (with Project)	41	D	100%	38	D	100%

Notes:

¹ This table shows the intersection operations under existing conditions. This table also illustrates how the project would affect the existing peak-hour operations of these intersections; it provides a direct comparison to existing conditions and excludes any changes due to planned growth and/or any planned transit or roadway improvement projects in the area.

² Both intersections are signalized. The locations of these intersections are shown on Figure 2.1.

³ In some circumstances, due to statistical model variations, volume served was reported as less than 100% even though visual inspection showed the queues clearing in each cycle. Therefore, in circumstances when volume served was 95% or higher, the results shown in the table were rounded to 100%.

Source: Fehr & Peers, April 2011.

Similar to intersection LOS, vehicle queue lengths and travel times are different measurements of congestion and delay, and also indicate the performance of a roadway facility. Table 2.5 shows statistics from the traffic model regarding existing average travel times, as well as average and maximum observed vehicle queues for both project intersections.

TABLE 2.5 EXISTING SR 1 TRAVEL TIMES AND QUEUES AND EFFECTS OF PROJECT ON EXISTING CONDITIONS¹					
	Travel Time (Minutes)²	Average Reina Del Mar Avenue Queue (feet)	Maximum Reina Del Mar Avenue Queue (feet)	Average Fassler Avenue Queue (feet)	Maximum Fassler Avenue Queue (feet)
AM Peak Hour – Northbound					
Existing - No Build Scenario	5.1	1,031	2,805	1,535	3,260
With Project	3.5	315	1,710	94	679
PM Peak Hour – Southbound					
Existing - No Build Scenario	8.4	2,929	7,685	2,478	3,206
With Project	3.3	81	826	152	1,733
Notes:					
¹ This table shows the travel times and vehicle queues under existing conditions. This table also illustrates how the project would affect travel times and queuing in the project vicinity; it provides a direct comparison to existing conditions and excludes any changes due to planned growth and/or any planned transit or roadway improvement projects in the area.					
² Travel times measured from just north of Crespi Drive to just north of Reina Del Mar Avenue (for AM Northbound, a distance of 1.6 miles), and from about 1.8 miles north of Reina Del Mar Avenue to just south of Fassler Avenue (for PM Southbound, a distance of 2.5 miles).					

Considering the entire network, the average delay per vehicle that travels through the network can be determined, regardless of whether the vehicle travels through one or both of the study intersections. The average delay per vehicle for the AM and PM peak hours are:

- 127 average seconds of delay per vehicle in the AM peak hour.
- 128 average seconds of delay per vehicle in the PM peak hour.

2.6.2.5 Future “No Build” Traffic Conditions

Without improvements, operation of this segment of highway is expected to deteriorate by 2035 due to the normal, anticipated background increase in traffic, as described. The peak period timeframe would also lengthen in duration during both the AM and PM periods. Future conditions traffic forecasts were used to analyze operating conditions along the study corridor without the proposed project at year 2015 and year 2035. The LOS results and travel times for these future conditions are shown in Tables 2.6 and 2.7 and discussed below.

TABLE 2.6 FUTURE INTERSECTION LEVEL OF SERVICE SUMMARY							
Intersection	Conditions	AM Peak Hour			PM Peak Hour		
		Delay	LOS	Peak Hour Demand Served	Delay	LOS	Peak Hour Demand Served
SR 1 and Reina Del Mar Avenue (Signalized)	Year 2015: No Build Conditions	68	E	91%	202	F	86%
	Year 2015: Project Conditions	51	D	100%	34	C	100%
	Year 2035: No Build Conditions	70	E	77%	251	F	77%
	Year 2035: Project Conditions	69	E	93%	53	D	93%
SR 1 and Fassler Avenue (Signalized)	Year 2015: No Build Conditions	345	F	91%	124	F	85%
	Year 2015: Project Conditions	60	E	100%	54	D	100%
	Year 2035: No Build Conditions	389	F	75%	112	F	78%
	Year 2035: Project Conditions	90	F	93%	73	E	93%

TABLE 2.7 FUTURE SR 1 TRAVEL TIMES AND QUEUES					
Conditions	Travel Time (Minutes) ¹	Average Reina Del Mar Avenue Queue (feet)	Maximum Reina Del Mar Avenue Queue (feet)	Average Fassler Avenue Queue (feet)	Maximum Fassler Avenue Queue (feet)
AM Peak Hour – Northbound					
Year 2015: No Build Conditions	5.9	1,074	2,804	4,361	5,305
Year 2015: Project Conditions	3.8	446	2,312	142	876
Year 2035: No Build Conditions	12.6 ²	1,095	2,804	4,946	9,213 ²
Year 2035: Project Conditions	4.5	858	2,940	293	1,141
PM Peak Hour – Southbound					
Year 2015: No Build Conditions	9.5	4,893	9,549	2,627	3,207
Year 2015: Project Conditions	3.4	109	951	448	2,400
Year 2035: No Build Conditions	15.4 ²	6,907	11,575 ²	2,567	3,210
Year 2035: Project Conditions	4.2	334	2,600	736	2,693
Notes:					
¹ Travel times measured from just north of Crespi Drive to just north of Reina Del Mar Avenue (for AM Northbound, a distance of 1.6 miles), and from about 1.8 miles north of Reina Del Mar Avenue to just south of Fassler Avenue (for PM Southbound, a distance of 2.5 miles).					
² Queue extends beyond model limits. Length increased to estimate full queue length by adding 25 feet per unserved vehicle. Travel time increased by assuming nine mph average speed in queue.					

Future “No Build” Traffic Conditions, Year 2015

Under this scenario, no changes would be made to the roadway network. As traffic is forecasted to increase due to anticipated regional growth and new development, congestion and delay is forecasted to increase as well.

AM Peak Period: Congestion during the AM period would deteriorate compared to existing conditions. Operations would remain similar for the SR 1/Reina Del Mar Avenue intersection, with an increase in delay from 66 to 68 seconds per vehicle. Delays at the Fassler Avenue/Rockaway Beach Avenue intersection would increase from 195 to 345 seconds per vehicle. Maximum queue lengths on the northbound approach to Fassler Avenue/Rockaway Beach Avenue would increase

from 3,260 to 5,305 feet. Northbound travel times would increase approximately 20 percent, from 5.1 to 5.9 minutes.

PM Peak Period: Increased demand would cause delay at the SR 1/Reina Del Mar Avenue intersection to increase during the PM peak period, from 138 to 202 seconds. This delay would cause southbound queues to grow from 7,685 to 9,549 feet. Because the SR 1/Reina Del Mar Avenue intersection meters traffic to the Fassler Avenue/Rockaway Beach Avenue intersection, the delay at Fassler Avenue/Rockaway Beach Avenue would only increase from 117 to 124 seconds. Travel times would increase from 8.4 to 9.5 minutes, or by 13 percent.

Future “No Build” Traffic Conditions, Year 2035

AM Peak Period: Under this scenario, no changes would be made to the roadway network except for the installation of a right-turn pocket for eastbound Reina Del Mar Avenue, associated with potential development in the area. Traffic volumes would increase due to background growth and development.

Compared to existing conditions, operations would severely degrade during the AM peak hour. While average delay at the SR 1/Reina Del Mar Avenue intersection would only increase from 66 to 70 seconds (due to the metering effect of the upstream Fassler Avenue/Rockaway Beach Avenue intersection), delays at the Fassler Avenue/Rockaway Beach Avenue intersection would increase from 195 to 389 seconds. This would cause the northbound queue on SR 1 at Fassler Avenue/Rockaway Beach Avenue to grow from 3,260 to 9,213 feet. Northbound travel time would increase almost 150 percent, from 5.1 to 12.6 minutes.

PM Peak Period: During the PM peak hour, delay at the SR 1/Reina Del Mar Avenue intersection is expected to almost double, from 138 seconds to 251 seconds per vehicle. Queue lengths at the southbound approach at Reina Del Mar Avenue would increase from 7,685 to 11,575 feet, and southbound travel times would grow from 8.4 to 15.4 minutes, an increase of approximately 83 percent.

2.6.3 Environmental Consequences

This section describes the effects of the project on traffic, transit and pedestrian/bicycle facilities. The effects of the project are presented for the following scenarios:

- ***Comparison to Existing Conditions:*** This comparison answers the question “how would the project change the existing transportation and traffic environment”? It is a direct comparison to the current environment that uses existing facilities, volumes, and traffic patterns. No planned improvements and/or changes in traffic volumes due to planned growth are accounted for in this scenario.
- ***Comparison to Future No Build Conditions – Year 2015:*** This comparison shows the effects of the project as compared to anticipated future conditions (conditions that represent changes that will occur with or without the proposed project) at the anticipated year of project completion (2015).
- ***Comparison to Future No Build Conditions – Year 2035:*** Similar to the Year 2015 scenario, this comparison also shows the effects of the project as compared to anticipated future

conditions. This comparison is intended to disclose the complete or “cumulative” picture of the future transportation environment, taking into account traffic from future development planned for in the approved general plans of the cities in San Mateo County. This comparison also accounts for planned growth in the region as well as planned improvements to the transportation network.

The effects of implementing the proposed project as compared to existing conditions, as well as for the years 2015 and 2035, are illustrated in the prior tables and are described below.

2.6.3.1 Project Traffic Improvements

Under the proposed project, SR 1 between just south of Fassler Avenue/Rockaway Beach Avenue and just north of Reina Del Mar Avenue would be widened from two to three lanes in each direction. This would provide increased throughput capacity through the two study intersections.

In the northbound direction, a third lane would be added to SR 1, beginning 1,250 feet south of the intersection with Fassler Avenue/Rockaway Beach Avenue. This third lane would extend north through the intersection with Reina Del Mar Avenue. The lane would end 1,600 feet north of the intersection with Reina Del Mar Avenue, at which point the roadway would begin to transition back to the existing two-lane configuration.

In the southbound direction, a third lane would be added to SR 1, beginning 1,250 feet north of Reina Del Mar Avenue. This third lane would carry through the intersection with Reina Del Mar Avenue. Three southbound lanes would be provided between Reina Del Mar Avenue and Fassler Avenue/Rockaway Beach Avenue. One of these lanes would become one of the two southbound left-turn lanes from SR 1 to Fassler Avenue, leaving only two southbound through lanes south of Fassler Avenue.

2.6.3.2 Comparison to Existing Conditions

Intersection Level of Service Operations

AM Peak Period: In the AM peak period, either of the proposed Build Alternatives would substantially improve traffic as compared to the No Build alternative. Both study intersections would experience a LOS improvement of at least one letter grade, and would operate within the LOS D threshold maintained by the City. One hundred percent of traffic would be served, compared to 93 percent served under the No Build Alternative. In addition, maximum vehicle queues at Fassler Avenue/SR 1 would decrease by approximately 80 percent compared to the No Build alternative. Overall travel time would improve by 31 percent, or 1.6 minutes. The overall average network-wide delay would be 42 seconds of delay per vehicle in the AM peak hour, approximately one-third of the 127 seconds of delay under the No Build conditions.

PM Peak Period: In the PM peak period, under either Build Alternative, the southbound queues at the Reina Del Mar Avenue/SR 1 intersection would clear within each signal cycle, meaning that 100 percent of traffic would be served, compared to approximately 90 percent under No Build conditions. Travel times through the corridor would be reduced by 61 percent, or 5.1 minutes. The vehicle delay at the Reina Del Mar Avenue/SR 1 intersection would be reduced by 77 percent, an improvement from LOS F to LOS C. The vehicle delay at the Fassler Avenue/SR 1 intersection would be reduced by 68 percent, an improvement from LOS F to LOS D. The overall average network-wide delay

would be 35 seconds of delay per vehicle in the PM peak hour, compared to 128 seconds under the No Build conditions, a reduction of 73 percent.

Freeway Segments

With respect to other freeway segments and ramps, the proposed Build Alternatives would not directly generate additional traffic trips or change the overall distribution of trips in the site area. For these reasons, the project would not significantly affect the operations of other freeway segments beyond the immediate project site area.

Local Streets

Because the proposed Build Alternatives would not directly generate additional traffic trips or change the overall distribution of trips in the site area, the project would not significantly affect the operations of local streets in the area. As described above, the project would improve operations at the Fassler Avenue/SR 1 and the Reina Del Mar/SR 1 intersections, which would improve operations of Fassler Avenue and Reina Del Mar Avenue.

Pedestrian and Bicycle Facilities

Because the intersections at both Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue would be widened, a pedestrian would require extra time to cross the street, which the traffic analysis identifies as a minimum increase of eight seconds at each intersection. Pedestrian sidewalks would be improved throughout the project reach as part of the project.

The existing two-way bicycle/pedestrian path adjacent to the westerly edge of the highway north of Reina Del Mar Avenue would be reconstructed along the west edge of the widened SR 1 roadway and would be upgraded to a Class 1 bike path. The existing two-way bicycle/pedestrian path west of the existing highway south of Rockaway Beach Avenue would not be altered or affected by either proposed Build Alternative for the roadway widening project.

While the roadway widening under either of the two Build Alternatives would increase the time needed for pedestrian crossing of SR 1, the improved pedestrian and bicycle facilities would represent a beneficial effect on multi-modal access through the project area and to the coastal areas.

2.6.3.3 Comparison to Future No Build Conditions

Intersection Level of Service Operations -- Year 2015 Conditions

AM Peak Period: In the AM peak period, implementation of either proposed Build Alternative would substantially improve service compared to the “No Build” scenario. Both study intersections would experience a LOS improvement of one letter grade, and maximum vehicle queues would decrease by approximately 75 percent. Travel time would improve by approximately two minutes, and overall delay would also substantially improve. Despite this improvement, the intersection of SR 1/Fassler Avenue/Rockaway Beach Avenue would operate at LOS E. The overall average network-wide delay would be 55 seconds of delay per vehicle in the AM peak hour, compared to 201 seconds under “No Build” conditions, a decrease of 73 percent.

PM Peak Period: In the PM peak period, implementation of either proposed Build Alternative would result in even greater improvements in service than in the AM peak period. The southbound left-turn movement at Fassler Avenue would continue to experience congestion, but queues from this intersection would not extend back to the intersection with Reina Del Mar Avenue. Because there would be three southbound lanes instead of two between Reina Del Mar Avenue and Fassler Avenue, and one of the lanes would become one of the two left-turn lanes, queues would not extend back from the Fassler Avenue intersection to disrupt through traffic.

Based on the traffic model, southbound queues at the intersection of SR 1/Reina Del Mar Avenue would dissipate within each signal cycle, and virtually all congestion on SR 1 north of Reina Del Mar Avenue would be eliminated with either proposed Build Alternative. This would be reflected at the SR 1/Reina Del Mar Avenue intersection, which would improve from LOS F under “No Build” conditions to LOS C. Travel times would be reduced by 63 percent, while overall vehicle delay would be reduced by 81 percent. Both study intersections would operate at acceptable LOS D or better. The average network-wide delay per vehicle would be 44 seconds in the PM peak hour compared to 163 seconds without the project, a decrease of 73 percent.

Intersection Level of Service Operations -- Year 2035 Conditions

AM Peak Period: Implementation of either proposed Build Alternative would substantially improve service during the AM peak period compared to the “No Build” alternative, but some congestion would still remain. Both study intersections would operate below the LOS D threshold adopted by the City of Pacifica, but would operate substantially better than if no improvements were made, and would improve AM peak hour travel times by over 40 percent. In general, implementation of either proposed Build Alternative would provide substantial improvements to traffic operations, but by year 2035, traffic conditions may be similar to today’s conditions due to regional traffic growth. The overall average network-wide delay per vehicle would be 78 seconds in the AM peak hour compared to 224 seconds under “No Build” conditions, a decrease of 65 percent.

PM Peak Period: Implementation of the proposed project would also improve service during the PM peak period. The southbound left-turn movement at Fassler Avenue would experience congestion, but queues will not spill back to the intersection with Reina Del Mar Avenue. Queues for the southbound left-turn movement from SR 1 at Fassler Avenue would not interfere with through traffic.

Travel times in the PM peak hour would be substantially improved in year 2035 under project conditions, even compared to existing conditions. The overall average network-wide delay per vehicle would be 62 seconds in the PM peak hour compared to 181 seconds under “No Build” conditions, a decrease of 66 percent.

While the southbound left-turn pocket at Reina Del Mar Avenue is not expected to see an increase in demand over existing volumes, an analysis was performed to determine if the existing 500-foot turn pocket would be adequate in the future. This analysis showed that the southbound left-turn queue would have a 95th percentile queue length of 677 feet. Thus, the left-turn pocket should be extended to 675 feet.

Freeway Segments

Similar to the comparison to existing conditions described above, with respect to other freeway segments and ramps, the proposed Build Alternatives would not directly generate additional traffic trips or change the overall distribution of trips in the site area under future conditions. Therefore, the project would not significantly affect the operations of other freeway segments beyond the immediate project site area.

Local Streets

Because the proposed Build Alternatives would not directly generate additional traffic trips or change the overall distribution of trips in the site area, the project would not significantly affect the operations of local streets in the area under future conditions. As described above, the project would improve operations at the Fassler Avenue/SR 1 and the Reina Del Mar/SR 1 intersections, which would improve operations of Fassler Avenue and Reina Del Mar Avenue.

Pedestrian and Bicycle Facilities

Because the intersections at both Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue would be widened, a pedestrian would require extra time to cross the street, which the traffic analysis identifies as a minimum increase of eight seconds at each intersection. Pedestrian sidewalks would be improved throughout the project reach as part of the project.

The existing two-way bicycle/pedestrian path adjacent to the westerly edge of the highway north of Reina Del Mar Avenue would be reconstructed along the west edge of the widened SR 1 roadway and would be upgraded to a Class 1 bike path. The existing two-way bicycle/pedestrian path west of the existing highway south of Rockaway Beach Avenue would not be altered or affected by either proposed Build Alternative for the roadway widening project.

While the roadway widening under either of the two Build Alternatives would increase the time needed for pedestrian crossing of SR 1, the improved pedestrian and bicycle facilities would represent a beneficial effect on multi-modal access through the project area and to the coastal areas.

2.6.4 Avoidance, Minimization, and/or Mitigation Measures

No mitigation or avoidance measures are required or proposed by the project.

2.7 VISUAL/AESTHETICS

The following discussion of visual and aesthetics is based upon a *Visual Impact Assessment* completed for the project in January 2011. The study is incorporated into this EIR/EA by reference. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.7.1 Regulatory Setting

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

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

2.7.2 Affected Environment

2.7.2.1 *Methodology*

The process used in this visual impact study generally follows the guidelines outlined in the publication “Visual Impact Assessment for Highway Projects” Federal Highway Administration (FHWA), March 1988.

The visual impacts of the two project Build Alternatives are determined by describing the existing visual conditions at the site, assessing the visual resource change due to the project, and predicting viewer response to that change. Visual resource change is the sum of the change in visual character and the change in visual quality. The first step in determining visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the project is constructed.

The viewer response to project changes is the sum of viewer exposure and viewer sensitivity to the project. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to oppose the change.

The quality of the existing visual environment was determined using a combination of three criteria:

- **Vividness:** “...the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns...”
- **Intactness:** “...the visual integrity of the natural and man-built landscape and its freedom from encroaching elements...”
- **Unity:** “...the visual coherence and compositional harmony of the landscape concerned as a whole...”

2.7.2.2 Existing Visual Environment

The visual setting of the project segment of SR 1 is a mix of both urban and natural features. There are properties along this stretch of SR 1 which consist of undeveloped grasslands and mature trees, mixed with urban areas of residential and commercial uses, particularly near the SR 1/Reina Del Mar Avenue and the SR 1/Fassler Avenue/Rockaway Beach Avenue intersections. The terrain is hilly and the natural gradient in the area generally slopes downward to the west. The properties east of SR 1 are sloped above the roadway, while the properties on the west generally slope downward, toward the coastal bluffs. Near the SR 1/Fassler Avenue/Rockaway Beach Avenue intersection, the Pacific Ocean is located approximately 700 feet west of the project alignment. Most of the natural landscape has been altered over time within and adjacent to the project limits with the addition of buildings and highway structures.

Portions of SR 1 throughout the state are officially designated by Caltrans as a scenic highway; the proposed project segment, however, is categorized as eligible for the “state scenic highway” designation, but is not currently designated as such.¹⁷ The SR 1 roadway itself is dominated by hardscape; the facility includes four travel lanes, a concrete barrier median, and paved shoulders. There are mature trees along portions of the roadway, however, including near the former Pacifica quarry and at the Calera Creek undercrossing. Photos 1-9 show various views of the project area.

There is an existing embankment along the western edge of the SR 1 roadway, near the Reina Del Mar Avenue intersection. This embankment is approximately 30 feet high and extends from approximately 1,000 feet north of the SR 1/Reina Del Mar Avenue intersection to approximately 700 feet south of the intersection (refer to Figure 1.4 and see Photo Simulation 5). The existing embankment currently blocks views to the Pacific Ocean and the west from the SR 1 roadway area and the land uses near the Reina Del Mar intersection.

¹⁷ http://www.dot.ca.gov/hq/LandArch/scenic_highways/, May 18, 2009.

Photo 1. Project Viewshed



Photo 2. View looking southbound on SR 1 past the Fassler Avenue/Rockaway Beach Avenue intersection



Photo 3. View looking northbound on SR 1 towards the Fassler Avenue/Rockaway Beach Avenue intersection.



Photo 4. Entrance to Rockaway Beach area.



Photo 5. View of the Fassler Avenue/Rockaway Beach Avenue intersection looking northbound.



Photo 6. View looking northbound on SR 1 past the Fassler Avenue/Rockaway Beach Avenue intersection.



Photo 7. View looking southbound on SR 1, between the Reina Del Mar/SR 1 intersection and the Fassler Avenue/Rockaway Beach Avenue intersection.



Photo 8. View looking southbound on SR 1, towards the Reina Del Mar/SR 1 intersection.



Photo 9. View looking northbound on SR 1 past the Reina Del Mar/SR 1 intersection.



Various commercial uses and businesses are located west of SR 1 at the Fassler Avenue/Rockaway Beach Avenue intersection. Residential uses, a gasoline station, and a church front onto the east side of SR 1, just north of this intersection, and additional residential uses are located further east on Fassler Avenue.

Various commercial buildings, including restaurants, business offices, a mechanic shop, and a grocery/liquor store, are located to the east of the SR 1/Reina Del Mar Avenue intersection. Residential uses are located further east on Reina Del Mar Avenue.

Existing vegetation within SR 1 and the adjacent neighborhoods consist of introduced species of landscape trees and shrubs, as well as ruderal grassland, ruderal riparian species, wetlands, and groundcovers. The landscaping is mature. Trees and shrubs are dense at the western edge of the SR 1 roadway to the north of San Marlo Way and the Old Pacifica Quarry Access Road. Monterey Cypress (*Cupressus macrocarpa*), Monterey Pine (*Pinus radiata*), and Lollipop trees (*Myoporum laetum*)¹⁸ are located near the wetlands at the western edge of the roadway. Please see Section 2.20 *Invasive Species* for a listing of the invasive plant species observed in the project area. Trees and shrubs are less dense at the north end of the project and on the eastern side of the roadway (refer to Photos 1-9).

2.7.3 Environmental Consequences

2.7.3.1 *Change in Visual Character*

Under the Narrow Median Build Alternative, the existing median will be widened from six feet to 22 feet wide and will include a new three-foot high concrete barrier and ten foot inside shoulders. Under the Landscaped Median Build Alternative, the existing median will be widened to 40 feet consisting of a 16-foot wide landscaped median, with two two-foot wide concrete barriers (three feet high) and ten-foot inside shoulders. The landscaped area may be raised above the height of the roadway between the barriers (refer to Figure 1.6).

Retaining walls would be constructed to contain portions of the roadway widening within the existing right-of-way (R/W) or to prevent encroachment into environmentally sensitive areas (refer to Figures 1.4 and 1.5). A permanent exclusion barrier would also be constructed on the west side of SR 1 between Calera Creek and San Marlo Way (with the exception of the driveway access to the former quarry property and the western leg of the Reina Del Mar Avenue intersection) so that the roadway is not accessible to special-status species (refer to Section 2.19 *Threatened and Endangered Species*).

The improvements proposed by the project Build Alternatives would alter the visual character of portions of the project alignment due to the removal of structures, trees, and screening shrubs at the edges of the roadway, as well as the removal of portions of the existing vegetated soil embankment on the west side of SR 1. By adding two additional travel lanes on SR 1, either of the Build

¹⁸ *Myoporum laetum* (myoporum) is an evergreen shrub or small tree (family Myoporaceae) found along the coast of California and in the San Francisco Bay region

Alternatives would increase the amount of hardscape along this portion of SR 1. Visual changes would also occur where existing mature vegetation along the roadway, which contributes to positive visual experiences from vantage points adjacent to the highway, is removed. Such changes would be permanent where insufficient area exists for replacement planting with trees and shrubs possessing the same characteristics as the existing vegetation. The removal of trees, screening vegetation, and structures, as well as the excavation into the embankment west of SR 1, would change the motorist's views and diminish the quality of the visual experience. The Landscaped Median Build Alternative would result in the removal of one additional mature tree along the east side of SR 1, near station 47+50.

The project proposes retaining walls and with vehicle barriers at several locations along the west and east sides of SR 1, including along the west side of SR 1 south of Fassler Avenue and north of San Marlo Way, as well as on the east side of SR 1 along Harvey Way and the properties to the north. In addition, the project also proposes a cut into the existing embankment and construction of a new retaining wall for approximately 170 feet along the embankment northwest of the Reina Del Mar Avenue intersection. The introduction of new retaining walls and vehicle barriers as new manufactured visual elements will contrast with the natural features and will change the appearance of these areas. However, because the height of these retaining walls and barriers would not exceed the height of the remaining embankments, the wall would not block views. Distant views and views of the coast would be preserved.

While the project would change the appearance at certain locations along the project alignment, the proposed widening under either the Narrow Median or Landscaped Median Build Alternatives will not change the overall intactness or unity of the viewshed and would not substantially affect views or the aesthetics of the project corridor. The changes proposed to the median by either Build Alternative will remain consistent with the existing visual quality of the viewshed.

See photo simulations 1 through 7, which illustrate the views before and after implementation of the project at several vantage points along the project alignment. It should be noted that with the removal of the existing mature trees along the western edge of the alignment south of Reina Del Mar Avenue, the project would actually improve views of the Pacific Ocean from the immediate area east of the SR 1 alignment (refer to Photo Simulation 4).

The project will not substantially affect motorists' views of prominent hills and ridgelines that are visible from vantage points along SR 1. Therefore, the project's impacts would not be of sufficient magnitude to preclude SR 1 being designated as a State Scenic Highway in the future.

Key View # 1 (Photo 10). View of existing SR 1 character looking northbound from the southern end of the project alignment toward the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 1 (Photo 11). Proposed Project features from the southern end of the project alignment looking northbound toward the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 2 (Photo 12). View of existing SR 1 Character looking southbound on SR 1 from the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 2 (Photo 13). Proposed Project features looking southbound on SR 1 from the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 4 (Photo 15). View of existing SR 1 character looking northbound from the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 4 (Photo 16). Proposed Project features, including the Narrow Median, looking northbound from the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 4 (Photo 15). View of existing SR 1 character looking northbound from the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 4 (Photo 17). Proposed Project features, including the Landscaped Median, looking northbound from the Fassler Avenue/Rockaway Beach Avenue intersection.



Key View # 5 (Photo 18). View of existing SR 1 character looking southwest across SR 1, towards the Rockaway Beach area and the Pacific Ocean.



Key View # 5 (Photo 19). Proposed Project features, including the Narrow Median, looking southwest across SR 1, towards the Rockaway Beach area and the Pacific Ocean.



Key View # 5 (Photo 18). View of existing SR 1 character looking southwest across SR 1, towards the Rockaway Beach area and the Pacific Ocean.



Key View # 5 (Photo 20). Proposed Project features, including the Landscaped Median, looking southwest across SR 1, towards the Rockaway Beach area and the Pacific Ocean.



Key View # 7 (Photo 22). View of existing SR 1 character looking southbound on SR 1, towards the Reina Del Mar/SR 1 intersection.



Key View # 7 (Photo 23). Proposed Project features looking southbound on SR 1, towards the Reina Del Mar/SR 1 intersection.



Lighting on the new roadway and intersection areas will be visible from adjacent locations. Lighting for overhead directional signs will also be visible. This impact will, however, not be substantial as the current designs for these types of lighting fixtures focus light on their intended target and minimize spillover into adjacent areas. Construction of the proposed improvements could require the use of nighttime lighting, which would temporarily increase light and glare in the site vicinity.

During construction, residents, and motorists will experience visual impacts associated with the following: 1) removal of paving, power poles and lines, and street lights; 2) removal of existing vegetation; 3) construction of median barriers and retaining walls; 4) grading to form new contours; 5) presence of large pieces of equipment used for moving earth, trenching ditches, lifting steel beams and columns, hauling cement, laying and compacting pavement, water trucks spraying water to control dust, and assorted pickup trucks and autos; and 6) construction signs and lights.

2.7.3.2 *Summary of Project Impacts*

The existing visual quality along the project reach of SR 1 is moderate. The view quality is primarily due to the scattered trees and the topographic relief of the surrounding hillsides. Roadside views along this portion of SR 1 are generally confined to the fore- and mid-ground roadway environment.

As a result of this project, minor changes to visual resources will occur within the project limits. The visual effects of the project can be summarized by saying that the urban and natural character of the SR 1 project alignment would remain similar to the existing character. Generally, this change would not affect the roadway users or those who view the roadway and intersections from adjacent communities.

Views of the coastal areas on the western side of the roadway could be enhanced with the removal of vegetation on the west side of SR 1 as part of the project. The new built forms would not displace the existing natural features. The landscape median would partially screen the commercial and residential development adjacent to the roadway for the traveler.

The right-of-way boundaries increase along some portions of the project, however these areas would be constructed on new embankment or excavated into existing man-made embankments and would not proportionally displace existing natural features.

The cumulative visual and aesthetic impacts of the project are evaluated in Section 2.22 *Cumulative Impacts* of this document.

2.7.4 Avoidance, Minimization, and/or Mitigation Measures

Visual minimization measures for adverse project impacts summarized above will consist of adhering to the following design requirements in cooperation with the District Landscape Architect. The requirements are arranged by project feature and include design options in order of effectiveness. All visual minimization measures will be designed and implemented with the concurrence of the District Landscape Architect.

Implementation of the following minimization measure guidelines will reduce impacts of the project to non-significant levels. Many of the minimization measure guidelines are being proposed as part of project features to avoid adverse impacts.

A corridor design concept will be developed by the project team in cooperation with the District 04 Landscape Architect and in consultation with City staff members, community planning groups, and the Department's Project Development Team. The corridor concept will incorporate the mitigation design guidelines contained in this study.

2.7.4.1 *Lighting*

Nighttime construction lighting shall be directed downward, away from sensitive land uses, such as nearby residences.

2.7.4.2 *Structure Aesthetics*

Aesthetic treatment will be considered for all structures associated with the proposed project, including retaining walls, soil nail walls, concrete barriers, median barriers, railings, and nose paving. Possible aesthetic treatment can include architectural features such as surface texture, pattern treatment, and color application. The aesthetic treatments on these structures will be designed to make the structure less visually obtrusive and blend in with the surrounding background. Such design can include a softer, more natural taper to the end treatment of the soil nail walls to blend the wall in with the existing topography. A color application can be applied to the wall that is similar to the existing hillside color, which will allow the wall to blend more into the existing hillside. The aesthetic treatments also will decrease the brightness and visual monotony of untreated retaining walls, prevent glare, and deter graffiti. The overall design objective of the project will be to maintain the consistency and visual continuity of the entire project corridor.

In areas where feasible, the project design may include down slope retaining walls rather than upslope walls. The design would also minimize overall height and length of retaining walls to the greatest extent feasible to reduce the visual level of impact.

2.7.4.3 *Median Planting*

Including landscaping in the median for the project will provide aesthetic benefit. Median planting provides aesthetics in rural areas where no other highway planting exists. Median plantings provide glare screening for headlights of oncoming traffic, add visual interest through planting of greenery and flowers, and minimize the visual monotony of the expansive width of the roadway. Views from community roads play an important role in the City, and communities recognize that the perception of each community is formed to a large degree by what people observe through their windshields. The landscaping in the median will help to retain the views of the area for travelers.

2.7.4.4 Highway Planting

Replacement planting shall be implemented per Chapter 29 (Highway Planting) of the Department's *Project Development Procedures Manual* and Chapter 900 (Landscape Architecture) of the Department's *Highway Design Manual*. The replacement plants will be complementary to the existing landscape and appropriate to existing conditions and level of maintenance to be provided. Native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground. Temporary High Visibility Plastic Fencing will be placed along the perimeter of all environmentally sensitive area (ESAs) during construction and additional vegetation that need not be disturbed by construction including the mature trees at the south east quadrant of the Fassler Avenue/SR 1 intersection, as well as all of the vegetated area west of the retaining walls on the western side of SR 1 between San Marlo Way and Reina Del Mar Avenue. Both areas will be designated on the project plans as outside of limits of work and/or ESAs.

Existing vegetation outside of clearing and grubbing limits will be protected from the contractor's operations, equipments and material storage. The project design and construction will minimize existing tree and shrub removal to the greatest extent possible. Any tree trimming/pruning to provide a clear work area will also be minimized to the greatest extent possible. All trees in the construction footprint will be field marked and removal will be approved by the District Engineer prior to removal.

2.7.4.5 Drainage and Water Quality Features

To minimize post-construction water quality effects, post-construction Best Management Practices (BMPs) have been considered for incorporation into the project (refer to Section 2.9 *Hydrology and Floodplain* and 2.10 *Water Quality and Storm Water Runoff*).

2.8 CULTURAL RESOURCES

The information in this section is based primarily on a technical *Historic Property Survey Report*, *Archaeological Survey Report*, and *Historic Resources Evaluation Report* that were completed for the project in December 2009 as well as Addenda to these reports completed in October 2010. These studies are incorporated into this EIR/EA by reference. These studies are available for review at the locations listed inside the front cover of this document.

2.8.1 Regulatory Setting

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

- The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the Advisory Council’s regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA’s responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).
- Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the “use” of land from historic properties. See Section 2.1.2.4 *Parks and Recreational Facilities* of this document for information regarding the applicability of Section 4(f) to the project.
- Historical resources are considered under CEQA, as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way.

2.8.2 Affected Environment

A prehistoric and historic site record and literature search by the California Historical Resources Information System, Northwest Information Center at Sonoma State University was undertaken to determine if known resources are present within the project’s area of potential effects (APE). The APE consists of the area within the footprint of the project, as well as those areas directly adjacent to the project where indirect effects could occur. There are two recorded archaeological sites (CA-SMa-162 and CA-SMa-238) within or adjacent to the APE.

2.8.2.1 *Archaeological Resources*

Based upon the results of the records search and literature review, a field reconnaissance survey of the APE and a supplemental presence/absence coring program was completed for this project. The purpose of the coring program was to determine whether cultural resources associated with CA-SMa-268 are present within the areas most likely to be affected by the proposed project. The subsurface testing, which was undertaken in December 2008, indicated that no cultural resources of significance are present in the construction area on the west side of SR 1. This includes the area between the existing ground surface and a depth of 12 feet below the surface.

The above described research, field reconnaissance, and coring program determined that CA-SMa-162 is identified as a redeposit of prehistoric archaeological materials from an area to the north that was used in the creation of the road embankment west of SR 1. This resource has been determined to not be eligible for the National Register of Historic Places (NRHP), and this determination was concurred by the State Historic Preservation Officer (SHPO) on February 22, 2010.

The other prehistoric site, CA-SMa-268, was discovered during highway construction in the early 1960s and was noted as nearly destroyed at the time of its original inspection. Subsequent researchers using surface indicators have expanded the boundary, although the expansion could be due to mechanical dispersion of disturbed archaeological materials during subsequent construction. One presence/absence testing program increased the original site boundary to the west based on the presence of buried deposits. As mentioned above, the subsurface coring program completed for this project did not find any indications of buried archaeological resources along the western alignment of SR 1 that could be affected by the proposed highway widening and other improvements. A recent study indicates, however, that the site appears eligible for the California Register of Historical Resources (CRHR) and the City of Pacifica's local list. The available data indicate that the site is eligible for the NRHP under Criterion D – it may provide chronological data for central coastal California cultural sequences, subsistence information, settlement patterns, demography, technology, interactions and exchange, and burial practices. However, there is a very low potential for the exposure of prehistoric cultural materials associated with the two known prehistoric resources within the APE during the construction of the proposed improvements. Potential below grade disturbance in the improvement areas will be restricted to less than 36-inches within areas previously filled for the current roadbed or within the utility disturbance zone.

2.8.2.2 *Architectural/Historic Resources*

Seven buildings and building complexes are present within the APE in two groups located in different areas of Pacifica -- one group is in the community of Rockaway Beach and the other in Vallemar, about one mile apart.

The six buildings/building complexes in Rockaway Beach include seven pre-1962 buildings including one 1950s restaurant and six single family residences. These buildings are not eligible for the NRHP because they do not appear to be significant under Criteria A, B, or C. The buildings have also been evaluated in accordance with Section 15064.5(a) (2-3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code, and the buildings are not historical resources for the purposes of CEQA.

The Vallemar complex includes four buildings on one parcel. One building in the complex, Vallemar Station located at 2125 Cabrillo Highway, is listed on the Historic Sites Master List for San Mateo County, the Historic Sites list included in the City of Pacifica General Plan, and the Inventory of County Historic Resources for San Mateo County. The building is eligible for the CRHR at a local level of significance under Criterion 1: association with events that have made a significant contribution to broad patterns of local or regional history. The period of significance is 1907-1920, which is the period when the Ocean Shore Railroad operated on the San Mateo County coast, and the area of eligibility is the building footprint. The three buildings near the railroad station, 156/158 Reina Del Mar Avenue, 164 Reina Del Mar Avenue, and 2130 Cabrillo Highway, are recent structures that are not eligible. Because of the loss of historic integrity, the Vallemar Station is not eligible for the NRHP. In accordance with the CEQA Guidelines, however, Vallemar Station is an historical resource for the purposes of CEQA because the building is listed in the CRHR at a local level.

No other local, state, or federal historically or architecturally significant structures, landmarks, or points of interest have been identified or observed in or adjacent to the project. None of the structures or buildings that are located on the parcels from which right-of-way will be required are historic. None of the bridges or other transportation structures located within the APE are historic.

2.8.3 Environmental Consequences

Based upon the research, technical studies, and field testing described above, the project Build Alternatives could potentially affect a cultural resource site (CA-SMa-268), which is eligible for the NRHP and CRHR, within the APE. The Department has determined a Finding of No Adverse Effect with Standard Conditions – Environmentally Sensitive Areas (ESAs), according to Section 106 PA Stipulation X.B(2) and 36 CFR 800.5(b), is appropriate for this undertaking. SHPO has been notified of this finding. The project includes the measures below to avoid any effects to these resources.

As indicated above under the *Affected Environment* discussion, the architectural resources within the APE underwent formal evaluation and have been determined not to be eligible for the NRHP. SHPO has been notified of the eligibility determinations for the architectural resources within the APE.

The project would not affect any Section 4(f) historic resources (refer to the discussion above in Section 2.1 *Land Use* and Appendix B of the HPSR).

Pursuant to CEQA Guidelines §15064.5(a), the Department has determined that the Vallemar Station is an historic resource under CEQA and is eligible for the CRHR at a local level. The project Build Alternatives would not affect the Vallemar Station. The SHPO concurred to the eligibility and effect findings for historic architectural resources on February 22, 2010.

2.8.4 Avoidance, Minimization, and/or Mitigation Measures

2.8.4.1 *Environmentally Sensitive Areas*

Two separate Environmentally Sensitive Areas are included as part of the project and will be maintained for each resource under either Build Alternative. ESA 1 is for CA-SMa-162 and ESA 2 is for CASMa-268.

ESA 1 (CA-SMa-162)

AM CUL-1.1: ESA 1 (CA-SMa-162) includes the area west of the western site boundary near the Reina Del Mar Avenue intersection. Anticipated work within the ESA will include removal of the engineered fill embankment, which was placed during road construction in the 1960s, to allow for widening of the SR 1. Monitoring shall be undertaken within the Archaeological Monitoring Area (AMA) adjacent to the ESA boundary in association with a Native American Consultant to ensure that the ESA is not compromised during the removal of the engineered fill embankment placed during road construction in the 1960s to allow for future highway improvement to Highway 1. The AMA includes the recorded site boundary of CA-SMA-162 and a small buffer.

- § The ESA fence and AMA shall be professionally surveyed and marked. The AMA measures approximately 270 feet north-south by 80 feet east-west (19,000 square feet) and includes the boundary of CA-SMA-162 and a small buffer.
- § The ESA boundary shall be marked with appropriate visible barrier fencing at least four (4) feet high and attached to temporary fence posts to indicate the presence of a “no-go” area.
- § The ESA boundary fence shall be clearly identified with a sign every 25 feet to indicate that it is an ESA and no work is authorized beyond the marked ESA boundary.
- § The ESA shall be marked on construction documents and contractual language shall be included indicating that no excavation or other ground disturbing activity is permitted within the ESA.
- § Subsurface construction within the AMA shall not occur without the presence of a qualified Archaeological Monitor and a Native American Consultant. The Native American Consultant shall assist the Archaeological Monitor during construction and provide guidance in the event of the discovery of prehistoric artifacts and/or human remains.
- § Monitoring of all earth disturbing construction within the AMA shall be conducted by a qualified Archaeological Monitor with regional experience with prehistoric cultural materials and experience in identifying human bone. The San Mateo County Transportation Authority (SMCTA) Project Engineer and Project Inspector shall be responsible for implementation and enforcement of the

archaeological monitoring requirements including notifying the Archaeological Monitor 48 hours in advance of any monitoring needs.

- § The monitoring team shall have the authority to temporarily halt construction to examine any finds within the AMA and immediately adjacent areas. Diagnostic artifacts that could provide interpretive information for CA-SMa-162 shall be collected at the discretion of the Archaeological Monitor in consultation with the Native American Consultant.
- § Monitoring shall be undertaken within the AMA for a minimum of five feet below the present ground surface and shall be deemed complete when no evidence of subsurface cultural materials is noted in the sediments to be removed by construction.
- § A pre-construction meeting shall be held with the Contractor and other project personnel to discuss the ESA requirements and the potential for the exposure of archaeological materials within the AMA. Procedures for any unanticipated discoveries shall be discussed with the Contractor and Environmental Construction Liaison and other pertinent parties.

Treatment of Unexpected Discoveries

- § If buried cultural materials are encountered during construction within the AMA, work shall stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.

Report

- § An Archaeological Monitoring Closure Report shall be provided by the SMCTA Project Engineer or other designated entity to Caltrans District 04 within 30 calendar days of the completion of monitoring. The report shall provide information on the monitoring protocols, dates of monitoring, discoveries, results, etc., along with appropriate graphics and supplementary materials. A letter format report is acceptable.

AM CUL-1.2: ESA 2 (CA-SMa-268) is a vertical APE with no surface component and consists of the 1940 ground surface buried under the fill placed during construction in the 1960s. The ESA is roughly rectangular and consists of the site boundary with a small buffer. No monitoring is recommended as analysis of the original ground surface as of 1940 with current elevations and proposed subsurface construction impacts indicates that all construction will occur within the existing fill prism with at least a three- to five-foot buffer or more. Work in the ESA will include road widening and the installation of a retaining wall north of Reina Del Mar Avenue within the recorded site boundary.

- § The ESA shall be professionally surveyed and marked. The ESA western boundary is approximately 250 feet long; the eastern boundary is approximately 200 feet long; the southern boundary is 120 feet wide; and the north boundary is about 115 wide.
- § The ESA shall be marked on construction documents and contractual language shall be included indicating that no excavation or other ground disturbing activity is permitted below the approximate depth of the improvements proposed within the ESA.
- § Earth disturbing construction within the ESA shall be checked on a daily basis by the Contractor and reported to the Environmental Construction Liaison to determine the depth to the 1940 grade. If the grade is within three feet or less, this information shall be reported to the Caltrans Professionally Qualified Staff (PQS) Archaeologist for review.
- § A pre-construction meeting shall be held with the Contractor and other project personnel to discuss the ESA requirements and the potential for the exposure of archaeological materials within the ESA at depths below the approximate improvement depth. Procedures for penetration into the 1940 grade shall be discussed with the Contractor and Environmental Construction Liaison and other pertinent parties.

Treatment of Unexpected Discoveries

- § If buried cultural materials are encountered during construction within the ESA, work shall stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.
- § If human remains are exposed in the ESA during project construction, all work in that area must halt and the San Mateo County Coroner must be contacted, pursuant to California Public Resources Code Sections 5097.94, 5097.98, and 5097.99.

Report

- § An Archaeological Monitoring Closure Report shall be provided by the SMCTA Project Engineer or other designated entity to Caltrans District 04 within 30 calendar days of the completion of monitoring. The report shall provide information on the monitoring protocols, dates of monitoring, discoveries, results, etc., along with appropriate graphics and supplementary materials. A letter format report is acceptable.

2.8.4.1 *Areas Outside of ESAs*

For all other areas outside of the ESAs the following avoidance measures shall be implemented:

AM CUL-2.1: If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

AM CUL-2.2: If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner be contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the Caltrans District 04 Office of Cultural Resource Studies so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of Public Resources Code Section 5097.98 are to be followed as applicable.

PHYSICAL ENVIRONMENT

2.9 HYDROLOGY AND FLOODPLAIN

The information in this section is based primarily on a technical *Location Hydraulic Study* that was prepared for the project. The study is incorporated into this EIR/EA by reference. A copy of this study is available for review at the locations listed inside the front cover of this document.

2.9.1 Regulatory Setting

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

In order to comply, the following must be analyzed:

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

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

2.9.2 Affected Environment

Development in most of the study area extends to the banks of the streams. The surface streams located at the project site are Calera Creek and Rockaway Creek. Calera Creek passes under SR 1 through a 400-foot concrete box culvert just north of Reina Del Mar Avenue. Rockaway Creek, Calera Creek and Sanchez Creek are direct receiving water bodies for the Calera Parkway project. Calera Creek and Rockaway Creek discharge into the Pacific Ocean at Rockaway Beach approximately 0.7 and 0.1 miles downstream of the southern end of the project, respectively.

Sanchez Creek does not cross SR 1 within the Calera Parkway Project area, but the Project includes a portion of the Sanchez Creek watershed. Because of a seawall, Sanchez Creek empties into Horse Stable Pond, where water is then pumped to the Pacific Ocean at Sharp Park Beach. The Pacific Ocean at Rockaway Beach is the receiving water body for most of the runoff from increased impervious area, storm water affected by construction, and both Calera and Rockaway Creeks.

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), two portions of the project segment lie within an existing one percent floodplain (see Figure 2.2).¹⁹ There are two main reasons why these areas are designated as floodplains:

- Overflows from Rockaway Creek could occur because of inadequately sized culverts. This would occur at Oddstad Way, Buel Avenue, and SR 1.
- Overflows from Calera Creek could occur because of inadequately sized culverts; small, bush-choked channels; and overbank areas with low topographic relief.

Based on the FEMA Flood Insurance Rate Map (FIRM) Number 060323 0004D, SR 1 traverses “Zone A”--type Special Flood Hazard Areas (SFHAs) and “Zone B”--type SFHAs associated with Rockaway Creek and Calera Creek. There is also a “Zone C”--type SFHA for Calera Creek. The “Zone A”--type SFHAs in the vicinity of SR 1, however, are contained within the culverts that cross beneath SR 1.

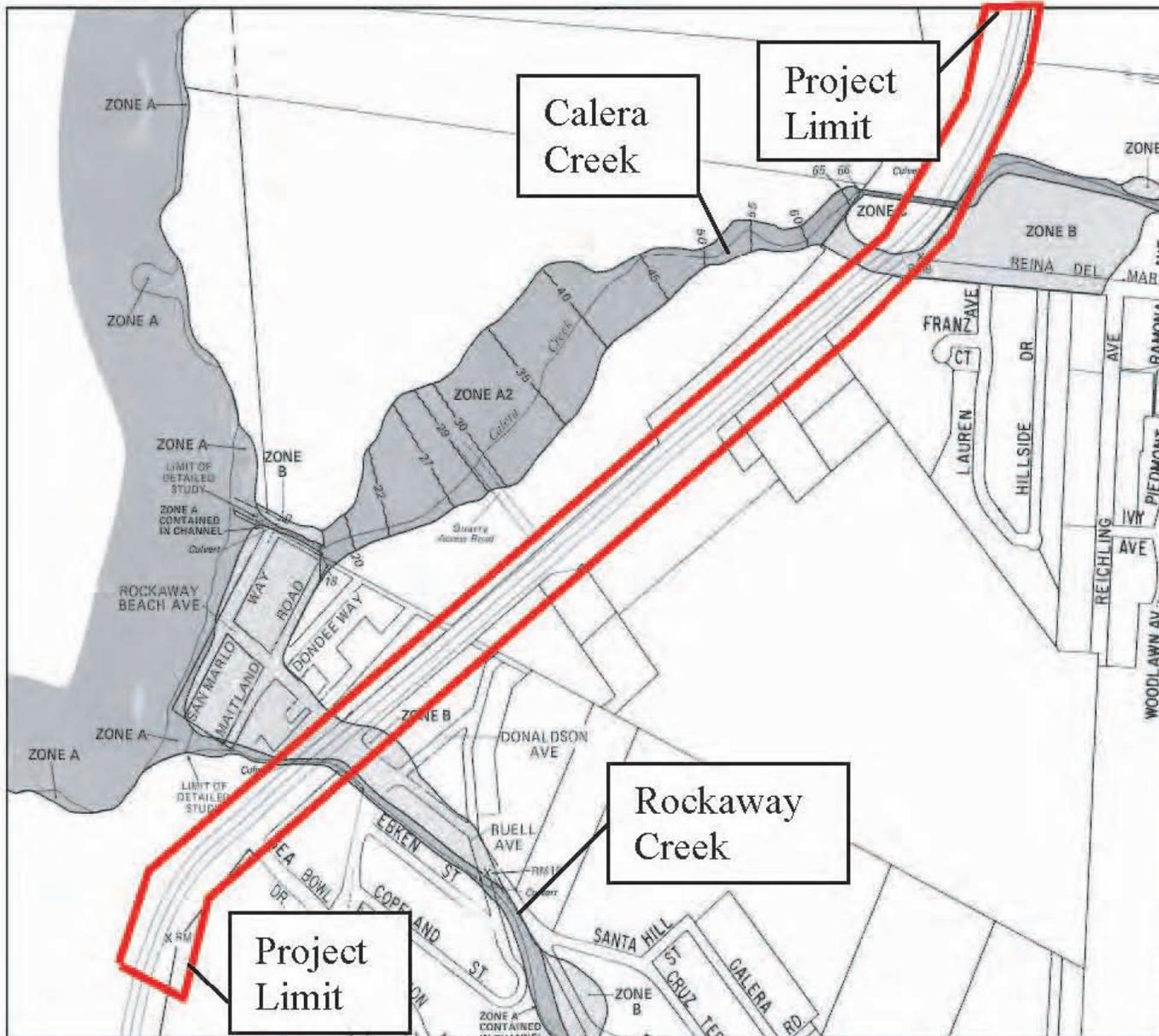
According to FEMA, Zone A corresponds to the one percent (1%) probability of exceedance floodplain, and Zone B corresponds to “Areas between the limits of the one percent probability flood and the 500-year flood; or certain areas subject to one percent event flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from base flood.” Zone C corresponds to areas of minimal flooding. The FIS states that the hydraulic analyses for the FEMA FIS study were based on unobstructed flow.

Local shallow flooding occurs at SR 1 during the one percent event; however, no traffic interruption is expected due to the base flood.

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and ground water recharge.

The revised 2007 *Water Quality Control Plan (Basin Plan)* for the San Francisco Bay Regional Water Quality Control Board (RWQCB) does not list any beneficial uses for Calera Creek or Rockaway Creek. There are several areas within the project limits that are designated as Environmentally Sensitive Areas (ESAs) due to the presence of potential California Red Legged Frog habitat as well as nearby jurisdictional wetlands of the California Coastal Commission (CCC), and so direct affects to CCC jurisdictional wetlands would not be allowed except under special circumstances provided under the California Coastal Act (refer to Section 2.16 *Wetlands and Other Waters* and Section 2.19 *Threatened and Endangered Species*).

¹⁹ The **one percent floodplain** is the area that would be inundated during a flood event that has a one percent chance of occurring or being exceeded in any given year. The one percent event is sometimes referred to as the “100-year” flood event because it has an average return period of 100 years.



APPROXIMATE SCALE IN FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

 CITY OF
PACIFICA, CALIFORNIA
 SAN MATEO COUNTY

PANEL 4 OF 7
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
 060323 0004 D

MAP REVISED:
 FEBRUARY 19, 1987

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using FIRM Online. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the most product information about Federal Flood Insurance Program flood maps check the FEMA Flood Map from at www.fema.gov

- Zone A: Areas subject to inundation by the one percent annual chance (or 100-year) flood event
- Zone B: Areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood; certain areas subject to one percent event flooding with average depths less than one (1) foot; or areas protected by levees from the base flood

Source: Federal Emergency Management Agency

2.9.3 Environmental Consequences

The flood risk associated with the project is low. Portions of the project area are within the one percent floodplain; however, the proposed project would not affect the floodplains. The Narrow Median Build Alternative would result in an additional 5.9 acres of impervious area, and the Landscaped Median Build Alternative would result in an additional 6.56 acres of impervious area, beyond existing conditions. The additional impervious area amounts due to either of the project Build Alternatives is insignificant relative to the 2.05 square miles of combined watershed area, 0.6 square miles for Rockaway Creek and 1.45 square miles for Calera Creek, which drains to the project area. Consequently, this increase in impervious area would have a minimal effect on the existing hydrology.

Either of the project Build Alternatives would result in an increase in the extent of impervious area. As discussed above, this increase would be insignificant compared to the overall watershed area and would have a negligible effect upon the floodplains associated with the water bodies that cross the project. This increase could, however, result in local ponding due to increases in local runoff to individual storm drain systems beyond their current conveyance capacity.

The proposed highway facility would be wider and the new shoulders would also be wider (outside shoulders would be widened from the existing typical width of four to six feet to new 10 foot wide shoulders which have a significantly greater spread width capacity). During the final design phase, storm drain facilities would be improved as needed to meet hydraulic design standards. The final design would ensure that design storm conveyances would not encroach on the traveled way. The project would upgrade highway storm drain systems to accommodate the increase in impervious area such the storm drain systems would avoid problematic flooding during a four percent (25-year) design storm per the criteria in the *Highway Design Manual*. In addition, the highway, itself, will be would remain at least as passable in a one percent (100-year) storm as it is in the existing condition, per FHWA criteria.

Natural and beneficial floodplain values within the project area include ESAs and jurisdictional CCC wetlands. A portion of the proposed highway would be cantilevered in order to avoid affecting a wetland “finger” area and the project would employ 1,400 feet of retaining walls in order to avoid encroachment into any wetlands. As a result of these measures, the project would not disturb ESAs and/or wetlands (refer to Section 2.16 *Wetlands and Other Waters* and Section 2.19 *Threatened and Endangered Species*).

In addition, construction Best Management Practices (BMPs) would be implemented to minimize runoff to water bodies and wetlands. The project would also include permanent treatment BMPs, biofiltration swales, and bio-strips to treat stormwater originating on-site before it reaches storm drain systems.

2.9.4 Avoidance, Minimization, and/or Mitigation Measures

The project will appropriately increase storm drain capacities so that local ponding associated with the one percent probability of annual exceedance storm event would not differ significantly from ponding under the existing condition.

Standard construction BMPs will be implemented to minimize the amount of runoff to water bodies and wetlands. The project will also include permanent treatment BMPs, biofiltration swales, and bio-strips to treat stormwater originating on-site before it reaches water bodies, wetlands, or storm drain systems (refer to the avoidance, minimization, and mitigation measures described below under Section 2.10.4 *Water Quality and Storm Water Runoff*).

2.10 WATER QUALITY AND STORM WATER RUNOFF

The information in this section is based primarily on a technical *Storm Water Data Report* completed in August 2009 and a *Water Quality Study Report* completed in April 2009 for the project. These studies are incorporated into this EIR/EA by reference and are available for review at the locations listed inside the front cover of this document.

2.10.1 Regulatory Setting

2.10.1.1 *Federal Requirements: Clean Water Act*

In 1972, the Federal Water Pollution Control Act was amended, making the discharge of pollutants to the waters of the United States from any point source unlawful, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The Federal Water Pollution Control Act was subsequently amended in 1977, and was renamed the Clean Water Act (CWA). The CWA, as amended in 1987, directed that storm water discharges are point source discharges. The 1987 CWA amendment established a framework for regulating municipal and industrial storm water discharges under the NPDES program. Important CWA sections are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal project that proposes an activity, which may result in a discharge to waters of the United States to obtain certification from the State that the discharge will comply with other provisions of the act.
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) addresses storm water and non-storm water discharges.
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

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

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

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or otherwise) to land or surface waters that may impair beneficial uses for surface and/or ground water of the state.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives) required by the CWA, and regulating discharges to ensure that the objectives are met. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. States designate beneficial uses for all water body segments, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, each state identifies waters failing to meet standards for specific pollutants, which are state listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the CWA requires establishing Total Maximum Daily Loads (TMDLs). TMDLs establish allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

2.10.1.3 State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, water pollution control, and water quality functions throughout the state. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- NPDES Program

The SWRCB adopted Caltrans Statewide NPDES Permit (Order No. 99-06-DWQ) on July 15, 1999. This permit covers all Department rights-of-way, properties, facilities, and activities in the State. NPDES permits establish a five-year permitting time frame. NPDES permit requirements remain active until a new permit has been adopted.

In compliance with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the 2003 SWMP to address storm water runoff or any subsequent SWMP version draft and approved.

- Municipal Separate Storm Sewer System Program

The U.S. EPA defines a Municipal Separate Storm Sewer System (MS4) as any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, country, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water. As part of the NPDES program, U.S. EPA initiated a program requiring that entities having MS4s apply to their local RWQCBs for storm water discharge permits. The program proceeded through two phases. Under Phase I, the program initiated permit requirements for designated municipalities with populations of 100,000 or greater. Phase II expanded the program to municipalities with populations less than 100,000.

- Construction Activity Permitting

Section H.2, Construction Program Management of the Department's NPDES permit states: "The Construction Management Program shall be in compliance with requirement of the NPDES General Permit for Construction Activities (Construction General Permit)". Construction General Permit (Order No. 2009-009-DWQ, adopted on September 2, 2009, will become effective on July 1, 2010). The permit will regulate storm water discharges from construction sites that result in a DSA of one acre or greater, and/or are part of a common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit.

The newly adopted permit separates projects into Risk Levels 1 – 3. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring. Risk levels are determined during the design phase and are based on potential erosion and transport to receiving waters. Applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPP).

Caltrans Statewide NPDES Permit requires the Department to submit a Notice of Construction (NOC) to the RWQCB to obtain coverage under the Construction General Permit. Upon project completion, a Notice of Completion of Construction (NOCC) is required to suspend coverage. This process will continue to apply to Department projects until a new Caltrans Statewide NPDES Permit is adopted by the SWRCB. An NOC or equivalent form will be submitted to the RWQCB at least 30 days prior to construction if the associated DSA is one acre or more. In accordance with the Department's Standard Specifications, a Water Pollution Control Plan (WPCP) is used for projects with DSA less than one-acre.

During the construction phase, compliance with the permit and the Department's Standard Special Conditions requires appropriate selection and deployment of both structural and non-structural BMPs. These BMPs must achieve performance standards of Best Available Technology economically achievable/Best Conventional Pollutant Control Technology (BAT/BCT) to reduce or eliminate storm water pollution.

2.10.2 Affected Environment

Storm water runoff from the project area discharges into Rockaway Creek, Calera Creek, and Sanchez Creek. Calera Creek and Rockaway Creek discharge into the Pacific Ocean at Rockaway Beach approximately 0.7 miles and 0.1 miles downstream of the southern end of the project site, respectively. Sanchez Creek is not located within the project limits; however, the northern limits of the project site drain into Sanchez Creek. Because of a seawall, Sanchez Creek drains into Horse Stable Pond, after which it is pumped and piped into the Pacific Ocean. Sanchez Creek crosses SR 1 approximately 0.7 miles upstream of its discharge point into the Pacific Ocean.

The water quality in the creeks depends upon the volume of water at a given time of the year. Water quality is also dependent upon the concentration of contaminants, which flow into the creeks as a component of urban runoff via storm drains. These contaminants include such items as oil and grease, fuel residues, tire particles, plant and animal debris (e.g., leaves, dust, animal feces, etc.) litter, and heavy metals. In sufficient concentrations, these pollutants have been found to adversely affect the aquatic habitat of these streams and the San Francisco Bay and Pacific Ocean, which these streams flow into.

Section 303(d) of the CWA requires that states develop a list of water bodies that do not meet water quality standards. According to the latest list developed by the San Francisco Bay RWQCB in 2006, the Pacific Ocean at Rockaway Beach is listed as an impaired water body for coliform bacteria due to urban runoff/storm sewers.

2.10.3 Environmental Consequences

Either of the two proposed Build Alternatives may affect water quality during the short-term (i.e., construction phase) and long-term (i.e., operational phase). The short-term effects are described in Section 2.21 *Invasive Species* of this document. The long-term effects are described below.

Compared to existing/no project conditions, the Build Alternatives would not have a significant effect on long-term water quality. This conclusion is based on the fact that the two project Build Alternatives would create approximately 5.9-6.56 acres of new impervious surfaces within the watershed area. This is a relatively minimal increase in impervious surfaces, especially in view of the fact that most of the project site is already covered by existing impervious surfaces (i.e., the existing highway). Therefore, the increase in pollutant-containing runoff would not be substantial.

The ground water table in the project area is relatively deep (more than six feet) and the nearby soils are primarily classified as “impervious.” Therefore, the project is not expected to cause permanent effects to ground water.

2.10.4 Avoidance, Minimization, and/or Mitigation Measures

Although long-term water quality effects will be negligible, the design of the project includes Best Management Practices (BMPs) to reduce the pollutant component of storm water runoff, as required by the Caltrans NPDES permit (see above discussion). In addition to the requirements of the NPDES permit, compliance with the requirements of the Caltrans Stormwater Management Plan (SWMP) is also required. The SWMP describes the programs to reduce the discharge of pollutants associated with the storm water drainage systems, and describes how Caltrans will comply with the provisions of the NPDES permit.

To minimize post-construction water quality effects, post-construction BMPs have been considered for incorporation into the project. Those BMPs considered include infiltration devices, biofiltration strips and swales, wet basins, media filters, detention devices, and multichamber treatment devices (often referred to as “treatment trains”). Biofiltration strips or swales have been identified as the most feasible BMPs for this project. Six locations are suitable for the creation of biofiltration strips or swales within the project limits. These locations are as follows:

- One swale adjacent to northbound side of SR 1, south of Coast Lane
- One swale on the southbound side of SR 1, adjacent to Old County Road
- One swale adjacent to northbound side of SR 1
- One strip adjacent to southbound side of SR 1, south of Reina Del Mar Avenue
- One swale adjacent to southbound side of SR 1, south of Reina Del Mar Avenue
- One swale adjacent to northbound side of SR 1, just north of the end of the project

In addition, the project will implement permanent design pollution control BMPs to improve stormwater quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. These measures could include a combination of source and sediment control measures to prevent and minimize erosion from disturbed soil areas. Source controls will utilize erosion control netting in combination with hydroseeding. Outlet protection and velocity dissipation devices will also be included.

2.11 GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY

The information in this section is based primarily on a *Preliminary Geotechnical Report* that was prepared for the project in September 2009 and an Addendum to this report in August 2010. A copy of this study and the addendum are available for review at the locations listed inside the front cover of this document.

2.11.1 Regulatory Setting

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

This section discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans’ Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. The current policy is to use the anticipated Maximum Credible Earthquake (MCE) from young faults in and near California. The MCE is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.11.2 Affected Environment

The project segment of SR 1 runs generally near the Pacific Coast and consists of rolling topography. Ground elevations in the study area range from approximately 20 feet above sea level near the southerly project limits to 275 feet above sea level at the northerly project limits. The natural gradient in the area generally slopes downward to the west. The properties east of SR 1 are sloped above the roadway, while the properties west of SR 1 generally slope downward toward the coastal bluffs. The Pacific Ocean is located approximately 700 feet west of the project alignment.

Man-made and native embankments exist along the west side of SR 1 along much of the project segment. Some of the existing roadway profile traverses across hilly terrain, resulting in cut slopes and retaining walls.

No active faults cross under the project segment of SR 1. The project, however, is located in a seismically active area of Northern California. Many faults capable of producing earthquakes exist in the San Francisco Bay Area, which may cause strong ground shaking in the vicinity of the project area. The closest active fault to the project alignment is the Peninsula Section of the San Andreas Fault located 2.3 miles east/north-east of the project. The San Gregorio Section of the San Gregorio Fault is located approximately 5.3 miles west of the project. The San Andreas and San Gregorio Faults generally parallel each other, to the east and west, respectively, of the SR 1 project section.

The San Andreas and San Gregorio Faults are designated with maximum magnitudes (M_{max}) of 7.9 and 7.0, respectively, on the Caltrans California Seismic Hazard Map. The maximum magnitudes represent the largest earthquake that could occur on the given fault based on the current

understanding of the regional tectonic structure. The MCE, therefore, is the earthquake on the San Andreas Fault, since it potentially releases the highest energy ($M_{max} = 7.9$) and results in the strongest shaking at the site.

The project segment of SR 1 from north to south is underlain by alluvial soil and fill north of Reina Del Mar Avenue and Franciscan Complex Volcanic Rocks north of San Marlow Way where alluvial soils start through Fassler Avenue/Rockaway Beach Avenue. South of Fassler Avenue/Rockaway Beach Avenue, the alignment is underlain by Franciscan Complex Sedimentary Rocks. Based upon the Soil Survey Map of San Mateo County, California, the soils in the project area are mainly fine sandy loam to sandy clay loam. The drainage characteristics of the soils in this area are well drained and the erosion hazard is low.

Based upon the geologic and seismic data, the possibility of the SR 1 project alignment to experience strong ground shaking is considered low to moderate and the project segment is mapped as being within a liquefaction hazard zone ranging from generally low to moderate. Most of the project area has a low potential for landslides and earth flows.

2.11.3 Environmental Consequences

The proposed Build Alternatives would involve typical highway excavation and grading practices necessary to construct the additional lanes and intersection modifications. There are no geologic features on the site that would pose special or unique hazards to users of the proposed improvements. The project would implement standard engineering practices to ensure that geotechnical and soil hazards do not result from its construction.

The site is within the seismically active San Francisco Bay Area and severe ground shaking is probable during the anticipated life of the project. Users of the highway and intersections would be exposed to hazards associated with such severe ground shaking during a major earthquake on one of the region's active faults. This hazard is not unique to the project because it applies to all locations throughout the greater Bay Area. The proposed project would not increase the existing exposure to hazards associated with earthquakes; the hazards in the area would be the same with or without the project.

The proposed roadway widening and intersection improvements would be designed and constructed in accordance with Caltrans Design guidelines for Seismic Zone 4 to avoid or minimize potential damage from seismic shaking on the site. Potential seismic effects will be minimized by the use of standard engineering techniques mandated by the Uniform Building Code and the Caltrans Design Standards.

2.11.4 Avoidance, Minimization and/or Mitigation Measures

No additional avoidance, minimization, or mitigation measures are proposed or required beyond the standard engineering techniques mentioned above. Refer to Section 2.10 *Water Quality and Storm Water Runoff* for the BMPs included in the project to minimize erosion control.

2.12 HAZARDOUS WASTE/MATERIALS

The information in this section is based primarily on a technical *Initial Site Assessment (ISA)* that was prepared for the project in January 2009 and an Addendum to this ISA that was prepared in May 2010. Copies of the ISA study and the Addendum are available for review at the locations listed inside the front cover of this document.

The purpose of preparing an ISA is to identify areas within or adjacent to the project where contamination from hazardous materials exists and/or where there is likelihood that such contamination may be present. The reason for this research is to alert the public and governmental agencies to these contaminated areas so that future problems associated with exposure to hazardous materials can be avoided. A secondary, but important, reason for this research is to alert officials who are considering the purchase of property of any existing and/or potential contamination, since property owners can be held responsible for the cost of cleanup in many cases.

2.12.1 Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many state and federal laws. These include not only specific statutes governing hazardous waste, but also a variety of laws regulating air and water quality, human health and land use.

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

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

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

Hazardous waste in California is regulated primarily under the authority of the federal Resource Conservation and Recovery Act of 1976, and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

2.12.2 Affected Environment

2.12.2.1 *Sites with Hazardous Material Spills or Contamination Incidents*

To evaluate the likelihood of contamination incidents at and near the site, a search of environmental regulatory databases was completed. The City of Pacifica Building Department, the San Mateo County Department of Environmental Health (SMCDEH), and North County Fire Department were also contacted. The ISA determined that there are several sites in the vicinity of the project segment of SR 1 where hazardous materials are or have been generated, used, or stored and/or where some type of spill/leakage/contamination has occurred. For most locations where soil or ground water contamination has been found, the source of the contamination was leaking underground storage tanks. In virtually all of these cases, the leaking tanks have been removed and remediation has occurred (or is occurring) under the supervision of various governmental entities. Many of the listed sites are either down/cross gradient or too far up gradient to affect the subject area.

The ISA focused on sites where hazardous materials contamination has been reported that are: 1) under active regulatory oversight; and 2) within one-eighth mile of the existing and proposed highway right-of-way within the project area. The sites that meet these criteria are listed in Table 2.8 below and shown on Figure 2.3. Conditions at these sites are summarized below:

Site #1 – 700 Coast Highway – Calera Creek Waste Water Treatment Plant (WWTP): Site #1, the WWTP is listed on the Leaking Underground Storage Tank (LUST) database as a closed case. Other database listings indicate that this site uses and stores hazardous materials and generates hazardous waste.

The SMCDEH file contained several reports pertaining to the removal of a 550 gallon UST in 1997 and subsequent soil and ground water studies. The Underground Storage Tank (UST) is shown to have been located several hundred feet west of SR 1. The extent of petroleum hydrocarbon affected soil and ground water near the UST is limited and not likely to have extended onto the project site. A case closure letter was issued by the SMCDEH in 2000 indicating that no further action was required.

TABLE 2.8			
NEARBY HAZARDOUS MATERIALS/WASTE CONTAMINATION SITES			
Location	Site Name	Site Address	Status
1	Calera Creek Waste Water Treatment Plant (WWTP)	700 Coast Hwy.	Listed as a closed LUST case. Other database listings indicate that this site uses and stores hazardous materials.
2	Joe's Auto Body	2085 Coast Hwy.	Listed as a closed LUST case. Other database listings indicate that this site uses and stores hazardous materials.
3	Pacifica Alliance (former Vallemar Beacon)	2095 Coast Hwy.	Listed as an open LUST case with petroleum hydrocarbon concentrations remaining in soil and ground water. Ongoing semi-annual ground water monitoring is being performed under SMCDEH oversight.
4	Vallemar Station & Restaurant	2125 Cabrillo Hwy.	Listed in Pacifica Building Department and SMCDEH files. This property is a historic landmark. Dust and weed suppression chemicals, such as waste oil, may have been sprayed along the railroad line.
5	Chevron	4145 Highway 1	Listed on the LUST database as a closed case.
6	Caltrans Right-of-Way (former Union Oil Station)	4460 Cabrillo Hwy.	Listed on the LUST database. Residual petroleum hydrocarbon concentrations remain in soil and ground water, reportedly from two 6,000-gallon USTs removed in 1988. In October 2008, the SMCDEH indicated that the case may qualify for closure if results of the 3rd Quarter 2008 ground water monitoring event are similar to historic findings.
7	Shell Station	4475 Coast Hwy.	Listed on the LUST database as a closed case. Residual petroleum hydrocarbon concentrations remain in soil and ground water.
Notes			
Site locations are shown on Figure 2.3.			
Source: Cornerstone Earth Group. Highway 1/Calera Parkway Project Initial Site Assessment. January 2009.			

Site #2 – 2085 Coast Highway – Joe's Auto Body: Site #2, Joe's Auto Body, is listed on the LUST database as a closed case. Other database listings indicate that this site uses and stores hazardous materials.

The SMCDEH LUST case file contained reports pertaining to the removal of a 1,000 gallon UST in 1988 and subsequent soils and ground water quality studies. During the UST removal, two soil samples and one ground water sample were collected and analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethyl benzene, and xylenes (BTEX). No TPHg or BTEX were detected in the soil. TPHg was detected in the ground water at a concentration of 320 parts per billion (ppb). Toluene, ethyl benzene, and xylenes also were detected in ground water at

concentrations of 15, 0.54, and 9.1 ppb, respectively. A ground water monitoring well subsequently was installed at the UST location (ground water depth reported at approximately 2.5 feet). Analyses of ground water samples collected over three consecutive quarterly sampling events did not detect TPHg or BTEX compounds. A case closure letter was issued by the SMCDEH in 1991 indicating that no further action was required. The former UST was located approximately 100 feet to the southwest of SR 1.

Site #3 – 2095 Coast Highway - Alliance Service Station: Site #3, the Alliance Service Station (former Vallemar Beacon), is listed in several databases for soil and ground water quality studies that were performed in connection with the removal of four gasoline USTs and a waste oil UST in 1989, and the removal of hydraulic lifts and another waste oil UST in 1998.

The soil and ground water quality investigations consisted of drilling several soil borings and installing six ground water monitoring wells. Based on analytical data, petroleum hydrocarbon concentrations remaining in soil on this property include total petroleum hydrocarbons as diesel (TPHd), TPHg, BTEX and methyl tertiary butyl ether (MTBE) at concentrations up to 2,340, 890, 3.2, 5.6, 15, 110 and 1.1 parts per million (ppm), respectively. The highest concentrations were generally reported in soil samples collected from depths of five feet or less.

The most recent available ground water sampling data (from March 2008) indicates that TPHg, benzene, ethylbenzene, and MTBE remain in ground water at concentrations up to 8,200, 230, 17 and 260 ppb, respectively. Ground water depths of less than approximately five feet and a westerly ground water flow direction were reported. The affected ground water appears to have migrated westerly from the service station and extends beneath SR 1. Ongoing semi-annual ground water monitoring is reportedly being performed under SMCDEH oversight.

Caltrans reportedly purchased this property in 1987. Impacted materials have been reported within existing Caltrans right-of-way located to the northwest of the service station.

Site #4 – 2125 Cabrillo Highway – Vallemar Station: This property, which includes the Vallemar Station and restaurant, is listed in the Pacifica Building Department and SMCDEH files as a historic landmark (refer to Section 2.8 *Cultural Resources* of this report). The existing restaurant was to have been a former Ocean Shore Railroad Station that opened in 1907 and closed in 1924. The Ocean Shore Railroad was intended to be built from San Francisco to Santa Cruz, via a route along the coastline. Construction began in 1905 at both ends, however, the line was never completed. Dust and weed suppression chemicals, such as waste oil, may have been sprayed along railroad line.

Subsequent uses were noted to include a residence, gifts shop, and restaurant. A railroad caboose and rail car were added to the property in 1986.

Site #5 – 4115 Highway 1 – Chevron: This property is listed on the LUST database as a closed case. The SMCDEH LUST case file contained several reports and other correspondence pertaining to the removal of three 10,000 gallon USTs in 1987 and subsequent ground water quality studies. The USTs were shown to have been located approximately 50 feet to the southwest of SR 1. At the time of removal, the USTs were reported to be six years old, and no odors or staining of soil were noted

during the removal. Ground water was encountered at a depth of two feet during the UST removal work. Three ground water monitoring wells were subsequently installed. The wells were sampled six times between 1987 and 1990. Analyses of the ground water samples did not detect TPHg or BTEX compounds. A northwesterly ground water flow direction was reported. A case closure letter was issued by the California Regional Water Quality Control Board (CRWQCB) in 1990 indicating that no further action was required.

Site #6 – 4460 Cabrillo Highway – Caltrans Right-of-Way: This property, a former Union Oil Company (Unocal) Station, is listed as an open SMCDEH leaking underground storage tank (LUST) file related to the 1988 removal of two 6,000-gallon USTs from the property. In addition to the service station, an auto body shop was reportedly located on the property. In 1987, the property was purchased by Caltrans for the planned widening of SR 1.

Soil and ground water quality investigations completed between 1991 and 2008 consisted of several soil borings and the installation of 12 ground water monitoring wells. Three of the wells have subsequently been removed under permit from the SMCDEH and, sometime between December 1993 and December 1996, three other wells were lost. In April 2005, the SMCDEH directed Caltrans to locate the missing wells and, in 2006, Unocal was directed to commence periodic sampling of the ground water. No sampling or other activity had taken place since 1999.

Based on a February 2008 report, residual petroleum hydrocarbon concentrations remain in soil on the property, with the highest concentrations reported at depths between 10 and 20 feet. The most recent available ground water data reported in June 2008 indicates that residual petroleum hydrocarbons also remain in ground water. Ground water has been generally encountered at a depth of approximately 16 feet, with a northwesterly flow direction.

In an October 6, 2008 letter, the SMCDEH indicated that the case may qualify for closure and requested that a case closure summary be prepared if the results of the current ground water monitoring are similar to historical findings.

Site #7 – 4475 Coast Highway – Shell Service Station: is listed on the LUST database as a closed case. Other database listings indicate that this site uses and stores hazardous materials.

The database contained a case closure letter dated December 10, 2004 from the SMCDEH and an associated case closure summary. The closure summary indicates that a gasoline release occurred on the property. The cause of the release is listed as “unknown.” To evaluate soil and ground water quality, four soil borings appear to have been drilled on the property; two of the borings were converted into ground water monitoring wells. Soil samples also appear to have been collected near each of four fuel dispensers. Analytical results indicate that TPHg, BTEX and MTBE remain in soil on the property at concentrations up to 1,500, 2.6, 78, 28, 150 and 54 ppm, respectively. TPHg, ethylbenzene, xylenes, and MTBE are indicated to remain in ground water at concentrations up to 690, 8.1, 1.8 and 27 ppb, respectively. A north-northwesterly ground water flow direction was reported. The highest measured ground water depth was reported to be approximately nine feet below ground surface.

2.12.2.2 Aerially-Deposited Lead (ADL)

Until 1996, lead was commonly added to gasoline.²⁰ As a result, lead was emitted as a component of motor vehicle exhaust. Soil sampling along many roadways has found that concentrations of lead exceed applicable thresholds for classification as a hazardous material. This phenomenon known as “aerially-deposited lead” is widespread. Because SR 1 was built prior to the phaseout of lead as a gasoline additive, elevated concentrations of lead are likely to be present in the soil along the highway.

2.12.2.3 Naturally Occurring Asbestos

Asbestos²¹ occurs naturally in ultramafic rock, such as serpentinite. When this material is disturbed in connection with construction or grading, asbestos-containing dust can be generated. Exposure to airborne asbestos fibers can result in health ailments, including respiratory disease and lung cancer.

Based on a review of the geologic maps, there are extensive outcrops of Franciscan Melange (also called “sheared rock” or “fsr”) near the south end of the SR 1 project segment. The sheared rock unit can contain blocks of serpentinite. Additionally, there is a man-made embankment placed in the early 1960s within the project alignment along the west side of SR 1, north and south of the Reina Del Mar Avenue intersection. The source of the embankment materials is reportedly from construction of the SR 1 highway to the north. Since details regarding the source and quality of the fill material are not known, there is a potential that the materials could contain contaminants and/or asbestos.

2.12.2.4 Asbestos Containing Building Materials

The buildings located on parcels at 4408 and 4430 Highway 1 are within the project right-of-way and, due to the age of the structures, asbestos-containing materials may be present. This material can be harmful, if it becomes airborne through demolition activities.

2.12.2.5 Ground Water Monitoring Wells

Several ground water monitoring wells were observed on the 4460 Highway 1 parcel. A monitoring well also was observed within Caltrans right-of-way to the northwest of the Alliance gasoline service station located at 2095 Highway 1.

²⁰ Lead is a heavy metal that is found in many products. Lead is poisonous to humans. It is especially toxic to the nervous system, although it can adversely affect many systems and organs. Lead has been removed from certain products, such as paint and gasoline, in order to reduce the potential for chronic exposure.

²¹ Asbestos is a mineral that occurs naturally and is found in many products because of its resistance to damage from chemicals and heat, as well as its noise absorption properties. However, asbestos is toxic, especially when inhaled. It can cause diseases such as lung cancer, mesothelioma, and asbestosis.

2.12.2.6 *Man-Made Embankment*

A man-made embankment was placed in the early 1960s along the west side of SR 1, extending to the north and south of the Reina Del Mar Avenue intersection. The embankment material was reportedly obtained from a highway construction project to the north. From at least 2001 until recently, a plant nursery was located on top of a portion of the fill material. Remnants of the nursery are currently present in this area.

2.12.3 Environmental Consequences

Based on the information described above in Section 2.12.2 *Affected Environment*, fuel leak incidents have been reported on and near the project SR 1 alignment that have resulted in residual petroleum hydrocarbon concentrations in soil and ground water. Fuel leak incidents reported at 4460 Cabrillo Highway (former Union Oil Station) within the project alignment and 2095 Coast Highway (currently active Alliance Station) located near the project have affected soil and/or ground water quality in areas where earthwork activities associated with the planned highway improvements are proposed. Materials likely used in soils at the Vallemar Station property could still be present in soils at this location.

In addition, soil with elevated concentrations of lead is likely to be present. An embankment consisting of unknown fill materials is present within the project limits, and naturally-occurring asbestos may be present in rock within the project alignment. Lastly, structures located within the project alignment presumably will be demolished that may include asbestos-containing materials. Construction of either of the proposed Build Alternatives, therefore, may result in hazardous materials effects because the presence of contamination could expose construction workers to those substances in concentrations that exceed regulatory thresholds.

2.12.4 Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures, which are included in the project, will reduce hazardous materials and waste impacts:

2.12.4.1 *Reported On-Site and Nearby Contamination Incidents*

MM-HAZ-1.1: *Site Management Plan.* Prior to initiation of the project, a soil and ground water management plan shall be developed to establish management practices for the appropriate management and disposal of affected soils and materials, if encountered. As a precautionary measure and to help limit potential construction delays, the site management plan shall also establish procedures for the management and handling of buried structures or affected materials that currently are unknown or unanticipated. A health and safety plan shall also be prepared to provide general guidance to the work hazards that may be encountered during construction activities in these areas.

MM-HAZ-1.2: *Soil Investigation.* Prior to project development, a soils investigation shall be completed in areas of probable or suspect contamination to determine if petroleum hydrocarbons have affected soils that will be excavated as part of the proposed project. Samples shall be collected at depths up to the planned depth of excavation. The analytical results shall be compared against acceptable regulatory standards and applicable hazardous waste criteria. Based on analytical results, the investigation will provide recommendations regarding management and disposal of affected soil in the project area.

MM-HAZ-1.3: *Ground Water Investigation.* Prior to project development, a ground water investigation shall be completed in areas of probable or suspect contamination to determine if petroleum hydrocarbons have affected ground water that will be encountered as part of the proposed project excavation. Samples shall be collected at depths up to the planned depth of excavation. The analytical results shall be compared against applicable hazardous waste criteria. Based on analytical results, the investigation will provide recommendations regarding management and disposal of affected ground water. In addition, ground water depths will be determined in areas that may be proposed to receive lead-affected soils. Under the DTSC variance for lead-affected soil, soil affected with ADL can be reused as construction fill provided that it is placed at least five feet above maximum ground water level. If dewatering is anticipated by the proposed project, the investigation report will provide recommendations regarding proper treatment, if necessary, and disposal or reuse of affected ground water.

2.12.4.2 *Aerially-Deposited Lead (ADL)*

MM-HAZ-1.4: Prior to project development, a soil investigation shall be completed to determine whether ADL has affected soils that will be excavated as part of the proposed project. The investigation for ADL shall be performed in accordance with the Department's *Lead Testing Guidance Procedure* (dated March 16, 2001). The analytical results will be compared against applicable hazardous waste criteria. Based on analytical results, the investigation will provide recommendations regarding management and disposal of affected soils in the project area including the reuse potential of ADL-affected soil during project development. The provisions of a variance granted to the Department by the California Department of Toxic Substances Control (DTSC) on September 22, 2000 (or any subsequent variance in effect when the project is constructed) regarding aerially-deposited lead shall be followed.

2.12.4.3 *Naturally-Occurring Asbestos*

MM-HAZ-1.5: A Registered Geologist shall perform a site visit prior to project initiation to observe and map outcrops that may contain serpentinite or ultramafic rock along the southern project alignment. If serpentinite or ultramafic rocks (rock that may contain naturally occurring asbestos) are present, the Asbestos Airborne Toxic Control Measure and Bay Area Air Quality Management District (BAAQMD) guidance shall be followed.

MM-HAZ-1.6: Soil sampling for asbestos shall be completed along the southern end of the alignment, as well as the within the man-made embankment on the west side of SR 1, north and south of the Reina Del Mar Avenue intersection. If serpentinite or ultramafic rock is present and/or naturally occurring asbestos is detected or observed at the project site, the Asbestos Airborne Toxic Control Measure for grading projects that disturb one acre or less, requires specific actions to minimize dust emissions, such as vehicle speed limitations, application of water prior to and during ground disturbance, keeping storage piles wet or covered, and track out prevention and removal. If the project will disturb more than one acre, BAAQMD approval of an asbestos dust mitigation plan is required. The plan will specify how the operation will minimize emissions and will address emissions sources. Regardless of the size of disturbance, activities must not result in emissions that are visible.

2.12.4.4 *Asbestos-Containing Building Materials*

MM-HAZ-1.7: Asbestos-containing material surveys shall be completed following National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines at any structure proposed for demolition during project development that is known or suspected to have been constructed prior to 1990. NESHAP guidelines require the removal of potentially friable asbestos-containing materials prior to building demolition. Identified asbestos-containing materials will be abated and disposed of in accordance with applicable abatement, worker health and safety, and hazardous waste regulations.

2.12.4.5 *Ground Water Monitoring Wells*

MM-HAZ-1.8: A survey of existing monitoring wells in the project area shall be performed prior to project initiation. Wells that will be affected by the proposed project shall be properly abandoned and/or relocated; this work should be coordinated with the San Mateo County Department of Environmental Health.

2.12.4.6 *Man-Made Embankment*

MM-HAZ-1.8: Since details regarding the source and quality of the embankment fill material, which was placed to form the embankment along the western side of SR 1, north and south of the Reina Del Mar intersection, are not known, an evaluation of soil quality (including asbestos content) within the embankment shall be performed prior to initiation of the project. Soil sampling shall be completed within the man-made embankment on the west side of SR 1, north and south of the Reina Del Mar Avenue intersection. Testing of this fill shall include contaminants, such as pesticides and metals, in addition to asbestos.

2.13 AIR QUALITY

The information in this section is based primarily on an *Air Quality Report* that was prepared for the project in November 2009 and an addendum to the *Air Quality Report* prepared in June 2010. Copies of the *Air Quality Report* and the addendum are available for review at the locations listed inside the front cover of this document.

2.13.1 Regulatory Setting

The Federal Clean Air Act (FCAA) as amended in 1990 is the federal law that governs air quality. The California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and State ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller – PM₁₀ and particles of 2.5 micrometers and smaller – PM_{2.5}), lead (Pb), and sulfur dioxide (SO₂). In addition, State standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and State standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both State and Federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

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

FCAA Section 176(c) prohibits the U.S. Department of Transportation and other Federal agencies from funding, authorizing, or approving plans, programs or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of Clean Air Act requirements related to the NAAQS. “Transportation Conformity” takes place on two levels: the regional, or planning and programming, level, and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 CFR 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and in some areas sulfur dioxide (SO₂). California has attainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for lead (Pb). However, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years (for the RTP), and 4 years (for the FTIP). RTP and FTIP conformity is based on use of travel demand and air quality models to determine whether or not the implementation of those projects

would conform to emission budgets or other tests showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), and the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and the FTIP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter (PM₁₀ or PM_{2.5}). A region is “nonattainment” if one or more of the monitoring stations in the region measures violation of the relevant standard, and U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA, and are then called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a “hot spot” analysis. In general, projects must not cause the “hot spot”-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

On December 14, 2009, the Environmental Protection Agency (EPA) designated the nine-county San Francisco Bay Area as nonattainment for the national 24-hour PM_{2.5} standards established in 2006. Beginning December 14, 2010, sponsors of certain projects that involve significant amounts of diesel vehicle traffic are required to complete a PM_{2.5} hot-spot analysis for project-level conformity determinations made by the Federal Highway Administration (FHWA) or Federal Transit Administration (FTA). For projects subject to this requirement, a determination must be made about whether the project is a Project of Air Quality Concern (POAQC) as defined by 40 CFR 93.123(b)(1). The Metropolitan Transportation Commission (MTC) facilitates the interagency consultation for PM_{2.5} hot-spot analyses through the Air Quality Conformity Task Force. The agencies involved in the interagency consultation process for the Bay Area include the project sponsor, EPA, FHWA, FTA, Caltrans, MTC, and other local transportation and air quality agencies that participate in the Conformity Task Force.

2.13.2 Affected Environment

The project lies within the Bay Area Air Quality Management District (BAAQMD), which includes Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara and Napa counties, southwestern Solano County, and southern Sonoma County. The project is located on the base of the Santa Cruz Mountains in the Peninsula sub air basin. This location on the Pacific Ocean coastline results in cool weather year-round, with warm summer temperatures in the mid 60s, and winters are cold and wet. Wind direction is predominantly from the northwest with wind speeds often over 10 miles per hour.

Air quality in the project area is typically good, and the buildup of air pollution is not usually a concern. The project area is sparsely developed with low density and a few industrial sources of pollution. Pacifica is exposed to sufficient ocean winds that disperse cool air into the area preventing inversion layers from forming.

2.13.2.1 Air Quality Monitoring

The San Francisco Bay Area is considered to be one of the cleanest metropolitan areas in the country with respect to air quality. However, the Bay Area as a whole does not meet state or federal ambient air quality standards for ground level ozone and state standards for PM₁₀ and PM_{2.5}. For all other pollutants, the area complies with federal and state air quality standards.

The BAAQMD operates a network of air quality monitoring stations that measure the concentration of ozone, CO, PM₁₀ and NO_x air pollutants. The nearest monitoring station to the project area is in Redwood City, approximately 20 miles to the southeast. Air quality in Pacifica is typically cleaner than in Redwood City due to the coastal location and lack of nearby or upland sources.

2.13.2.2 Mobile Source Air Toxics

Mobile source air toxics (MSATs) are emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as by-products. Metal air toxics result from engine wear or from impurities in oil or gasoline.

The U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) have identified seven priority MSATs. CARB has found that diesel PM contributes over 70 percent of the known risk from air toxics and poses the greatest cancer risks among all identified air toxics. Diesel trucks contribute more than half of the total diesel combustion sources. The CARB has adopted a Diesel Risk Reduction Plan with control measures that would reduce the overall diesel PM emissions by about 85 percent from 2000 to 2020.

2.13.3 Environmental Consequences

The short-term (i.e., construction phase) air quality effects of the proposed project are described in Section 2.22 *Construction Impacts*. The project's long-term (i.e., operational phase) effects are described below.

2.13.3.1 Clean Air Act Conformity

Section 176(c) of the Clean Air Act Amendments (CAAA) require that regionally significant, federally funded or approved transportation plans, programs, and projects conform to the State Implementation Plan, which contains the controls necessary for the state to meet the National Ambient Air Quality Standards. The EPA promulgated 40 CFR Parts 50 and 93 to implement Section 176 (c) of the CAAA. The Metropolitan Transportation Commission (MTC) RTP is a federally approved transportation plan that conforms to the State Implementation Plan.

The project study area is located in an air basin classified by the U.S. EPA as “marginally non-attainment” under the eight-hour NAAQS for ground-level ozone. The area is classified by U.S. EPA as “attainment/maintenance” under the NAAQS for CO. The proposed project is included in MTC’s 2035 RTP (Appendix 1, Reference number 98024) which was approved in April 2009. The project is also included in the 2011 Transportation Improvement Program (TIP) (TIP ID: SM-050001). The 2011 TIP was found to conform by FHWA and the Federal Transit Administration (FTA) in December 2010. The design concept and scope of the project is consistent with the project description in the RTP and TIP and the assumptions in MTC’s regional emissions analysis.

Based on the interagency consultation with the Air Quality Conformity Task force in April 2011, this project does not fit the definition of a project of air quality concern as defined by 40 CFR 93.126(b)(1) or 40 CFR 93.128, and therefore is not subject to the PM_{2.5} project level conformity requirement.

The CARB has determined that the MTC RTP emission projections are consistent with the region’s emissions budget. The project design and scope for either Build Alternative evaluated in this analysis were included in the RTP that was found to conform to the SIP. Hot-spot modeling of CO concentrations from project traffic indicate that CO concentrations attributable to the proposed project would not increase the number or severity of exceedances of the National Ambient Air Quality Standards. Under 40 CFR Part 93, the proposed project is found to be in conformance with the State Implementation Plan.

2.13.3.2 *Traffic-Related Carbon Monoxide (CO) Impacts*

Project impacts from local traffic were evaluated by modeling roadside carbon monoxide concentrations. The modeling was completed for intersections on SR 1 where there would be a combination of the highest traffic volumes, greatest project traffic contribution, and the highest levels of congestion. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Of the two standards for carbon monoxide, the eight-hour standard is more stringent and therefore, was used for this analysis. The intersection of SR 1/Reina Del Mar Avenue has the highest volumes of traffic for both the existing and the future with project conditions; therefore this intersection was evaluated as a worst-case scenario. In addition, the intersection of SR 1/Fassler Avenue/Rockaway Beach Avenue was also modeled to accurately depict project impacts. The results of the modeling analysis are shown in Table 2.9.

The modeling assumptions are used to predict the worst-case carbon monoxide concentrations that could be associated with the project. Modeled concentrations were added to background levels to predict total carbon monoxide concentrations. Background CO levels were determined using BAAQMD monitoring data. The 2005 background CO levels in Pacifica were assumed to be equal to 2.5 ppm (eight-hour) and 5.0 ppm (one-hour). This assessment was completed for existing conditions in 2008 and future build conditions in 2015 and 2035.

TABLE 2.9 CARBON MONOXIDE MODELING RESULTS (Expressed in parts-per-million)		
	Reina del Mar Avenue and SR 1	Fassler Avenue and SR 1
1-Hour Concentration (Standard = 20 parts-per-million)		
2005 - Existing	8.8	8.0
2015 - Project	6.6	6.7
2035 - Project	5.7	5.8
8-Hour Concentration (Standard = 9 parts-per-million)		
2005 - Existing	5.8	5.5
2015 - Project	4.1	4.2
2035 - Project	3.2	3.3

The results indicate that current carbon monoxide concentrations are below ambient air quality standards and that future levels with the project at year 2015 and year 2035 would remain below the standards. The predicted decrease in future levels is due to vehicle fleet turnover, with newer (less polluting) vehicles replacing older vehicles. Since carbon monoxide levels associated with the project would not exceed ambient air quality standards, the impact would not be substantial. It should be noted that improving the operations of this portion of SR 1 would reduce congestion and vehicle idling, which would slightly reduce air emissions from vehicles traveling through the site.

2.13.3.3 Mobile Source Air Toxics Impacts

The purpose of this project is to improve traffic operations by constructing one additional travel lane in each direction and adding left turn lanes. The two Build Alternatives would not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing highway facility, or any other factor that would cause an increase in emissions impacts relative to the No-Build Alternative. As such, FHWA has determined that this project would generate minimal air quality impacts for Clean Air Act criteria pollutants and would not be linked with any special Mobile Source Air Toxics (MSAT) concerns. Consequently, this project is exempt from analysis for MSATs.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next 20 years. Even after accounting for a 64 percent increase in VMT, FHWA predicts MSATs will decline in the range of 57 percent to 87 percent from 2000 to 2020, based on regulations now in effect. This will both reduce the background level of MSATs as well as the possibility of even minor MSAT emissions from this project.

2.13.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed.

2.13.5 Climate Change

Climate change is analyzed in Chapter 3. Neither U.S. EPA nor FHWA has promulgated explicit guidance or methodology to conduct project-level greenhouse gas analysis. As stated on FHWA's climate change website (<http://www.fhwa.dot.gov/hep/climate/index.htm>), climate change considerations should be integrated throughout the transportation decision-making process – from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

Because there have been more requirements set forth in California legislation and executive orders regarding climate change, the issue is addressed in the CEQA chapter of this environmental document and may be used to inform the NEPA decision. The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and reduction in the growth of vehicle hours travelled.

2.14 NOISE

The information in this section is based primarily on a technical *Noise Study Report* that was prepared for the project in October 2009 and an addendum to that study in June 2010. The *Noise Study Report* and addendum are incorporated into this EIR/EA by reference and are available for review at the locations listed inside the front cover of this document.

2.14.1 Introduction and Regulatory Setting

2.14.1.1 *Introduction*

Noise is measured in “decibels” (dB), which is a numerical expression of sound levels on a logarithmic scale. A noise level that is ten dB higher than another noise level has ten times as much sound energy and is perceived as being twice as loud. A sound change of less than three dB is just barely perceptible only in the absence of other sounds. Intense sounds of 140 dB are so loud that they are painful and can cause damage with only brief exposure. These extremes are not commonplace in our normal working and living environments. An “A-weighted decibel” (dBA) approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. Thus, traffic noise impact analyses commonly use the dBA.

With regard to traffic-generated noise, noise levels rise as vehicle speeds, overall volumes, and truck volumes increase. In general, a doubling of traffic results in a three dBA increase in noise at a nearby receptor, assuming a relatively homogeneous traffic composition (i.e., mainly passenger cars). The peak noise hour is typically not the peak commute hour due to lower operating speeds during the latter. The combination of volumes and speeds that produces the peak noise hour is that which is associated with level of service C/D.

2.14.1.2 *Regulatory Setting*

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA-23 CFR 772 noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise

impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.10 lists the NAC for use in the NEPA-23 CFR 772 analysis.

TABLE 2.10 NOISE ABATEMENT CRITERIA OF THE FEDERAL HIGHWAY ADMINISTRATION (Expressed in dBA)		
Activity Category	NAC, Hourly A- Weighted Noise Level, dBA Leq(h)¹	Description of Activities
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.
¹ Leq(h) is a measurement of the average energy level intensity of noise during the peak hour noise period. "Leq" stands for the Noise Equivalent Level.		

Table 2.11 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise-levels discussed in this section with common activities.

In accordance with the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects* (August 2006), a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within one (1) dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

**TABLE 2.11
 NOISE LEVELS ASSOCIATED WITH COMMON ACTIVITIES**

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

The Department's *Traffic Noise Analysis Protocol (TNAP)* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum five dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies input, newly constructed development versus development pre-dating 1978 and the cost-per-benefited-residence.

2.14.2 Affected Environment

The existing noise environment throughout the project corridor varies by location, depending on specific site characteristics such as proximity to SR 1 and other local noise sources (e.g., frontage roads); the relative elevations of the highway, terrain, and receivers; and the presence of intervening structures. Existing noise levels were quantified by four short-term and two long-term noise measurements at locations throughout the study area that were representative of Category B receivers along the project alignment (see Figure 2.4). These locations were chosen to represent noise levels at Category B outdoor activity areas that would potentially benefit from a lower noise level.

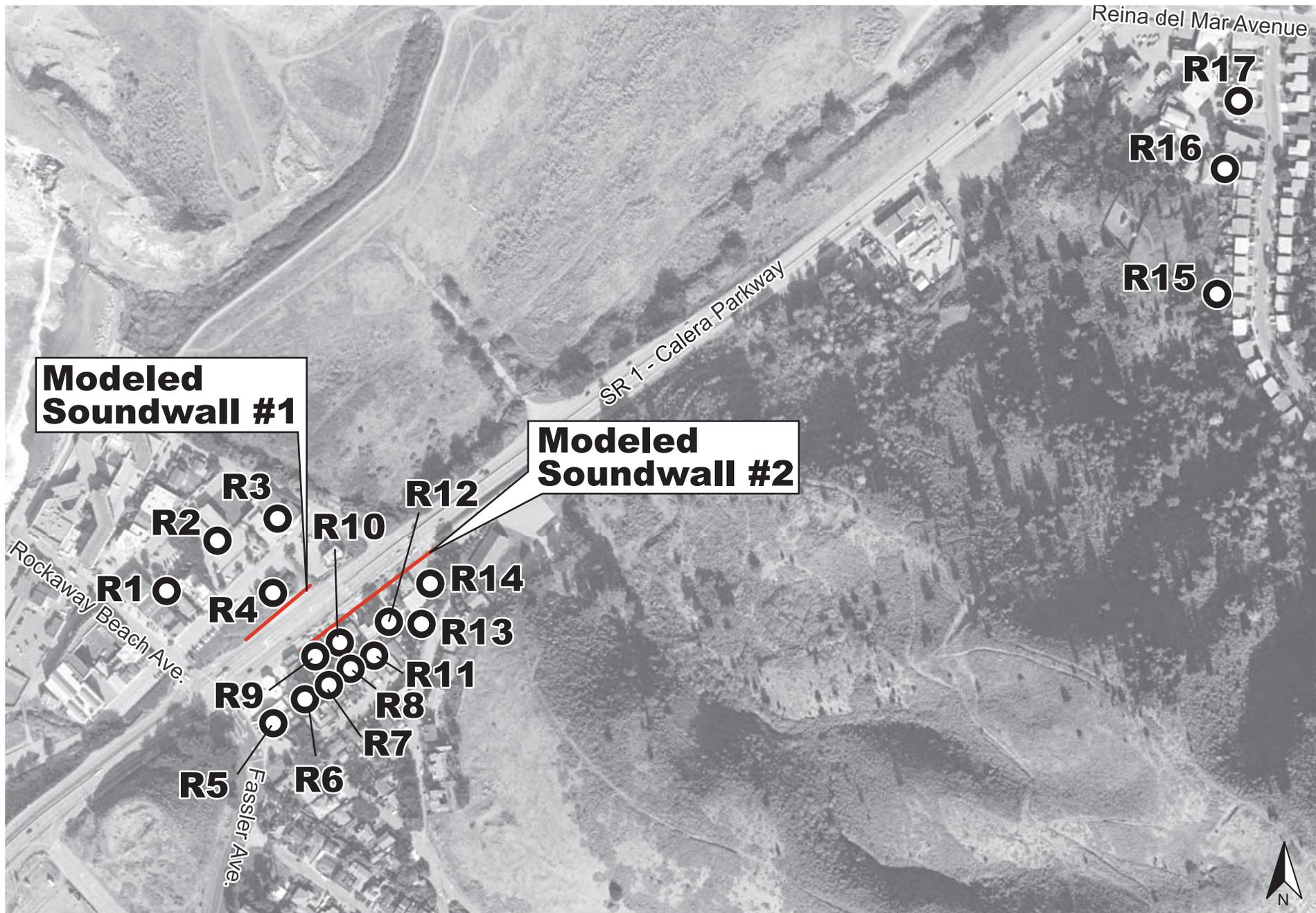
Existing loudest-hour noise levels ranged from about 60 dBA Leq(h) at well-shielded Category B land uses to approximately 77 dBA Leq(h) at unshielded outdoor activity areas nearest SR 1, as shown on Table 2.12 and Table 2.13. Currently, there are no existing noise barriers near SR 1 within the project limits.

TABLE 2.12 SUMMARY OF LONG-TERM NOISE MEASUREMENT RESULTS				
Receiver ID	Location	Date	Time	Loudest Hour (Leq dBA)
LT-1	Southeast Corner of Reina Del Mar Avenue and State Route 1	1/9/09	11:30 PM	76
LT-2	West Side of State Route 1 north of Rockaway Beach Avenue	1/9/09	11:30 PM	77

Source: Highway 1/Calera Parkway Project Noise Study Report, October 2009

TABLE 2.13 SUMMARY OF SHORT-TERM NOISE MEASUREMENT RESULTS					
Receiver ID	Location	Date	Time	10-min Leq (dBA)	Loudest Hour (Leq dBA)
ST-1	In front of Holiday Inn at Rockaway Beach Avenue	1/12/09	12:30	62.5	65
			12:40	62.9	
ST-2	In front of 451 Harvey Way	1/12/09	12:10	71.3	72
			12:20	70.4	
ST-3	Near 446 Old Country Road	1/12/09	12:10	61.8	63
			12:20	60.8	
ST-4	Near backyard of residences on Franz Court	1/12/09	1:00	58.0	60
			1:10	58.5	

Source: Highway 1/Calera Parkway Project Noise Study Report, October 2009



NOISE RECEPTOR AND POTENTIAL BARRIER LOCATIONS

FIGURE 2.4

2.14.3 Environmental Consequences

The short-term (i.e., construction phase) noise effects of the proposed project are described in Section 2.21 *Construction Impacts*. The project’s long-term (i.e., operational phase) effects are described below.

Future traffic-related noise levels at land uses adjacent to SR 1 within the project area were quantified in accordance with FHWA and the Department’s procedures (Table 2.14). Projected noise levels were then compared to FHWA’s noise abatement criteria shown in Table 2.14 to determine whether the consideration of noise abatement measures was warranted. Projected noise levels were also compared with existing noise levels to determine whether the increase (if any) would be substantial.

Depending upon the location, future peak-hour noise levels under “with project” conditions would remain unchanged from existing levels under either Build Alternative, or would increase by one to two decibels, as shown in Table 2.14. This projected increase in noise levels would not be substantial because the increase would be less than the 12 dB threshold described above.

Projected noise levels would, however, approach or exceed FHWA’s noise abatement criteria at four locations, two of which also approach or exceed the criteria under existing conditions.

Receptor¹	Land Use²	Existing/ No Project Noise Level	Future With Project Noise Level	Change in Noise due to Project	Existing Barrier Shielding?	Noise Level Approach or Exceed NAC?³
1	SFR	62	65	+3	No	No
2	MFR	61	63	+2	No	No
3	MFR	60	62	+2	No	No
4	SFR	66	68	+2	No	Yes
5	SFR	63	64	+1	No	No
6	SFR	63	65	+2	No	No
7	SFR	63	65	+2	No	No
8	SFR	63	65	+2	No	No
9	SFR	68	69	+1	No	Yes
10	SFR	65	67	+2	No	Yes
11	SFR	64	65	+1	No	No
12	SFR	63	65	+2	No	No

13	SFR	63	64	+1	No	No
14	SFR	64	66	+2	No	Yes
15	SFR	57	59	+2	No	No
16	SFR	59	61	+2	No	No
17	MFR	58	60	+2	No	No
Notes: ¹ Receptors are shown on Figure 2.4. ² SFR = single-family residential, MFR = multi-family residential. ³ NAC: noise abatement criteria of FHWA (67 dBA Leq(h)) Bold indicates existing or future noise levels approaching or exceeding FHWA noise criteria.						

2.14.4 Avoidance, Minimization, and/or Mitigation Measures

Although the project would not result in a substantial increase in traffic-related noise, projected noise levels would, however, approach or exceed FHWA’s noise abatement criteria at four locations. Two of these locations will approach or exceed FHWA’s noise abatement criteria under existing conditions. As a result, the feasibility and reasonableness allowances of noise abatement sound walls were considered, as shown in Table 2.15. The possible locations of these soundwalls are also shown on Figure 2.4.

The feasibility of soundwalls was determined by the five dBA minimum reduction in noise level, as well as overall constructability. The reasonableness allowances for the soundwalls were determined using criteria contained in the TNAP, as described above.

The final decision to include soundwalls in the proposed project design must consider reasonableness factors, such as cost-effectiveness, as well as other feasibility considerations, including topography, access requirements, other noise surfaces, safety, and information received during the public review process. Based on the studies completed to date, the Department does not intend to incorporate noise abatement in the form of (a) barrier(s) [or berm(s)] along the project alignment. It is recommended that sound wall #1 not be constructed since the estimated construction costs would exceed the total reasonable allowance for every sound wall height configuration, and because this sound wall would benefit only one receiver. Assuming utility relocation costs for sound wall #2 would be approximately \$200,000, it is recommended that sound wall #2 not be constructed since the total estimated construction costs would exceed the total reasonable allowance for every sound wall height configuration.²²

If during final design conditions have substantially changed, noise abatement may be necessary. The final decision of the noise abatement will be made upon completion of the project design and the public involvement processes.

²² Mark Thomas & Company, written communications. July 2011.

**TABLE 2.15
 EVALUATION OF NOISE ABATEMENT WALLS**

Soundwall Number and Location	Approx. Soundwall Location	Soundwall Height	Insertion Loss (dBA)	Land Uses Benefiting from 5 dBA Reduction	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance ?
#1: Westbound side of SR 1, North of Rockaway Avenue	Southbound State Route 1: 31+50 to 33+50	6	6 dBA	One single-family residence	\$50,000	72,000	No
		8	6 dBA			82,000	No
		10	7 dBA			92,000	No
		12	7 dBA			100,000	No
		14	9 dBA			111,000	No
#2: Eastbound side of SR 1, North of Rockaway Beach Avenue	Northbound State Route 1: 32+00 to 36+50	6	5 dBA	7 SF residences	\$294,000	\$235,000	Yes
		8	5-6 dBA	9 SF residences	\$396,000	\$261,000	Yes
		10	5-6 dBA	9 SF residences	\$400,000	\$290,000	Yes
		12	5-7 dBA	11 SF residences	\$496,000	\$318,000	Yes
		14	5-7 dBA	11 SF residences	\$498,000	\$348,000	Yes

BIOLOGICAL ENVIRONMENT

The information in this section is based primarily on a technical *Natural Environment Study* (NES) that was completed for the project in December 2009 and an Addendum to the NES that was completed in December 2010. The *Natural Environment Study* includes a Preliminary Delineation of Wetlands, Other Waters, and Coastal Zone Wetlands and a Draft Biological Assessment. Copies of these studies are available for review at the locations listed inside the front cover of this document.

2.15 NATURAL COMMUNITIES

2.15.1 Introduction

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors (including fish passage) and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in Section 2.19 *Threatened and Endangered Species*. Wetlands and other waters and coastal zone wetlands are also discussed below in Section 2.16 *Wetlands and Other Waters*.

2.15.2 Affected Environment

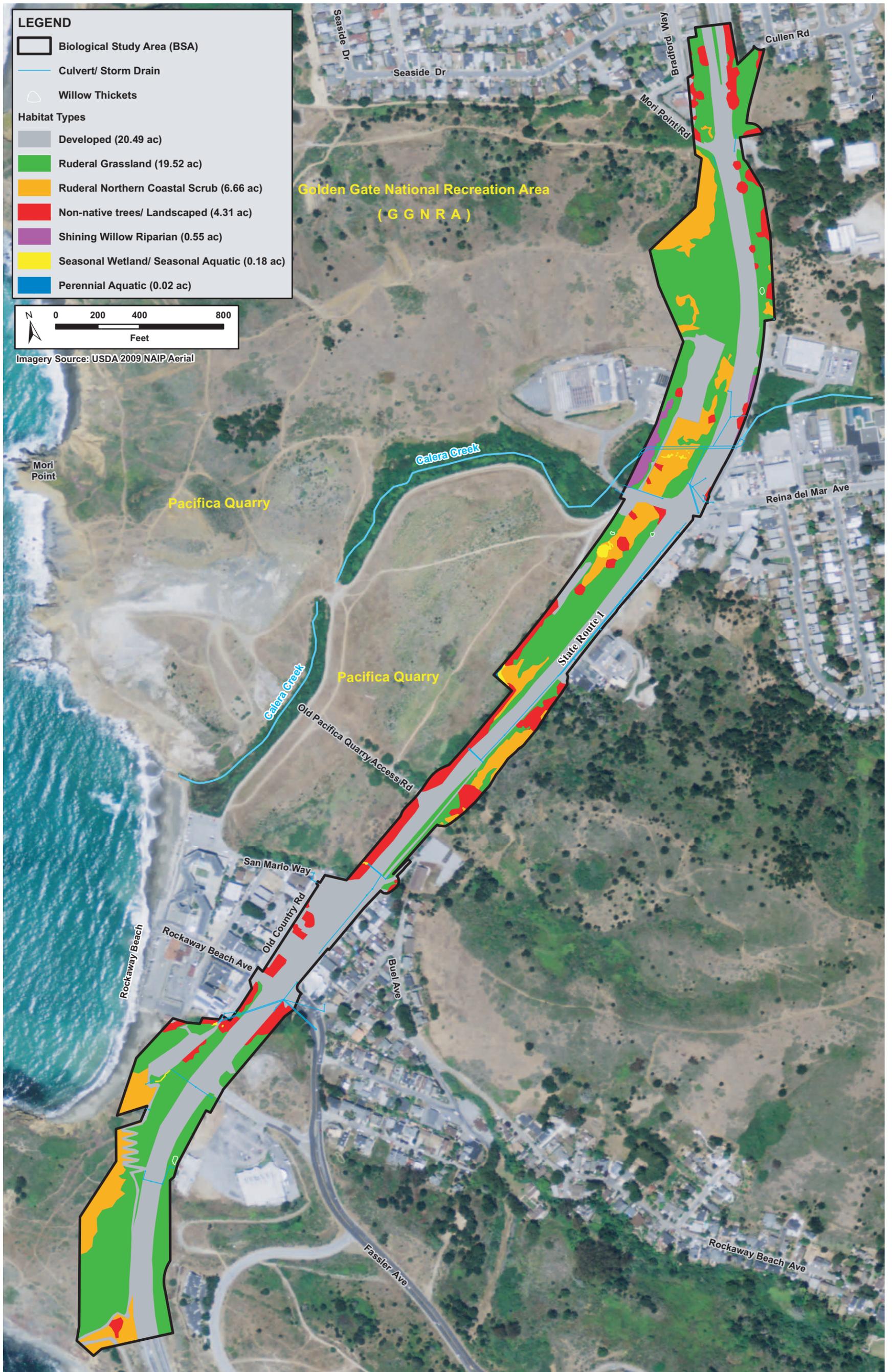
2.15.2.1 *Natural Communities*

The following sensitive habitats are listed by the California Natural Diversity Rarefind Database as occurring in the project region:²³ valley needlegrass grassland and northern maritime chaparral. Based on field surveys conducted as a part of the *Natural Environment Study*, neither of these habitats occurs on the project site.

Several sensitive habitats were identified within the Biological Study Area (BSA) surveyed as a part of the *Natural Environment Study*. The BSA consists of the footprint of the project as well as all areas that may be affected directly or indirectly by the construction activity or action.²⁴ The BSA includes approximately 80 acres. Shining willow riparian forest and perennial aquatic habitat occur within and adjacent to Calera Creek. Isolated seasonal wetland/seasonal aquatic habitat types also occur within the BSA. These habitats are not present within areas that will be directly affected by either project Build Alternative (refer to Figures 2.5, 2.6 and 2.7).

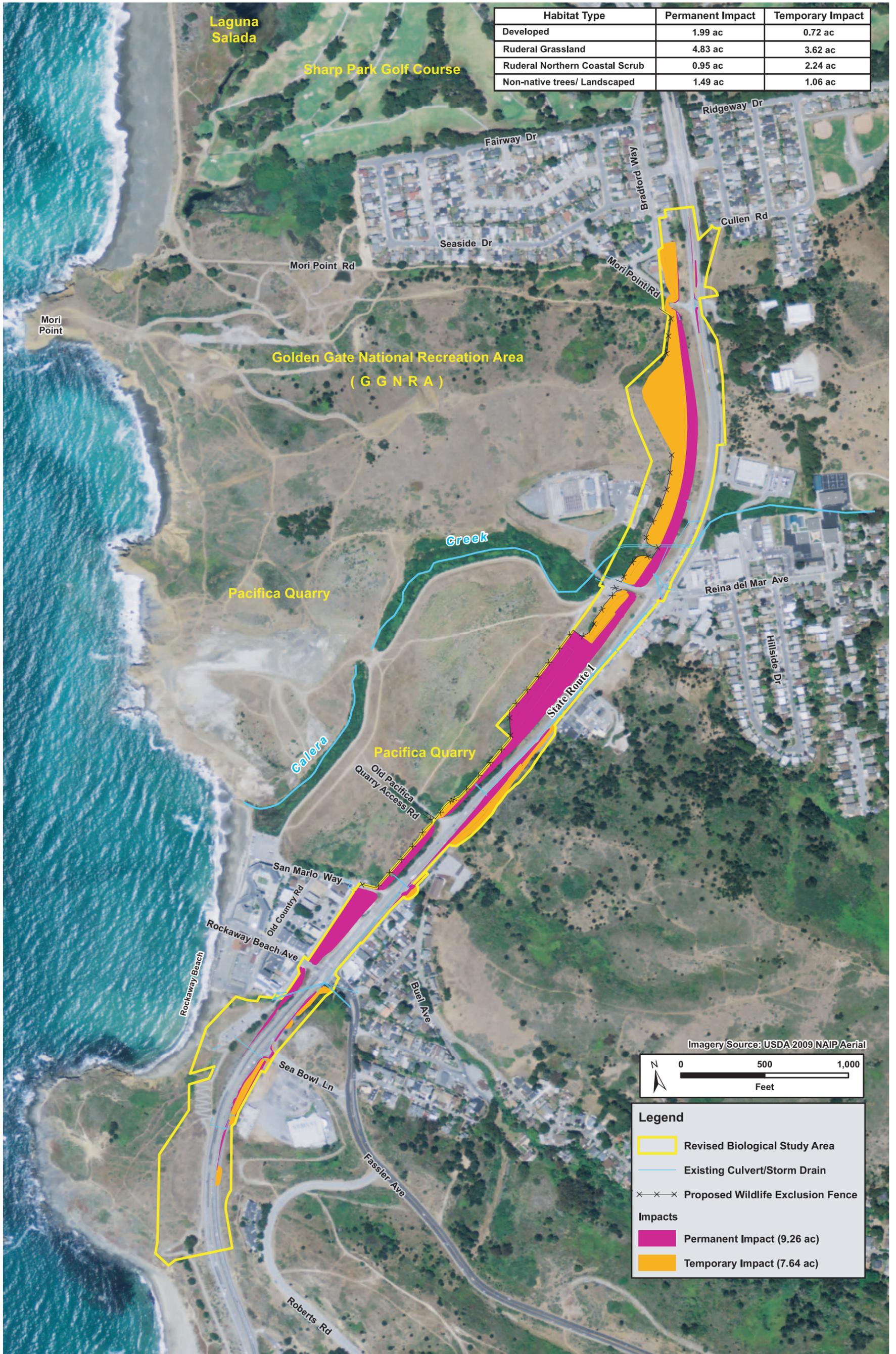
²³ The “project region” is the USGS quadrangle map where the project is located (in this case the Montara Mountain Quadrangle) and all eight of the surrounding quadrangle maps.

²⁴ The BSA encompasses the same area as the Area for Potential Effect (APE).



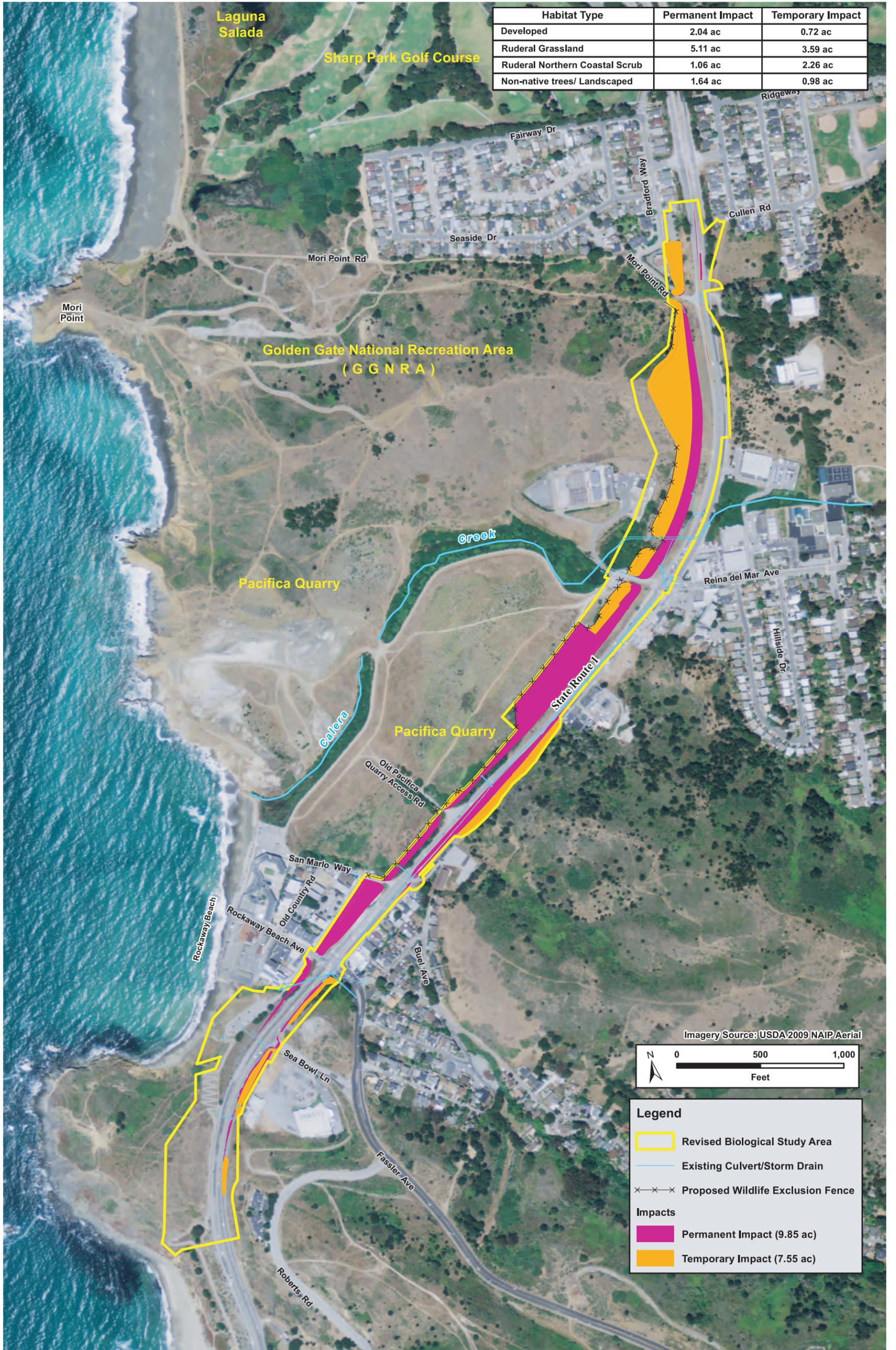
HABITAT MAP

FIGURE 2.5



NARROW MEDIAN ALT HABITAT IMPACTS MAP

FIGURE 2.6



LANDSCAPED MEDIAN HABITAT IMPACTS MAP

FIGURE 2.7

2.15.2.2 Wildlife Corridors

SR 1 currently impedes the dispersal of terrestrial animal species between coastal habitats and inland areas along the project alignment. A solid median barrier, with breaks at two intersections, creates a substantial obstacle for at-grade dispersal by animals. North of the BSA, connectivity at a golf course crossing under SR 1 is short and open enough so that animals can see the opposite side and there is a visual connection through the crossing. Cover is limited on either side, however, and the undercrossing is used regularly by golfers and other pedestrians.

Within the BSA, the existing Calera Creek culvert passes under both the highway and a large fill embankment northwest of Reina Del Mar Avenue. As a dispersal route for animals, the current culvert provides little connectivity for terrestrial animal species due to its length, slope, and shallow water (exposing aquatic animals to predation) and lack of cover.

2.15.2.3 Fish Passage

No fish species subject to fisheries management plans are present in Calera Creek, the only water body in the BSA. Calera Creek historically was ephemeral; however, flows from Pacifica's wastewater treatment plant into the lower reach of the creek have made flows in this area perennial. Steelhead, tidewater goby, and other species associated with coastal streams are not present in the creek within the BSA and a drop structure at the creek mouth may act as a barrier to migration.

2.15.3 Environmental Consequences

2.15.3.1 Natural Communities

No natural communities of concern (i.e., shining willow riparian forest, aquatic, or seasonal wetlands) are located within areas of permanent or temporary project impacts. Either of the two Build Alternatives would avoid these habitats in the BSA by using retaining walls to constrain roadway fill. A cantilevered bridge would be constructed over a seasonal aquatic habitat west of SR 1 that is currently shaded by trees. Although the cantilevered roadway section of the culvert area would create some shading, this would not be a substantial change because the aquatic habitat is shaded and no vegetation is growing in this area under existing conditions. Therefore, the project will not result in direct impacts to natural communities of concern.

As described in Section 2.10.3 *Water Quality and Stormwater Runoff, Environmental Consequences*, in compliance with Caltrans' NPDES permit, the project includes feasible BMPs to treat stormwater runoff and control pollutants in runoff during the construction and post-construction periods. These measures will avoid indirect impacts to shining willow riparian forest, aquatic, and seasonal wetland habitats in the vicinity of the project.

2.15.4 Avoidance, Minimization, and/or Mitigation Measures

The measures listed below and in Section 2.10 *Water Quality and Storm Water Runoff*, which are included in the project, will avoid impacts to sensitive shining willow riparian forest, perennial aquatic habitat, and seasonal wetland/seasonal aquatic habitats.

- AM HAB-1:** All temporary staging areas and construction access roads will be located in upland areas or existing developed areas out of wetland, aquatic and riparian habitats.
- AM HAB-2:** No equipment will be operated in the live stream channel of Calera Creek. Other hydrological features (i.e., topographic depressions, drainage ditches, culverts, etc.) outside of the project footprint will not be manipulated (i.e., re-routed, dredged, filled, graded, etc.).
- AM HAB-3:** The boundaries of the project will be clearly delineated prior to the start of construction with orange-colored plastic construction fencing (ESA) to prevent workers or equipment from inadvertently straying from the designated construction area. All construction personnel, equipment, and vehicle movement shall be confined within the designated construction, access, and staging areas. The ESA fencing will remain in place throughout the duration of the Project, while construction activities are ongoing and will be regularly inspected and fully maintained at all times. The final Project plans will depict all locations where ESA fencing will be installed and how it will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs.

2.16 WETLANDS AND OTHER WATERS

2.16.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The Clean Water Act regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the Clean Water Act, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the Clean Water Act establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the Environmental Protection Agency (EPA).

USACE issues two types of 404 permits: Standard and General permits. Nationwide permits, a type of General permit, are issued to authorize a variety of minor project activities with no more than minimal effects. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 CFR Part 230), and whether permit approval is in the public interest. The 404 (b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (E.O. 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this executive order states that a federal agency, such as the Federal Highway Administration and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: 1) that there is no practicable alternative to the construction, and 2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the Department of Fish and Game (CDFG) and the Regional Water Quality Control Boards (RWQCBs). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFG before beginning construction. If CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional

limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCB also issues water quality certifications in compliance with Section 401 of the Clean Water Act. Please see Section 2.10 *Water Quality* for additional details.

2.16.2 Affected Environment

Wetlands at the project site were mapped according to the methodologies of both U.S. Army Corps of Engineers (USACE) and the California Coastal Commission (CCC). Approximately 0.87 acres of wetlands and other waters meeting the regulatory definitions of either the USACE (Section 404 Wetlands and Waters) or CCC (Coastal Zone Wetlands) occur within the project site.²⁵ These areas include riparian/wetland habitat associated with the Calera Creek corridor, seasonal wetland/seasonal aquatic habitat associated with a drainage ditch that parallels southbound SR 1, three seasonal drainage ditches/seeps, and small patches of seasonal wetlands located within ruderal grasslands on fill materials (refer to Figure 2.5).

The Calera Creek corridor within the BSA supports a mosaic of riparian and freshwater emergent wetland vegetation. Seasonal wetland/seasonal aquatic habitat types occur in a ditch that parallels SR 1 outside of the BSA for either Build Alternative for the most part, and in small patches within ruderal grassland habitat located on fill materials. The small patches of wetlands elevated above Calera Creek on the SR 1 roadway embankment are supported by direct precipitation events and not Calera Creek hydrology.

Within the BSA, the small fringe of riparian habitat associated with Calera Creek is of high quality. Seasonal wetland/seasonal aquatic habitat in the BSA that supports a mixture of non-native and native plant species is of lower quality.

Four thickets of shining willow trees were observed growing outside of seasonal wetland areas, seasonal aquatic areas, or the Calera Creek riparian corridor during wetlands surveys. These trees were not mapped as wetlands as they appear to have been either planted and/or dependent on soil moisture far below the soil surface.

2.16.3 Environmental Consequences

No work or staging of equipment or materials is proposed within areas supporting wetlands or other waters as defined by USACE or coastal wetlands as defined by the CCC. The project Build Alternatives specifically avoid wetland and high quality riparian habitat areas by using retaining walls to constrain roadway fill so that construction will occur outside of wetland and high quality riparian habitat areas. Therefore, wetlands and high quality riparian habitat areas will not be directly affected by the project.

²⁵ The project boundary within which all wetland studies were conducted paralleled SR 1 extending east and west only in the Caltrans easement areas. The studies did not include land privately held on either side of SR 1, as there are no improvements planned for these adjacent parcels as part of the proposed project. At the request of the California Coastal Commission staff, the studies included wetland mapping on lands located west of SR 1; this information was obtained from a wetland study conducted by L.C. Lee & Associates in 2002.

Indirect impacts on water quality in wetlands, riparian habitat areas, and other waters on-site or off-site are possible during and after construction of the project. However, in compliance with Caltrans' NPDES permit, the project includes feasible BMPs to treat stormwater runoff and control pollutants in runoff during and after construction (refer to Section 2.10.3 *Water Quality and Stormwater Runoff, Environmental Consequences* of this report).

A cantilevered bridge will be constructed under either Build Alternative over an existing culvert outfall where the widening of SR 1 approximately 700 feet north of Fassler Avenue will expand over wetland habitat. Although the cantilevered roadway section of the culvert area would create some shading, this would not be a substantial change because this wetland area is currently shaded and no vegetation is growing in this area under existing conditions. Therefore, the proposed cantilevered bridge would not indirectly affect wetlands.

2.16.4 Avoidance, Minimization, and/or Mitigation Measures

As described in Section 2.10.3 *Water Quality and Stormwater Runoff, Environmental Consequences*, in compliance with Caltrans' NPDES permit, the project includes feasible BMPs to treat stormwater runoff and control pollutants in runoff during the construction and post-construction periods. These measures will avoid indirect impacts to wetlands in the vicinity of the project.

No additional avoidance, minimization, or mitigation measures are proposed.

2.17 PLANT SPECIES

2.17.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) share regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special-status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see Section 2.19 *Threatened and Endangered Species* in this document for detailed information regarding these species.

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

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act (Fish and Game Code, Section 1900-1913) and the California Environmental Quality Act, Public Resources Code, Sections 2100-21177.

2.17.2 Affected Environment

An initial list of 62 special-status plants²⁶ were identified as occurring (extant or historical) within the general area defined by the Montara Mountain Quadrangle and surrounding quadrangle maps. Of the 62 species, 56 were dismissed due to a lack of habitat (such as serpentine, strongly alkaline, or clay soils, vernal pool habitat, and cismontane woodland habitat) or too low of an elevation for these species within the BSA of the two project Build Alternatives. The remaining six special-status species were further considered for occurrence either because their preferred habitat type was observed on or within the BSA or the database noted a historical occurrence of the species within the project vicinity (Table 2.16). These six species were determined to be absent after completion of reconnaissance and focused blooming period surveys of the site.

TABLE 2.16 POTENTIAL FOR SPECIAL-STATUS SPECIES (OTHER THAN THREATENED OR ENDANGERED SPECIES)* TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA				
Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
Plants				
Brewer's calandrinia	CNPS 4.2	Chaparral, coastal scrub/sandy or loamy, disturbed sites and burns.	HP/SA	Suitable habitat occurs in the BSA within the disturbed scrub habitat; species not detected during surveys; determined to be absent.
Bristly sedge	CNPS 2.1	Coastal prairie, marshes and swamps (lake margins), and valley and foothill grassland.	HP/SA	Suitable habitat in seasonal wetlands within ruderal grassland habitat degraded by non-native species; species not observed during field surveys; determined to be absent.
Coast lily	CNPS 1B.1	Broadleafed upland forest, closed-cone coniferous forest, coastal prairie, coastal scrub, marshes and swamps (freshwater), and north coast coniferous forest/sometimes roadsides.	HP/SA	Suitable habitat within coastal scrub habitat is degraded by non-native species; species not observed during field surveys; determined to be absent.

²⁶ This includes 10 Federal or State threatened species that are also on California Native Plant Society lists.

**TABLE 2.16
 POTENTIAL FOR SPECIAL-STATUS SPECIES
 (OTHER THAN THREATENED OR ENDANGERED SPECIES)*
 TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA**

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
Diablo helianthella	CNPS 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland.	HP/SA	Suitable habitat exists within Calera Creek and in degraded scrub habitat within the ruderal northern coastal scrub habitat within the BSA; species was not detected during surveys; determined to be absent.
Harlequin lotus	CNPS 4.2	Broadleafed upland forest, coastal bluff scrub, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland/wetlands, and roadsides.	HP/SA	Suitable habitat within seasonal wetlands and ruderal grassland habitat within the BSA, (species tolerates disturbance and is found on roadsides); species not detected during surveys; determined to be absent.
Marin checker lily	CNPS 1B.1	Coastal bluff scrub, coastal prairie, and coastal scrub.	HP/SA	Marginally suitable habitat exists within ruderal Northern Coastal scrub habitat within the BSA; species not detected during surveys; determined to be absent.
Animals				
Western pond turtle	SSC	Permanent, or nearly permanent, water in a variety of habitats.	HP	Low quality nesting habitat within the BSA; cannot discount potential nesting in BSA, however, probability is very low. Potential visitor to the BSA.

**TABLE 2.16
 POTENTIAL FOR SPECIAL-STATUS SPECIES
 (OTHER THAN THREATENED OR ENDANGERED SPECIES)*
 TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA**

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
Northern harrier	SSC (nesting)	Extensive grasslands and marshes.	HP	May occur as an occasional forager. Only considered "special-status" when nesting; no suitable breeding habitat in the BSA due to the limited extent of open grasslands and wetlands; determined to be absent as a breeder.
Long-eared owl	SSC (nesting)	Riparian bottomlands with tall, dense willow and/or cottonwoods; also dense live oak and California Bay along upland streams. Forages primarily in open areas.	HP	Only considered "special-status" when nesting. May use riparian habitat during migration but unlikely to nest there; determined to be absent as a breeder.
Vaux's swift	SSC (nesting)	Nests in snags in coastal coniferous forests or, occasionally in chimneys; forages aerially.	HP	May forage on the site although unlikely due to disturbance, no wooded breeding habitat in BSA; determined to be absent as a breeder.
Olive-sided flycatcher	SSC (nesting)	Wooded areas usually near openings, burns, ponds, and bogs.	HP	May forage on the site although unlikely due to disturbance, no wooded breeding habitat in BSA; determined to be absent as a breeder.
Loggerhead shrike	SSC (nesting)	Nests in bushes or trees surrounded by open grassland or ruderal habitats.	HP	Suitable foraging and breeding habitat occurs in the BSA; potentially present.

**TABLE 2.16
 POTENTIAL FOR SPECIAL-STATUS SPECIES
 (OTHER THAN THREATENED OR ENDANGERED SPECIES)*
 TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA**

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
Yellow warbler	SSC (nesting)	Breeds in riparian woodlands, particularly those dominated by willows and cottonwoods.	HP	Only considered "special-status" when nesting; very scarce as a breeder on the San Mateo County coast; also unlikely to nest along riparian margin in the BSA. Occurs in the BSA as a common migrant; and may be present as a breeder.
San Francisco common yellowthroat	SSC	Breeds primarily in fresh and brackish marshes in tall grass, tules, willows, also occasionally in coastal scrub and riparian habitats.	HP	Potentially suitable breeding habitat present in riparian and adjacent habitat in BSA. Likely present.
Yellow-breasted chat	SSC (nesting)	Dense riparian thickets.	HP	Although the willow riparian habitat is similar to breeding habitat where this species occurs, chats do not breed on the San Mateo County coast; very rare as migrant; determined to absent as a breeder.
Bryant's savannah sparrow	SSC	Low tidally influence habitat, adjacent ruderal areas, moist grasslands within and just above the fog belt and infrequently, drier grassland or ruderal habitat.	HP	Potentially suitable foraging habitat; may occur as uncommon visitor, but not expected to nest in BSA.
White-tailed kite	FP	Nests in trees surrounded by extensive open areas used for foraging.	HP	Suitable breeding and foraging habitat present within BSA; potentially present.

**TABLE 2.16
 POTENTIAL FOR SPECIAL-STATUS SPECIES
 (OTHER THAN THREATENED OR ENDANGERED SPECIES)*
 TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA**

Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
SSC = State Species of Special Concern		FP = Fully Protected		
SR = State Rare				
CNPS Lists (2010):				
CNPS 1B – Plants rare, threatened, or endangered in California and elsewhere				
CNPS 2 - Plants rare, threatened, or endangered in California but more common elsewhere				
CNPS 3 – Plants about which more information is needed – a review list				
CNPS 4 - Plants of a limited distribution – a watch list				
A = Absent, no habitat present				
HP/SA = Habitat Present/Species Absent				
HP = Habitat present, species may be present				
* Refer to Table 2.17 for Threatened and Endangered Species.				
Source: State Route 1/Calera Parkway Project, Natural Environment Study and addenda, January 2009-2011.				

2.17.3 Environmental Consequences

No special-status plant species are present within the impact area of the two project Build Alternatives. Therefore, the project would not affect any special-status plant species.

2.17.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or mitigation measures are proposed.

2.18 ANIMAL SPECIES

2.18.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the California Department of Fish and Game (CDFG) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under the state or federal Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.19 *Threatened and Endangered Species*. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

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

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the Fish and Game Code
- Section 2000 of the Fish and Game Code
- Sections 3503, 3511, 3513, and 3800 of the Fish and Game Code
- Section 4150 and 4152 of the Fish and Game Code
- Sections 4700 and 5050 of the Fish and Game Code

2.18.2 Affected Environment

An initial list of special-status animals were identified as potentially occurring within the general area defined by the Montara Mountain Quadrangle and surrounding quadrangle maps. The list of special-status animal species was evaluated for the potential for species to occur within the BSA, which consists of the footprint of the two project Build Alternatives as well as all areas that may be affected directly or indirectly by construction activity. Most of the regional special-status animal species were rejected for occurrence in the BSA because the project area lacks suitable habitat and/or is outside the range of the species. Species for which there is suitable habitat within the BSA are listed above in Table 2.16.

The western pond turtle is a special-status reptile that is expected to occur and may breed within the BSA. Four bird species, the loggerhead shrike, yellow warbler, San Francisco Common Yellowthroat, and white-tailed kite, may nest in or adjacent to the BSA. Several special-status bird species that occur in the region may occur in the BSA but only as uncommon to rare visitors, migrants, or transients, and are not expected to reside or breed on the site. These nine species are discussed further and grouped together as non-breeding special-status bird species.

2.18.2.1 Western Pond Turtle

Aquatic habitat where western pond turtles would reside is not present within the BSA. Aquatic habitat for western pond turtles is present west of the BSA at the Pacifica wastewater treatment ponds. Based upon surveys of suitable nesting habitat within 300 feet of the wastewater ponds, Western pond turtles could occur within the BSA as dispersing individuals, but are not expected to occur regularly or nest within the BSA.

2.18.2.2 Breeding Special-Status Bird Species (Limited Occurrence)

Four special-status bird species (loggerhead shrike, yellow warbler, San Francisco common yellowthroat, and white-tailed kite) could breed within the BSA in small numbers.

Loggerhead Shrike

The scrub and landscaped habitats within the BSA provide potentially suitable nesting habitat for the loggerhead shrike and the ruderal habitats within the BSA provide suitable foraging habitat. Along with foraging habitat on adjacent lands, sufficient foraging habitat is available to support nesting within the BSA.

Yellow Warblers

The yellow warbler is very scarce as a breeder on the San Mateo County coast; however, the riparian habitat in the corridor along lower Calera Creek appears suitable for breeding and one or two pairs could nest near the BSA. Yellow warblers also occur along Calera Creek as migrants and may be found in the BSA during spring and fall migration.

San Francisco Common Yellowthroat

The San Francisco common yellowthroat is one of the approximately 12 subspecies of common yellowthroat recognized in North America. The common yellowthroat has been observed along the Calera Creek riparian corridor, although it cannot be determined that this observation was of the San Francisco subspecies. The Calera Creek riparian zone provides suitable breeding habitat and lies within the known range of the subspecies. Although only a small margin of the riparian habitat is within the BSA, yellowthroats may also nest in adjacent tall ruderal stands of herbaceous vegetation and the ruderal grassland areas immediately adjacent to the riparian habitat provide potential nesting habitat for the San Francisco common yellowthroat.

White-tailed Kite

The large shrubs and small trees within the BSA provide suitable nesting habitat for the white-tailed kite. This species may also forage in the BSA and in the extensive ruderal grassland habitat adjacent to the BSA.

2.18.2.3 Non-Breeding Special-Status Bird Species

Eight special-status bird species could occasionally occur in the BSA as non-breeding foragers, migrants, or visitors. Five of these species (northern harrier, long-eared owl, Vaux's swift, olive-sided flycatcher, and yellow-breasted chat) are only considered special-status species while nesting, as that is the aspect of their lifecycle that is threatened. Since they are not expected to breed in the BSA under either Build Alternative, they are not discussed further. Three species, American peregrine falcon, bank swallow, and Bryant's savannah sparrow, are considered special-status species throughout their life cycle. The American peregrine falcon and bank swallow are state threatened or endangered species and are discussed in Section 2.19 *Threatened and Endangered Species*.

Bryant's Savannah Sparrow

Grassland in the BSA is too tall and dense for nesting by this species; however, Bryant's savannah sparrows may forage in the BSA in small numbers.

2.18.3 Environmental Consequences

Habitat for the western pond turtle within the BSA is marginal, although it is possible that turtles may occur in the BSA occasionally as dispersing individuals. The same avoidance and minimization measures included in the project for California red-legged frogs and San Francisco garter snakes in Section 2.19 *Threatened and Endangered Species* would reduce the potential for individual turtles to be affected by construction activities under either Build Alternative.

Disturbance of loggerhead shrike, yellow warbler, San Francisco common yellowthroat, or white-tailed kite during the breeding season could result in the destruction of active nests, the incidental loss of fertile eggs or nestlings, or the abandonment of nests. Other special-status bird species that may forage, but not nest in the area (including Bryant's savannah sparrow), will avoid or leave the project area if disturbed by construction during foraging or migration. There would be no substantial effect on non-breeding special-status bird species resulting from the proposed Build Alternatives.

The project will affect ruderal and landscaped habitats that could be used by loggerhead shrike; however, only one pair at most would use habitats that would be lost due to project implementation. Riparian or ruderal habitat adjacent to riparian habitat within the BSA that could be used for nesting and foraging by yellow warbler and San Francisco common yellowthroat will not be directly affected by the project. Similarly, only one pair of white-tailed kites could be disturbed by the project. Loss of habitat for these species would not be substantial.

2.18.4 Avoidance, Minimization, and/or Mitigation Measures

The measure listed below, which is included in the project, will avoid impacts to nesting special-status birds.

AM ANML-1: Potential nesting substrate (e.g., bushes, trees, grass, and suitable artificial surfaces) will be removed during the non-breeding season (between September 1 and February 1), if feasible, to preclude nesting. If it is not feasible to schedule vegetation removal during the nonbreeding season, then pre-construction surveys for nesting birds shall be conducted by a qualified ornithologist to ensure that no nests will be disturbed during project implementation. This survey shall be conducted no more than seven days prior to the initiation of construction activities. During this survey the ornithologist will inspect trees, shrubs, and other potential nesting habitats in and immediately adjacent to the impact areas for nests. If an active nest is found sufficiently close to work areas to be disturbed by these activities, the ornithologist, in consultation with CDFG, will determine the extent of a buffer zone to be established around the nests, typically 50-100 feet for passerine birds like yellow warblers and San Francisco common yellowthroats and up to 250 feet for white-tailed kites.

If construction activities cease for more than one week during the nesting season and nesting habitat for these species remains, additional preconstruction surveys will be conducted.

2.19 THREATENED AND ENDANGERED SPECIES

2.19.1 Regulatory Setting

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

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code, Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project caused losses of listed species populations and their essential habitats. The California Department of Fish and Game (CDFG) is the agency responsible for implementing CESA. Section 2081 of the Fish and Game Code prohibits “take” of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising: (1) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983; and (2) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

2.19.2 Affected Environment

Species that are listed as threatened or endangered under FESA or CESA, and which are known to occur regionally, were evaluated for their potential to occur within the project’s biological study area (BSA), which consists of the footprint of the two project Build Alternatives as well as all areas that may be affected directly or indirectly by the construction activity (action). Threatened and endangered species are addressed in the *Natural Environment Study* (December 2009) and addenda to that report (December 2010 and May 2011) as well as the *Biological Assessment* (September 2010). Table 2.17 lists species that potentially occur within the BSA, as well as the results of the evaluation, based upon information obtained from the USFWS from 2009-2011. No threatened or endangered plant species occur within the project’s BSA for either Build Alternative.

TABLE 2.17 POTENTIAL FOR THREATENED OR ENDANGERED ANIMAL SPECIES TO OCCUR WITHIN THE PROJECT'S BIOLOGICAL STUDY AREA				
Common Name	Status	General Habitat Description	Habitat/Species Present/Absent	Rationale
California red-legged frog	FT, SSC	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	Habitat Present	Present in Calera Creek and parcel adjacent to the BSA; potentially present in BSA.
San Francisco garter snake	SE, FE, FP	Wetlands, pools, riparian habitats, and adjacent lands primarily in San Mateo County.	Habitat Present	Documented northwest of BSA and suitable habitat present adjacent to the BSA; potentially present in BSA.
American peregrine	SE, FP	Nest primarily on cliffs, forages over open habitats.	Foraging Habitat Present	No suitable nesting habitat; possibly a rare forager in the BSA.
Bank swallow	ST	River banks, ocean bluffs, and similar friable cliffs.	Foraging Habitat Present	No suitable breeding habitat; may occasionally forage over site, but no colony is known to exist in the vicinity. Occurs only as an occasional forager, if at all.
FE = Federal endangered; FT = Federal threatened; FP = Federal protected SE = State endangered; ST = State threatened; SSC = Species of Special Concern Sources: State Route 1/Calera Parkway Project, Natural Environment Study and Addenda, 2009-2011. USFWS, June 2011.				

Two species listed under FESA may be present within the BSA and informal consultation with the USFWS has begun. Formal consultation with the USFWS will be conducted. Three species protected under CESA may be present within the BSA. Informal consultation has begun for the San Francisco garter snake. There is no potential for take for the other two species (bank swallow and American peregrine falcon), and CESA consultation will not be required for these species.

Several coordination/informal consultation meetings have been held for the project. A list of attendees at each meeting is also included in Section 2.4 of the Natural Environment Study. Refer to Chapter 4 of this document for a summary of the coordination/consultation and scoping meetings held on this project.

Threatened or endangered animal species that could occur in the area are discussed below.

2.19.2.1 California Red-legged Frog

The California red-legged frog is a federal-threatened species. Critical Habitat²⁷ for this species was last formally established by the USFWS on April 12, 2006, and a revised proposal for Critical Habitat was published in the Federal Register on September 16, 2008. The BSA is not within the area designated as Critical Habitat in 2006 or under the new proposal. The nearest Critical Habitat on the revised 2008 map for San Mateo County is the Cahill Ridge unit approximately 0.3 miles east of the project.

California red-legged frogs were not observed within the BSA during breeding season surveys²⁸ and the majority of the BSA is unsuitable as habitat for California red-legged frogs due to the developed nature of the area, isolation from source populations, or lack of access to aquatic habitat. This species has been observed in several habitats and locations west of SR 1 between Mori Point Road and San Marlo Way, including a ditch that parallels SR 1 and the Pacifica water treatment ponds. Primary foraging areas in the vicinity include within the riparian habitat along Calera Creek and upland habitat around the water treatment ponds. Given the ability of the frogs to disperse and the proximity of these wetland habitats to the BSA, it is possible that individuals (particularly juveniles) could disperse into or through habitats in the BSA, west of SR 1.

California red-legged frogs are not known in Calera Creek east of SR 1. The existing box culvert under SR 1 is considered a barrier or obstacle to the dispersal of California red-legged frogs to the east due to its length and concrete floor with a five percent slope over the eastern half. It is expected that most or all red-legged frogs that attempt to cross SR 1 in the project area are killed by traffic, and that virtually no east-west dispersal across SR 1 occurs in the BSA under existing conditions.

2.19.2.2 San Francisco Garter Snake

The San Francisco garter snake, listed as federally and state endangered subspecies, is restricted primarily to San Mateo County with historic observations in Santa Cruz County. They occur in a number of aquatic and terrestrial habitats in a highly restricted geographical range. Juveniles and adults have been observed in natural lagoons, dune ponds, pools in or next to streams, streams, marshlands, sag ponds, and springs as well as human-created ponds, canals, sand and gravel pits containing water, and large reservoirs. Adjacent upland areas with hibernation sites for snakes during winter are also important. The presence of California red-legged frogs and/or bullfrogs, and Pacific treefrogs, as prey, is also associated with habitat for this subspecies. Habitat loss and habitat fragmentation are the principal reasons for decline of San Francisco garter snake populations.

A population of San Francisco garter snakes associated with Sharp Park Golf Course, Laguna Salada, and Mori Point is located approximately 0.75 mile northwest of the BSA. This population is one of six known, extant populations. This subspecies also was recorded on Mori Point in 1990, approximately 0.3 to 0.5 miles from the project and in a quarry pond adjacent to the BSA in 1989. San Francisco garter snakes were not detected in the BSA during California red-legged frog surveys in 2002 and 2006 or during reconnaissance-level surveys in 2007 and 2008. This species could occur

²⁷ Critical Habitat is defined as specific areas that are essential to the conservation of a Federally-listed species, and which may require special management considerations or protection. Critical habitat is determined using the best available scientific information about the physical and biological needs of the species.

²⁸ Based upon current USFWS protocol surveys in March through May 2006 and reconnaissance surveys in June and July 2007 as well as in January, March and June 2008.

within the BSA due to past occurrence of the species on the site, the proximity to known established populations, the proximity of suitable foraging habitat in the Pacifica water treatment ponds and Calera Creek, and the suitable dispersal habitat within the western portions of the BSA between Mori Point Road and San Marlo Way. SR 1 and the Calera Creek culvert under the roadway are substantial obstacles to snake dispersal to the east of SR 1.

2.19.2.3 American Peregrine Falcon

The American peregrine falcon is one of three subspecies of peregrine falcons in North America and a state-endangered species. It may be an occasional forager in the area, especially during winter and migration and may occur in or over the BSA. There is no suitable nesting habitat for American peregrine falcon in the project vicinity.

2.19.2.4 Bank Swallow

The bank swallow, a state threatened species, is a neotropical migrant that nests in colonies in lowland areas along rivers, streams, lakes, reservoirs and ocean coasts. Bank swallows feed primarily over riparian areas. Suitable nesting habitat does not occur within or near the BSA.

2.19.3 Environmental Consequences

2.19.3.1 California Red-legged Frogs

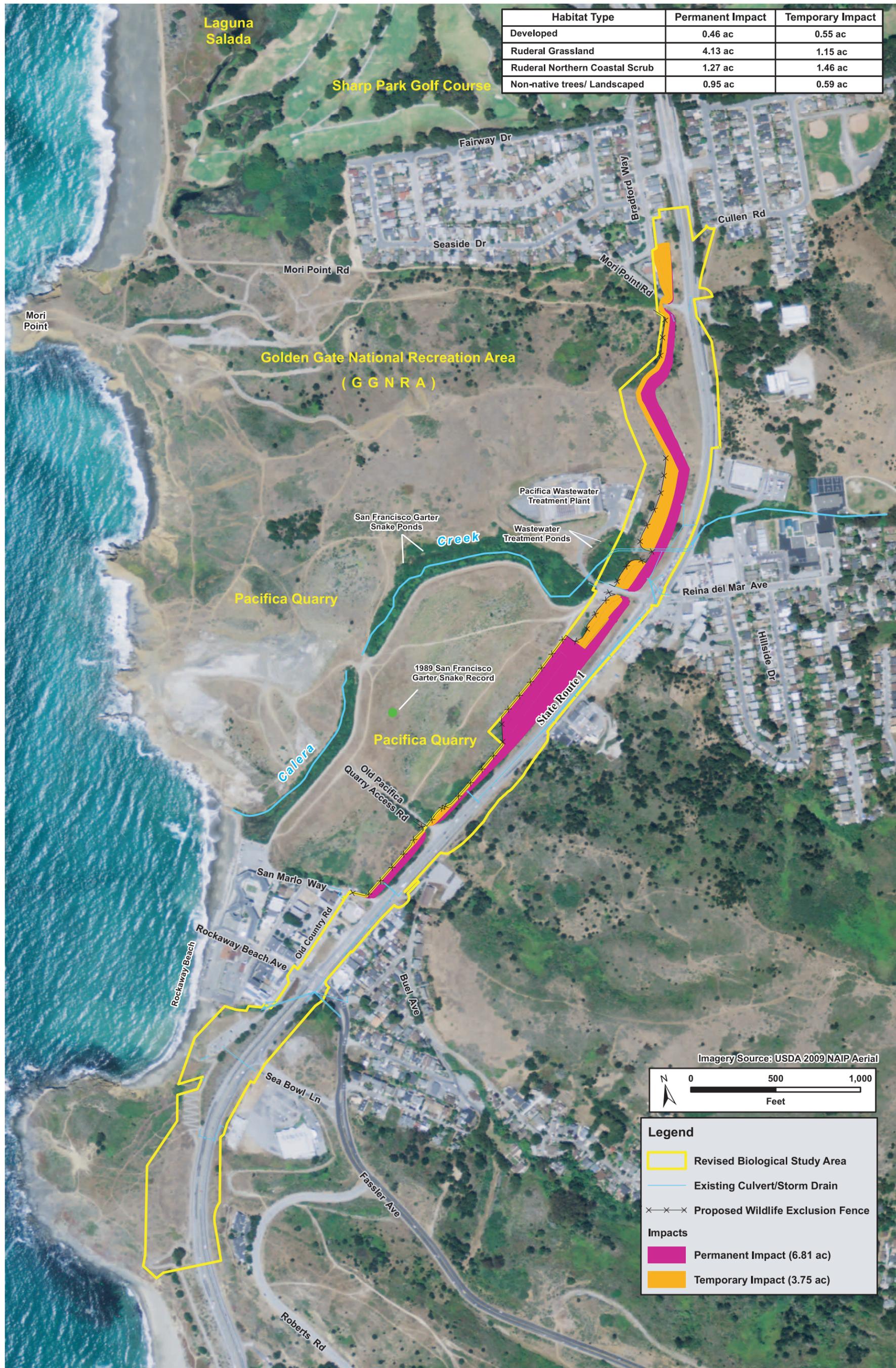
Habitat and Incidental Take

California red-legged frogs use portions of the mosaic of habitats in the area west of SR 1 for breeding, foraging and dispersal.²⁹ Areas within the BSA between Mori Point Road and San Marlo Way provide foraging and dispersal habitat for frogs but no breeding habitat.

The two project Build Alternatives would not result in direct permanent or temporary effects to aquatic, riparian, or wetland habitats used by California red-legged frogs. The hydrology of aquatic habitats outside the BSA where California red-legged frogs could be present also would not be altered by the project.

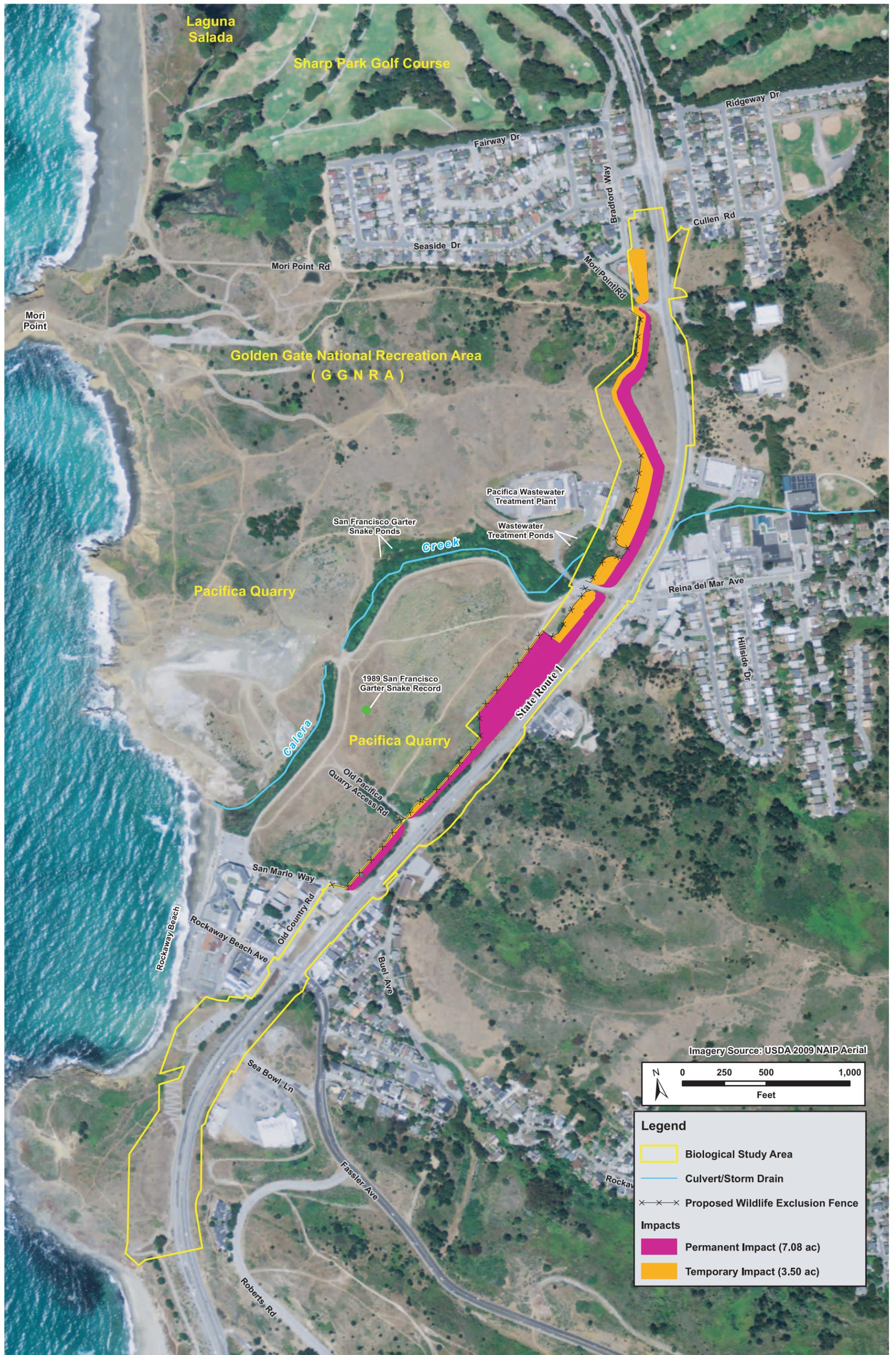
Construction of the proposed project would disturb developed and roadside/ruderal grassland habitat that could be used for foraging and dispersal by frogs. The Narrow Median Build Alternative would result in permanent impacts to 6.81 acres of potentially occupied habitat and temporary impacts to 3.75 acres of potentially occupied habitat (see Figure 2.8), and the Landscaped Median Build Alternative would affect approximately 0.27 acres of additional dispersal habitat (see Figure 2.9). Temporary impacts would occur in the area between the proposed future edge of pavement and the outer limits of cut and/or fill plus construction staging and access areas. No paving is proposed in temporary impact areas, and it is anticipated that habitat of equal value would be reestablished within one year following revegetation with native plant species.

²⁹ The California red-legged frog breeding habitat closest to proposed project disturbance areas are the City of Pacifica wastewater treatment ponds, over 250 feet from construction areas. Aquatic habitat in Calera Creek is over 200 feet from the future roadway.



THREATENED SPECIES HABITAT IMPACTS -
NARROW MEDIAN ALTERNATIVE

FIGURE 2.8



THREATENED SPECIES HABITAT IMPACTS -
LANDSCAPED MEDIAN ALTERNATIVE

FIGURE 2.9

The conversion of existing ruderal habitat to pavement would have little effect on the local California red-legged frog population due to habitat loss. Because California red-legged frogs can disperse across habitat within the BSA and along the roadway, although unlikely, there could be loss of individual frogs during construction.

Barriers to Movement

As previously discussed above and in Section 2.18 *Animal Species*, an existing median barrier currently prevents California red-legged frogs from successfully crossing the SR 1 roadway. Under the proposed project, the paved width of SR 1 would increase and retaining walls would be installed along about 1,200 linear feet of the roadway, north of San Marlo Way except where a cantilever bridge will cross the culvert outflow. An additional permanent barrier will also be constructed approximately between 900 feet south of Mori Point Road and San Marlo Way to prevent small animal movement onto the roadway. This barrier will, in particular, be designed to impede or prevent California red-legged frogs from entering the roadway.

The retaining wall and barrier and the bridge will prevent California red-legged frogs from reaching the road and suffering mortality along this stretch of the roadway. There will be beneficial long-term effects to red-legged frogs, and perhaps the population, with the installation of this retaining wall/barrier by reducing the potential for frogs to disperse onto SR 1 and suffer mortality from the high levels of traffic where a median barrier prevents successful crossing. No project-related increase in traffic mortality is expected, and therefore, no substantial effects due to traffic mortality on California red-legged frogs would occur. New pavement and roadway lanes will be closer to existing California red-legged habitat north and west of Reina Del Mar Avenue, although the future edge of the roadway will be over 250 feet from frog breeding habitat and most frogs do not venture more than 200 feet from their aquatic habitat for foraging. Individual (juvenile) frogs could disperse onto SR 1 from breeding habitat near the Pacifica wastewater treatment ponds; however, due to the distance between the ponds and the roadway, impacts to dispersing California red-legged frogs are not anticipated to be substantially greater than the current condition.

The installation of retaining walls and the permanent small animal barrier along about 1,200 linear feet of the roadway (north of San Marlo Way) and a cantilever bridge at the culvert outflow will prevent red-legged frogs from reaching the road. Currently, the existing median presents a barrier to wildlife movement. The proposed retaining walls would keep frogs from reaching the roadway at these locations thereby preventing frog mortality. Therefore, the proposed retaining walls would not constitute a new substantial barrier that would affect California red-legged frog dispersal.

2.19.3.2 San Francisco Garter Snake

Habitat and Incidental Take

The presence of San Francisco garter snakes is unlikely within the BSA and the project construction area. San Francisco garter snakes could occur within the BSA, due to past occurrence of the species on the site, the proximity to known established populations, the proximity of suitable habitat near restored ponds, Calera Creek, and Pacifica wastewater treatment ponds, and the suitable dispersal habitat within the western portions of the BSA, between Mori Point Road and San Marlo Way. The closest known, extant populations are located approximately 0.5 miles to the northwest of the BSA.

San Francisco garter snakes could rarely be found within the BSA, although the habitat found within the BSA is not high-quality foraging or dispersal habitat.

The project would not result in direct permanent or temporary effects to aquatic, riparian, or wetland habitats used by San Francisco garter snakes. Construction of the proposed project would disturb ruderal grassland and non-native woodland habitat between Mori Point Road and San Marlo Way that could be used for dispersal by garter snakes. The Narrow Median Build Alternative would result in permanent impacts to 6.81 acres of potentially occupied habitat and temporary impacts to 3.75 acres of potentially occupied habitat. This is the same area and habitat as the potentially occupied habitat for the California red-legged frog (refer to Figures 2.8 and 2.9). The Landscaped Median Build Alternative would result in an additional 0.27 acres of impact to dispersal habitat. No paving is proposed in temporary impact areas, and it is anticipated that habitat of equal value would be reestablished within one year following revegetation with native plant species.

Because San Francisco garter snakes can disperse across habitat within the western portion of the BSA, there could be loss of individual snakes during construction.

Barriers to Movement

As previously discussed in Section 2.15.2.2 *Wildlife Corridors*, and in the California red-legged frog discussion above, SR 1 and the Calera Creek culvert under the roadway are substantial obstacles to snake dispersal to the east of SR 1. Movement is limited by both a median barrier in the roadway and the configuration of the Calera Creek culvert.

Under the proposed project, the paved width of SR 1 would increase and retaining walls would be installed along about 1,200 linear feet of the roadway, north of San Marlo Way except where a cantilever bridge will cross the culvert outflow. An additional permanent barrier will also be constructed approximately between 900 feet south of Mori Point Road and San Marlo Way to prevent small animal movement onto the roadway. This barrier will, in particular, be designed to impede or prevent San Francisco garter snakes from entering the roadway. New pavement would lengthen the distance snakes would need to travel to cross the road; however, the existing median barrier makes dispersal across SR 1 very unlikely. Currently, the existing median presents a barrier to wildlife movement. The proposed retaining walls would keep snakes from reaching the roadway at these locations, thereby preventing snake mortality. Therefore, the proposed retaining walls would not constitute a new substantial barrier that would affect San Francisco garter snake dispersal.

The installation of retaining walls and the permanent barrier along about 1,200 linear feet of the roadway (north of San Marlo Way) will add a new barrier at the edge of the road for San Francisco garter snakes attempting to disperse to the east or southeast. The retaining wall and barrier parallels the seasonal wetland and aquatic habitat of a drainage ditch just off-site where San Francisco garter snake could occur. Since the existing median already presents a barrier to movement and the proposed retaining walls and new barrier would keep snakes from reaching the roadway at these locations, thereby preventing snake mortality, the proposed retaining walls and new barrier would not constitute a new substantial barrier that would affect San Francisco garter snake populations.

2.19.3.3 *American Peregrine Falcon and Bank Swallow*

As previously described in Section 2.19.2 *Threatened and Endangered Species, Affected Environment*, neither of these species nest in the BSA. Both the American peregrine falcon and bank swallow are very mobile species that will avoid or leave the project area if disturbed by project construction. Foraging habitat for these species is relatively abundant and widespread in the immediate vicinity of the BSA, and the project would not have a substantial effect on foraging habitat.

2.19.4 Avoidance, Minimization, and/or Mitigation Measures

The measures listed below, which are included in the project, will avoid or offset impacts to threatened or endangered species.

2.19.4.1 *California Red-legged Frog*

MM T&E-1.1: Minimize Nighttime Work. To the extent practicable, nighttime construction will be minimized to avoid effects to nocturnally active listed species. When necessary in areas adjacent to California red-legged frog habitat, work lights will be directed away from adjacent habitat areas.

MM T&E-1.2: Exclusion Barrier. Wildlife exclusion fencing (WEF) shall be installed prior to the initiation of construction activities to exclude California red-legged frogs from the construction area. The WEF will consist of silt-fencing, plywood, or suitable material at least 36 inches high that is buried six (6) inches deep in the ground, or sealed in a like manner, to prevent incursion under the fencing. In addition, at the end of each fencing segment, the WEF will be installed to curve back away from the roadway. WEF will be located along the edge of construction impact areas wherever they are within 300 feet of Calera Creek or the off-site ditch that parallels southbound SR 1, northeast of San Marlo Way and south of Calera Creek (refer to Figures 1.4 and 1.5). Special care will be taken to exclude frogs from entering the project area from the culvert outflow aquatic habitat during construction. The final project plans will show where and how the WEF will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and proper WEF installation and maintenance.

MM T&E-1.3: Pre-construction Survey. Prior to installation of the WEF, a preconstruction survey shall be conducted by a qualified biologist in the portions of the BSA where equipment and construction activities will be located. Additionally, a qualified biologist shall monitor the installation of the WEF to ensure that no California red-legged frogs are trapped within the construction area or harmed during installation. A post-installation survey shall be conducted to confirm the absence of frogs within the WEF. Any California red-legged frog found within the construction area (i.e., inside the WEF) will be relocated by the approved biologist to a safe location west of the BSA, which is preapproved by the USFWS and within Calera Creek or the Pacifica wastewater treatment ponds.

- MM T&E-1.4:** **Construction Area Delineation.** The boundaries of the project shall be clearly delineated with orange-colored plastic construction fencing (ESA) to prevent workers or equipment from inadvertently straying from the designated construction area. All construction personnel, equipment, and vehicle movement shall be confined within the designated construction, access, and staging areas. This fencing will be installed concurrently with or after the WEF and will be located on the construction side of the WEF. The ESA fencing will remain in place throughout the duration of the project, while construction activities are ongoing and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and how it will be installed. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs.
- MM T&E-1.5:** **Construction Worker Education Program.** Before any construction activities begin, a qualified biologist will conduct a training session with construction personnel to describe the California red-legged frog, its habitat, its conservation status, the specific measures being implemented to minimize effects to the species, and the boundaries of the project area.
- MM T&E-1.6:** **Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than one-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. Before such holes or trenches are filled they must be thoroughly inspected for trapped animals. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be immediately informed.
- MM T&E-1.7:** **Inspection and Discovery.** Prior to the start of work each day, a qualified biologist, serving as a Biological Monitor, shall inspect the integrity of the WEF to ensure no holes or damage, and the area within the construction zone, focusing on pits that were left open overnight and under equipment and materials. After this time, a biological monitor shall be designated to monitor on-site compliance with all avoidance and minimization measures. The biologist shall ensure that this designated biological monitor receives training as outlined above in MM T&E 1.5 and in the identification of California red-legged frogs and San Francisco garter snakes. The designated biological monitor shall conduct daily inspections prior to the start of work each day as described above.

If a frog of any kind that could be a California red-legged frog is encountered during project construction, the following protocol will be implemented:

- § The Resident Engineer will be notified.
- § The Resident Engineer will ensure that all work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease.
- § The approved-biologist, who will be on-site monitoring construction, will identify the species and may remove the individual to a preapproved safe location nearby, if necessary.

MM T&E-1.8:

Compensatory Mitigation for Habitat Impacts. As described above, all vegetated habitat in the BSA between Mori Point Road and San Marlo Way is potential dispersal habitat for California red-legged frogs. Approximately 6.81-7.08 acres of potential upland dispersal habitat will be permanently affected by the project, depending on the Build Alternative selected, and approximately 3.75 acres will be temporarily affected during construction.

To offset the approximately 6.81-7.08 acres of potential upland dispersal habitat that will be permanently affected by the project and the approximately 3.75 acres that will be temporarily affected during construction, the project proposes a mitigation package in cooperation with the Golden Gate National Recreation Area (GGNRA). The GGNRA staff has approved this mitigation proposal in concept; however, specific details will need to be approved by the National Park Service (NPS). The proposed concept is to preserve a 5.1-acre parcel owned by the City of Pacifica that is west of the Pacifica waste water treatment plant and south of the GGNRA. This parcel is just north of the ponds that were created next to Calera Creek as San Francisco garter snake habitat and that also provide breeding habitat for California red-legged frogs. The parcel is also at the base of the ridgeline that separates habitat in Calera Creek and its associated ponds from the next closest aquatic habitat to the north that is along the northern perimeter of the GGNRA parcel and the southern edge of the Sharp Park Golf Course.

In addition to preservation of the 5.1 acres of upland habitat, the upland habitat will be enhanced from the preserved parcel, over the saddle within the GGNRA (approximately 5.46 acres in size), and down to a bowl area adjacent to GGNRA California red-legged frog breeding ponds (see Figure 2.10). The enhancements will include depressions to collect water and downed woody debris and rocks to preserve moisture and provide cover for California red-legged frogs. These enhancements will improve the dispersal habitat over the ridgeline by providing protection and moisture for dispersants and allow for increased connectivity of aquatic habitats. This is particularly important in that most of the aquatic habitat north of the ridgeline is generally ephemeral except water features on the active golf course and Calera Creek and the associated ponds provide preserved habitat that is perennial aquatic habitat and breeding habitat for California red-legged frogs. Exchange between the habitat areas over the ridge is particularly important in drought years and if stochastic events result in population declines in one or the other population

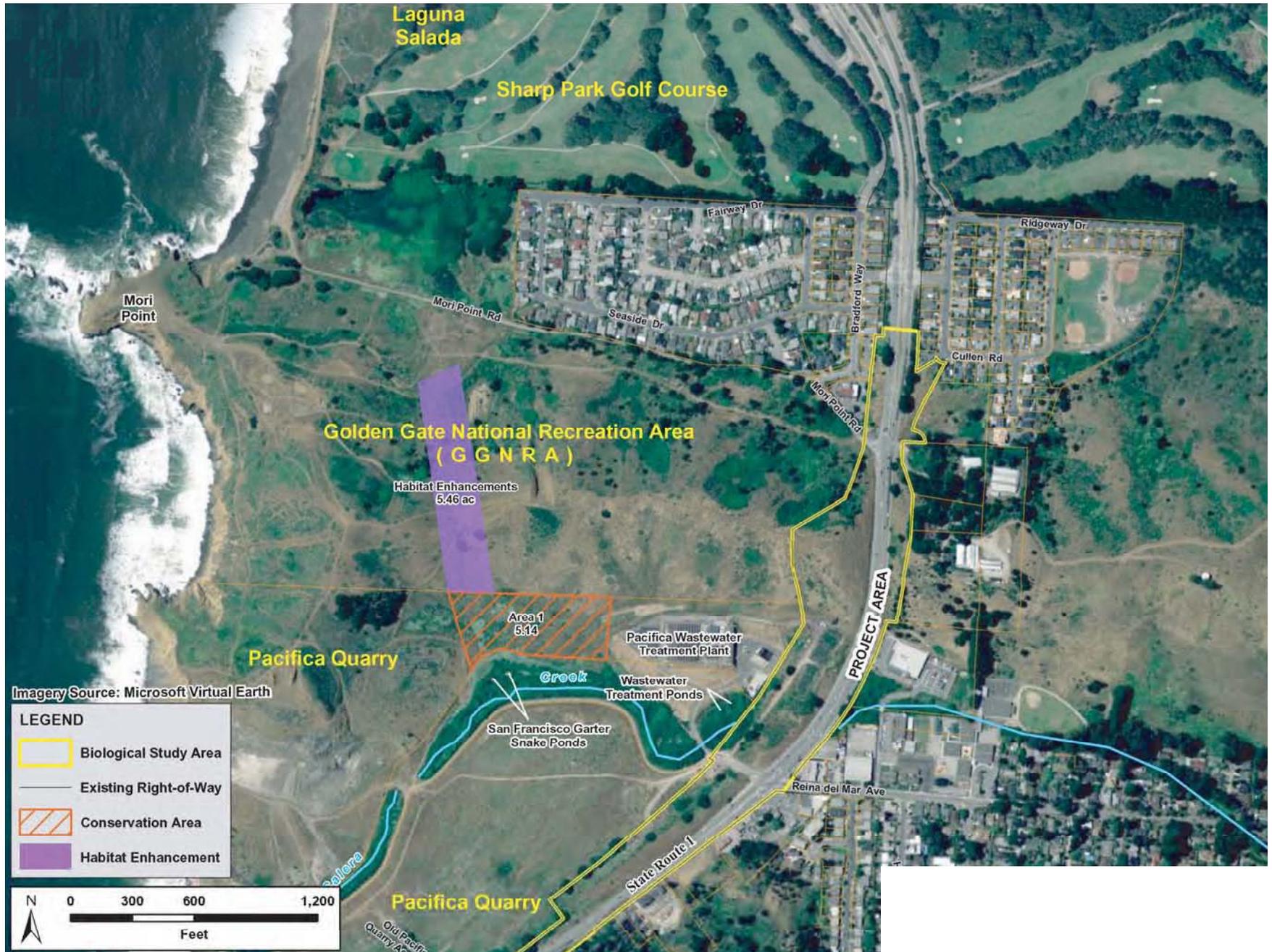
area. The enhancements improve the dispersal habitat in drought years or after drought years when population expansion or recolonization is important. They will also improve California red-legged frog foraging habitat.

The GGNRA mitigation site for the project is off-site but nearby and is depicted on the Figure 2.10. The potential effects of enhancements at this mitigation site were also considered. The mitigation site is expected to support California red-legged frogs that are foraging, migrating, or dispersing. While the enhancements planned will be beneficial to the California red-legged frogs, it is possible that there could be an effect on California red-legged frogs, if any are present, during the construction of the enhancement features. The avoidance and minimization measures described above that are applicable and will not cause more harm than benefit will be implemented. Installation of WEF and ESA fencing will cause damage to sensitive and steeply sloping habitat, and thus, these measures will not be implemented during enhancement activities at the mitigation site. However, the following measures are included as part of the project mitigation and will minimize effects to California red-legged frogs during construction of the enhancement features.

Measure 1: Pre-construction Survey and Construction Monitoring of Mitigation Enhancement Installation. Prior to installation of enhancement features in the mitigation area, a pre-construction survey will be conducted by a qualified biologist in the portions of the mitigation area where equipment and construction activities will be located. Additionally, a qualified biologist will monitor during development and enhancement of the mitigation area, searching the path and placement locations immediately before equipment is moved or workers advance. California red-legged frogs found within the construction area may be relocated by the approved biologist to a safe location nearby, preapproved by the USFWS, if necessary.

Measure 2: Construction Area Limitation. All construction personnel, equipment, and vehicle movement shall be confined within the minimum construction, access, and staging areas necessary for construction.

Measure 3: Construction Worker Education Program. Before any construction activities begin, a qualified biologist will conduct a training session with construction personnel to describe the California red-legged frog, its habitat, its conservation status, the specific measures being implemented to minimize effects to the species, and the boundaries of the project area.



PROPOSED MITIGATION AREAS

FIGURE 2.10

Measure 4: Inspection and Discovery. While on-site in compliance with Measure 1, a qualified biologist, serving as a Biological Monitor, will inspect the areas within the construction zone, focusing in pits and under equipment and materials left overnight. If a frog thought to be a red-legged frog is encountered during project construction, the following protocol will be implemented:

- The Resident Engineer will be notified.
- The Resident Engineer will ensure that all work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease.
- The approved-biologist, who will be on-site monitoring construction, will identify the species and may remove the individual to a preapproved safe location nearby, if necessary.

As a part of the project, areas of temporary habitat loss shall be seeded with native plants to reestablish habitat of equal value within one year of construction.

Alternate Contingency Plan for Compensatory Habitat Mitigation

In the unforeseeable event that the proposed mitigation concept cannot be implemented for habitat impacts, alternative mitigation will be provided to compensate for unavoidable impacts to potential California red-legged frog and San Francisco garter snake dispersal habitat. Such mitigation will be provided via the protection, enhancement, and management of habitat that currently supports, or can support, this species at a minimum 2:1 (mitigation:impact) ratio, on an acreage basis. Compensatory mitigation may be carried out through one or both of the following methods, in order of preference:

- The preservation, management, and enhancement (e.g., through long-term management targeted toward these species) of high-quality habitat that is already occupied by California red-legged frogs and San Francisco garter snakes.
- The restoration or enhancement (and subsequent preservation) of degraded habitat or habitat that is unsuitable for use by California red-legged frogs and San Francisco garter snakes, but that (a) is in close proximity to areas of known occurrence and (b) can be made more suitable for use via construction of one or more breeding ponds or management to improve the quality and availability of upland habitat.

A Habitat Mitigation and Monitoring Plan (HMMP) will be developed describing the measures that will be taken to manage the property and to monitor the effects of management on the California red-legged frog and San Francisco garter snake. That plan will include, at a minimum, the following:

- A summary of impacts to California red-legged frog and San Francisco garter snake habitat and populations, and the proposed mitigation;
- A description of the location and boundaries of the mitigation site and description of existing site conditions;
- A description of measures to be undertaken if necessary to enhance (e.g., through focused management) the mitigation site for California red-legged frogs and San Francisco garter snakes;
- Proposed management activities, such as managed grazing, management of invasive plants, measures targeted at sustaining populations of burrowing mammals, or other measures to maintain high-quality habitat for California red-legged frogs and San Francisco garter snakes;
- A description of species monitoring measures on the mitigation site, including specific, objective goals and objectives, performance indicators, success criteria, monitoring methods, data analysis, reporting requirements, and monitoring schedule;
- A description of the management plan's adaptive component, including potential contingency measures for mitigation elements that do not meet performance criteria; and
- A description of the funding mechanism to ensure the long-term maintenance and monitoring of the mitigation lands.

Although none are currently available, if mitigation bank credits for preservation and enhancement of habitat for the San Francisco garter snake and California red-legged frog become available, and the service area of the mitigation bank includes the project site, mitigation bank credits equivalent to the 2:1 mitigation ratio described above may be purchased to satisfy the mitigation requirement.

MM T&E-1.9: **Consultation with the USFWS.** Take of California red-legged frogs is only permitted through consultation with the USFWS. Section 7 consultation with the USFWS shall be completed prior to project approval.

2.19.4.2 San Francisco Garter Snake

MM T&E-2.1--2.6: The same mitigation measures as described above for the California red-legged frog (MM T&E-1.1 through MM T&E-1.6) will be required for potential impacts to individual San Francisco garter snakes and their habitat.

MM T&E-2.7: **Inspection and Discovery.** Prior to the start of work each day, a qualified biologist, serving as a Biological Monitor, shall inspect the integrity of the WEF to ensure no holes or damage, and the areas within the construction zone, focusing on pits that were left overnight and under equipment and materials. After this time, a biological monitor shall be designated to monitor on-site compliance with all avoidance and minimization measures. The biologist shall ensure that this designated biological monitor receives training as outlined above in Measure 2.4 and in the identification of San Francisco

garter snakes. The designated biological monitor will conduct daily inspections prior to the start of work each day as described above.

If a garter snake of any kind is encountered during project construction, the following protocol will be implemented:

- § The Resident Engineer will be notified.
- § The Resident Engineer will ensure that all work that could result in direct injury, disturbance, or harassment of the individual animal must immediately cease.
- § The approved-biologist, who will be on-site monitoring construction, will identify the species and will allow the individual snake to leave on its own accord.

MM T&E-2.8: Compensatory Mitigation for Habitat Impacts. All vegetated habitat in the BSA between Mori Point Road and San Marlo Way is potential dispersal habitat for San Francisco garter snakes. The compensatory mitigation for the San Francisco garter snake is for the same affected habitat as the California red-legged frog. Therefore, the same mitigation that is proposed for the California red-legged frog is also appropriate for San Francisco garter snake, including measures to be implemented during construction (refer to MM T&E 1.1-1.7 above) and the compensatory mitigation for habitat (refer to MM T&E 1.8 above).

As noted above, the GGNRA staff has approved this mitigation proposal in concept although details will need to be worked out to reach an agreement on the mitigation plan with NPS. Preservation of the five acre parcel at the base of the saddle over the ridge at the Mori Point GGNRA facility and enhancement of habitat over that saddle will also benefit the San Francisco garter snake.

As a part of the project, areas of temporary habitat loss shall be seeded with native plants to reestablish habitat of equal value within one year of construction.

MM T&E-2.9: Consultation with the USFWS. Take of San Francisco garter snakes is only permitted through consultation with the USFWS. Section 7 consultation with the USFWS shall be completed prior to project approval.

2.20 INVASIVE SPECIES

2.20.1 Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Federal Highway Administration guidance issued August 10, 1999 directs the use of the state’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.20.2 Affected Environment

Several invasive plant species are present within or adjacent to the BSA, including five noxious, invasive species of importance within the BSA (see Table 2.18). These species, lollipop tree, cape-ivy, French broom, pampas grass, and sweet fennel, dominate the roadway embankments along SR 1, ruderal grassland habitat, and land adjacent to development. Lollipop trees dominate the overstory of the roadside ditch located along southbound SR 1 and Cape-ivy occurs along Calera Creek east of SR 1. These five noxious and invasive species are very difficult to eradicate.

Common Name	Habitat Where Species Observed in the BSA	Ecological Impact	Invasive Potential
Cape ivy	Ruderal riparian	A	A
French broom	Scrub and grassland habitats; developed areas	A	A
Monterey cypress	Ruderal riparian	B	B
Lollipop tree	Scrub and grassland habitats; wetland and riparian	B	B
Pampas grass	Scrub and grassland habitats	A	A
Periwinkle	Ruderal riparian	B	B
Prickly ox-tongue	Ruderal grassland, ruderal wetland	C	B
Ripgut brome	Ruderal grassland	B	B
Sweet fennel	Scrub and grassland habitats; developed areas	A	B
Wild oats	Ruderal grassland	B	B

Wild teasel	Ruderal grassland	B	B
Yellow star-thistle	Ruderal grassland	A	B
Notes: A = Severe B = Moderate C = Limited Ratings derived from California Invasive Plant Council Website: http://www.cal-ipc.org/ip/inventory/weedlist.php Source: State Route 1/Calera Parkway Project, Natural Environment Study and addenda, January 2009-2011.			

2.20.3 Environmental Consequences

The proposed project would require the removal of lollipop trees from the construction area. This tree can re-sprout or grow from seedlings.

None of the species on the California list of noxious weeds is currently used by the Department for erosion control or landscaping in San Mateo County.

2.20.4 Avoidance, Minimization and/or Mitigation Measures

AM INV-1: In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.

Inspection and cleaning of construction equipment is of particular importance when removing embankment material northwest of Reina Del Mar Avenue.

AM INV-2: Prior to grading, infested areas will be cleared of vegetation and all vegetative material destroyed off-site, taking care to prevent any seed dispersal in the process.

AM INV-3: Native seed from a local source (within the same watershed if practicable) will be planted on all disturbed ground.

AM INV-4: All areas of ground disturbance within the project area will be monitored and maintained for a period of at least two years following project implementation to prevent the invasion by these weed species.

2.21 CONSTRUCTION IMPACTS

As described in Section 1.3.3 *Project Schedule and Construction*, the duration of construction is estimated to be approximately two years. The proposed improvements would be constructed in several stages. The proposed staging area is located along the west side of SR 1, approximately 600 feet south of Reina Del Mar Avenue, within the state right-of-way. Construction equipment used on this project would include scrapers, bulldozers, backhoe loaders, cement trucks, cranes, and asphalt/paving/concrete equipment.

2.21.1 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.21.1.1 *Short-Term Effects/Street Closures*

Except for temporary off-peak lane closures, the same number of traffic lanes will be maintained on SR 1 and local streets during the construction period, which is estimated to last for more than two years. Narrowed lanes on SR 1 through the construction zone will be likely during several phases of construction, and at times the roadway will be temporarily shifted to allow work on other portions.

Prior to construction, a Transportation Management Plan (TMP) will be prepared. The TMP will address all traffic-related aspects of construction including, but not limited to, the following: traffic handling in each stage of construction, pedestrian safety/access, and bicycle safety/access. A component of the TMP will involve public dissemination of construction-related information through notices to the neighborhoods, press releases, and the use of changeable message signs.

The existing two-way bicycle/pedestrian path adjacent to the west edge of the highway north of Reina Del Mar Avenue would be reconstructed along the west edge of the widened highway and upgraded to a Class 1 bike path. This segment of the bicycle/pedestrian path is a transportation facility within Caltrans right-of-way and is not, therefore, a Section 4(f) recreational facility (refer to Section 2.1 *Land Use*). The remaining segments of bicycle/pedestrian path along the SR 1 project alignment would be unaltered by the highway widening.

2.21.1.2 *Effects on Businesses During Construction*

No roadway or driveway access to businesses is expected to be severed during the construction of the project.

2.21.2 Water Quality

2.21.2.1 *Short-Term Effects During Construction*

The project will involve excavation and grading activities for the purpose of constructing the new lanes and intersection modifications. These activities have the potential to degrade water quality in the form of sedimentation, erosion, and fuels/lubricants from equipment. At this location, the water quality of various creeks could be affected by construction activities because most of the storm drains discharge into the creeks. Since these creeks support numerous wildlife and plant species, a short-term degradation of water quality could adversely affect such species.

2.21.2.2 Avoidance, Minimization, and/or Mitigation Measures

In order to avoid/minimize the potential to degrade water quality, the project shall implement the following measures:

MM CON-1.1: Best Management Practices (BMPs) will be utilized by the contractor(s) during construction. The BMPs will be incorporated into a Storm Water Pollution Prevention Plan for the project, as required by the Caltrans NPDES permit. The SWPPP will emphasize: 1) standard temporary erosion control measures to reduce sedimentation and turbidity of surface run-off from disturbed areas; 2) personnel training; 3) scheduling and implementation of BMPs throughout the various construction phases and during various seasons; 4) identification of BMPs for non-storm water discharge such as fuel spills; and 5) mitigation and monitoring throughout the construction period.

MM CON-1.2: Soil Stabilization Measures The following soil stabilization minimization measures are included in this project:

- High Visibility Plastic Fencing will be placed along the perimeter of all ESAs and additional vegetation that need not be disturbed by construction including the mature trees at the south east quadrant of Fassler Avenue and SR 1 as well as all of the vegetated area west of the retaining walls on the western side of SR 1 between San Marlo Way and Reina Del Mar Avenue. Both areas will be designated on the project plans as outside of limits of work and/or ESAs.
- Temporary Fiber Rolls will be placed along slope length contours to prevent erosion along slopes.

MM CON-1.3: Sediment Control Measures Temporary cover of disturbed surfaces or temporary slope protection measures will be provided per regulatory requirements and Caltrans' guidelines to help control erosion. The following sediment control mitigation measures are included in this project:

- Temporary silt fences will minimize both sediment-laden sheet flows and concentrated flows from discharging offsite.
- Temporary fiber rolls will be utilized in order to intercept sheet flow run-off and minimize run-on upslope of the project.

MM CON-1.4: Tracking Controls The project involves the movement of dirt by construction equipment adjacent to public roadways. In order to prevent the tracking of mud and dirt offsite, stabilized construction entrances/exits will be placed at multiple points throughout the project area. Street sweeping will also be utilized to remove tracked sediment.

2.21.3 Air Quality

2.21.3.1 *Short-Term Effects During Construction*

Construction-related emissions are generally short-term in duration but may still cause adverse air quality impacts unless proper emission control measures are implemented.

Construction activities such as earthmoving, excavation and grading operations, construction vehicle traffic and wind blowing over exposed earth will generate exhaust emissions and fugitive particulate matter emissions that would affect local and regional air quality. Construction activities are also a source of organic gas emissions. Asphalt used in paving is a source of organic gases for a short time after its application. Solvents in adhesives, non-waterbased paints, and thinners would also evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone. Many types of construction equipment emit diesel exhaust, which is known to result in adverse health effects.

Fine particulate matter (PM₁₀ and PM_{2.5}) is the pollutant of greatest concern with respect to construction activities.³⁰ PM₁₀ emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction-related emissions can cause substantial increases in localized concentrations of PM₁₀. Particulate emissions from construction activities can lead to adverse health effects as well as nuisance concerns such as reduced visibility and soiling of exposed surfaces. Construction dust could affect local air quality at various times during construction of the project. The dry, windy climate of the area during the summer months creates a high potential for dust generation when and if underlying soils are exposed to the atmosphere.

The effects of construction activities would be increased dustfall and locally elevated levels of PM₁₀ and PM_{2.5} downwind of construction activity. Construction dust has the potential for creating a nuisance at nearby properties, and may constitute a health effect for children or persons with chronic health problems.

Standard Caltrans construction management practices are adequate to assure that associated air quality impacts will be minimal. These include requiring emission controls on construction equipment and spraying water on exposed surfaces to minimize dust.

2.21.3.2 *Avoidance, Minimization, and/or Mitigation Measures*

The following measures will be implemented by the project for the purpose of avoiding/minimizing air quality effects during construction:

MM CON-1.5: During construction, the project will follow Caltrans Standard Specification 7-1.01F, Standard Specification 10, and Standard Specification 18, which address dust control and dust palliative application, respectively.

³⁰ Construction equipment emits carbon monoxide and ozone precursors. However, these emissions are included in the emission inventory that is the basis for regional air quality plans, and are not expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area.

MM CON-1.6: The project will implement all feasible PM₁₀ construction emissions control measures in Table 2.19.

TABLE 2.19
FEASIBLE CONTROL MEASURES FOR CONSTRUCTION EMISSIONS OF PM₁₀
<p>Basic Control Measures. The following controls will be implemented at all construction sites.</p> <ul style="list-style-type: none"> • Water all active construction areas and exposed surface areas at least twice daily. • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two (2) feet of freeboard. • Pave, apply water three times daily, or apply (nontoxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas at construction sites. • Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites. Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.
<p>Enhanced Control Measures. The following measures will be implemented at construction sites greater than four acres in area.</p> <ul style="list-style-type: none"> • Hydroseed or apply (nontoxic) soil stabilizers to inactive construction areas (i.e., previously graded areas inactive for 10 days or more). • Enclose, cover, water twice daily, or apply (nontoxic) soil binders to exposed stockpiles (e.g., dirt and sand). • Limit traffic speeds on unpaved roads to 24.1 kilometers per hour (15 miles per hour). Install sandbags or other erosion control measures to prevent silt runoff to public roadways. • Replant vegetation in disturbed areas as quickly as possible.
<p>Optional Control Measures. The following control measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or for any other reason may warrant additional emissions reductions, but the project sponsor is not required to implement.</p> <ul style="list-style-type: none"> • Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. • Install windbreaks or plant trees or vegetative wind breaks at windward side(s) of construction areas. • Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. • Limit the area subject to excavation, grading, and other construction activity at any one time.
<p>Source: Assessing the Air Quality Impacts of Projects, BAAQMD, December 1999.</p>

2.21.4 Noise and Vibration

2.21.4.1 *Short-Term Effects During Construction*

Project construction activities along SR 1 would occur near residential land uses on both sides of the project alignment. At times, construction activities under either Build Alternative could be within 50 feet of these noise-sensitive uses. Phases anticipated during project construction would include clearing and grubbing, earthwork, paving, and the construction of structures (including pile driving). Each construction phase would require a different combination of construction equipment and different intensities of use of such equipment.

Construction activities associated with this project could include roadway widening and the construction of retaining walls. Highway construction activities do not typically stay in one location for long periods. Noise-sensitive receivers in a given location would not be exposed to noise generated by construction for extended periods. Table 2.20 summarizes typical noise levels generated by construction equipment at a distance of 50 feet. Noise generated by construction equipment drops off at a rate of six (6) dB per doubling of distance.

Highway construction activities typically occur for relatively short periods of time as construction proceeds along the project’s alignment. Construction noise would mostly be of concern in areas where impulse-related noise levels from construction activities would be concentrated for extended periods of time, where noise levels from individual pieces of equipment are substantially higher than ambient conditions, or when impulse-related noise levels occur during noise-sensitive night-time hours.

TABLE 2.20 CONSTRUCTION EQUIPMENT NOISE LEVELS AT 50 FEET		
Construction Phase	Maximum Noise Level (L_{max} dBA)	Hourly Average Noise Level (Leq dBA)
Clear and Grub	81	79
Earthwork	82	84
Paving	85	85
Structures (with pile driving)	101	95
Structures (without pile driving)	83	84
Source: Illingworth & Rodkin, 2009-2010.		

Ambient traffic noise levels at unshielded locations approximately 50 feet from the centerline of SR 1 are on average about 77 dBA Leq (hr) during the day and about 62 dBA Leq (hr) at night. As indicated above in Table 2.20, most construction phases would generate average noise levels that would be about five to 13 dBA Leq (hr) higher than ambient day-time or night-time traffic noise. Maximum noise levels generated by construction would generally be at or below existing maximum noise levels generated by traffic with the exception of construction phases excluding the use of a hoe ram or impact pile driver.

Construction of the project is anticipated to occur primarily during daytime hours. During the daytime, ambient traffic noise levels are on average about 77 dBA Leq (hr) at the nearest unshielded locations. Construction activities proposed by the project would generate noise levels above ambient average daytime traffic noise levels when these activities occur within approximately 90 feet of existing sensitive receivers.

2.21.4.2 *Avoidance, Minimization, and/or Mitigation Measures*

To reduce the potential for noise impacts resulting from project construction, the following measures will be implemented during project construction. The proposed measures will adequately mitigate the noise impact to a less-than-significant level at adjacent residences.

- MM-CON 1.7:** Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- MM-CON 1.8:** Unnecessary idling of internal combustion engines within 100 feet of residences shall be strictly prohibited.
- MM-CON 1.9:** Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors and portable power generators, as far practical from noise sensitive residences.
- MM-CON 1.10:** All construction equipment shall be required to conform to Section 7-1.01I – Sound Control Requirements of the latest Standard Specifications.
- MM-CON 1.11:** Avoid nighttime construction work within 225 feet of sensitive land uses where feasible.
- MM-CON 1.12:** Demolition and pile driving activities shall be limited to day-time hours only. If night-time, impulsive work is required, implement a construction noise-monitoring program and provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receivers.

2.22 CUMULATIVE IMPACTS

2.22.1 Regulatory Setting

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

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

CEQA Guidelines, Section 15130, describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts, under CEQA, can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under NEPA, can be found in 40 CFR, Section 1508.7 of the CEQ Regulations.

2.22.2 Impacts

In a cumulative impacts analysis, the identification of “past, present, and reasonably foreseeable future actions” can utilize either the “list approach” or the “adopted plan” approach. The list approach identifies specific projects in the vicinity, typically provided by a local planning department. The adopted plan approach relies on a general plan or transportation plan or other planning document, which by definition accounts for cumulative growth in a defined area.

For this analysis, the adopted plan approach is utilized as it is compatible with the nature of the proposed infrastructure project, which is to accommodate projected transportation demand over the long term. As examples, the traffic model that was utilized to project future build and no build conditions is based on the planned growth of the area, as contained in the adopted general plan of Pacifica and the surrounding cities. The traffic projections from cumulative growth were also used in the quantification of noise, air quality, and climate change impacts.

It should be noted that as part of the EIR Notice of Preparation process, a comment letter was received from the attorneys representing the property owners of a 57 acre parcel along the project alignment between Fassler Avenue and Reina Del Mar (APN 018-140-62), who indicated that there is a development proposal in the planning stages for this parcel. The exact development entitlements being sought are not known at this time, however, it is envisioned that the site may include “various

civic improvements such as a convention center, city hall, and/or other government buildings or offices.”³¹

The discussion, below, addresses resource areas where the project will result in an impact and, therefore, there is a potential for a cumulative impact. Resources areas not affected by the project are not discussed because, by definition, no cumulative impact could occur. Examples of the latter include cultural resources, geology, floodplains, energy, and farmlands.

2.22.2.1 Traffic

For traffic, the Resource Study Area (RSA) was defined as the area within the project limits, as well as the surrounding area where the project will result in measurable changes in traffic patterns. Thus, the RSA includes the freeway segments, arterial streets, and intersections identified in the tables shown in Section 2.6.

Cumulative development has resulted in a significant increase in traffic on SR 1, Fassler Avenue, Reina Del Mar Avenue, and in the project area as a whole, and future increases are projected to occur. The improvements that would be constructed under either Build Alternative would not contribute toward this increase in traffic volumes; rather, they would improve traffic operations for these vehicle trips, as described in Section 2.6. Therefore, the project would not result in a cumulative traffic impact.

2.22.2.2 Visual/Aesthetics

The RSA for visual impacts was defined as the SR 1 segment within the project limits, as well as those adjacent areas where the roadway improvements would be visible from various public vantage points. As discussed in Section 2.7 *Visual/Aesthetics*, either of the two Build Alternatives would remove several mature landscape trees along the western side of SR 1, between San Marlo Way and Reina Del Mar Avenue. This change will be visible from the roadway itself, as well as from many locations on the east side of SR 1. It should be noted that while the Build Alternatives would result in the removal of these trees, which are a visual resource along the alignment, removal of these trees would also improve the views of the coastal areas from locations east of SR 1.

In general, the relative scale of this specific project will not detract from the quality of the total visual environment. The regional landscape can accommodate the proposed additional pavement width, earthwork, and tree loss associated with this project without losing much noticeable visual quality.

Even though visual impacts along the project corridor may be generally minor, an important consideration is the cumulative impacts to views and visual resources in the project area that may result from residential, commercial, industrial, and highway development in the entire region. These land use activities can degrade the visual character of landscape units and can affect the visual unity and intactness of key views. As described previously in this assessment, the proposed Build Alternatives are not anticipated to have a substantial visual and aesthetic impact on the key views or viewers near the site. While there have been improvements to portions of SR 1 to the north and south of the project area, given the existing terrain and views of the alignment, as well as the localized nature of the proposed improvements, the project is not anticipated to contribute to

³¹ Pascuzzi, Moore & Stoker, A Professional Corporation. Letter to Joseph Hurley, Director of Transportation Programs, San Mateo County Transportation Authority, July 21, 2010.

substantial cumulative visual and aesthetic changes when combined with other recent and future projects in the vicinity. Therefore, the resulting cumulative impact is considered less than significant with the design measures incorporated into the project.

2.22.2.3 *Air Quality*

For air quality, the RSA was defined as the land uses adjacent to the freeway segments within the project limits. These land uses are those where project-related changes, coupled with increased traffic from ongoing growth, could result in cumulatively substantial increases in emissions of air pollutants.

Cumulative development has resulted in a substantial degradation in ambient air quality in the greater San Francisco Bay Area. However, due to emissions control technology, overall air quality has been improving in recent years. Although most present and future development will likely increase emissions, improvements in technology are largely expected to offset such increases. The project will not contribute to the region's emissions because it will not generate additional vehicle trips or lead to unplanned growth. Rather, the project is expected to reduce area-wide emissions by decreasing congestion and vehicle delay, as described in Section 2.13 *Air Quality*. Therefore, the cumulative air quality impact would not be substantial.

Emissions from the project are addressed and accounted for in the regional analysis that is performed for a proposed project's inclusion in the RTP and TIP for San Mateo County. The project is listed in the latest approved RTP and TIP that were found to conform to the SIP.

2.22.2.4 *Noise and Vibration*

For noise, the RSA was defined as the land uses adjacent to the freeway segment and the intersections within the project limits. These land uses are those where project-related changes, coupled with increased traffic from ongoing growth, could result in cumulatively substantial increases in noise.

Cumulative development has resulted in a substantial increase in ambient noise levels in the project area. Ground traffic is the single largest source of noise, especially in the vicinity of the freeways. Noise typically associated with residential and urban environments is present, which also contributes to the cumulative ambient noise levels. The project would incrementally contribute to overall noise levels, as described in Section 2.14 *Noise*. The analysis in Section 2.14 indicates, however, that future increases in noise - taking into account both the project and planned growth - will not be substantial. Therefore, the cumulative noise impact would not be substantial.

2.22.2.5 *Biological Environment and Resources*

For the biological environment, the RSA was defined as the BSA and the areas extending up the hillsides to the east and northwest toward Mori Point. As described in Sections 2.15-2.20, the proposed Build Alternatives would not directly affect natural communities of concern, such as riparian or aquatic habitats. The project will not create new substantial barriers to the movement of wildlife and/or fish passage. The project will not affect wetland habitat or other waters in the vicinity of the proposed roadway improvements.

With the mitigation measures outlined in Sections 2.15, *Natural Communities*, 2.16, *Wetlands and Other Waters*, 2.17, *Plant Species*, 2.18, *Animal Species*, 2.19, *Threatened and Endangered Species*, and 2.20, *Invasive Species*, of this document, the project will not affect any special-status plant species. In addition, there are no other recently-constructed, approved, and/or pending projects that would contribute to the cumulative loss of biological resources in this area. For these reasons, while the proposed Build Alternatives would have impacts of their own, the project would not result in substantial cumulative biological resources impacts.

CHAPTER 3 CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) EVALUATION

3.1 INTRODUCTION

The project is subject to federal and state environmental review requirements because the project sponsor(s) proposes to use federal funds from the Federal Highway Administration (FHWA) and/or the project requires a FHWA approval action. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). SMCTA is a project sponsor, and the Department is the lead agency under CEQA and NEPA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable Federal laws for this project is being, or has been, carried out by the Department under its assumption of responsibility pursuant to 23 U.S.C. 327.

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

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

3.2 DISCUSSION OF SIGNIFICANCE OF IMPACTS

Below are impact conclusions under CEQA for the impact categories in this document. The reader is referred to the *Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization and/or Mitigation Measures* for the details regarding these impacts.

3.2.1 Less-Than-Significant Effects of the Proposed Project

3.2.1.1 *Land Use*

The proposed improvements would not result in significant land use impacts (refer to Section 2.1, *Land Use*).

3.2.1.2 Growth

While the proposed widening and intersection improvements will improve traffic operations, the overall capacity of SR 1 will not substantially change because the SR 1 segments north and south of the project will remain unchanged. Similarly, the overall capacity of Reina Del Mar Avenue and Fassler Avenue/Rockaway Beach Avenue will not substantially change because the project will not add any new through lanes to those roadways (refer to Section 2.2 *Growth*).

3.2.1.3 Relocations

The project would not result in significant displacement or relocation impacts (refer to Section 2.3 *Relocations*).

3.2.1.4 Environmental Justice

The project would not result in environmental justice impacts (refer to Section 2.4 *Environmental Justice*).

3.2.1.5 Utilities/Emergency Services

The project would not result in significant impacts to utilities or emergency services (refer to Section 2.5 *Utilities/Emergency Services*).

3.2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

The project would result in beneficial impacts to traffic and circulation, as well as to pedestrian and bicycle facilities (refer to Section 2.6 *Traffic and Transportation/Pedestrian & Bicycle Facilities*).

3.2.7 Visual/Aesthetics

While the project's visual impacts would be adverse, they would not result in a significant impact under CEQA because: 1) they would not constitute a substantial adverse effect on a scenic vista; 2) they would not substantially damage scenic resources, including, but not limited to trees, rock outcroppings and historic buildings within a state scenic highway; 3) the loss of the vegetation would not substantially degrade the existing visual character or quality of the area; and 4) the project would not introduce a new source of substantial light or glare into the area. Refer to Section 2.7 *Visual/Aesthetics* of this document.

3.2.1.8 Hydrology and Floodplain

Construction of the project will not substantially increase impervious surfaces and, therefore, increases in pollutant-containing runoff will not be significant. Ground water recharge impacts will not be significant. Further, in compliance with Caltrans' NPDES permit, the project includes feasible BMPs to treat stormwater runoff. Refer to Section 2.9 *Hydrology and Floodplain*.

3.2.1.9 Water Quality and Storm Water Runoff

The project would not result in significant impacts to water quality (refer to Section 2.10 *Water Quality and Storm Water Runoff*).

3.2.1.10 Geology/Soils/Seismic/Topography

The proposed project will involve typical highway excavation and grading practices necessary to construct the additional lanes and intersection modifications. There are no geologic features on the site that would pose special or unique hazards to users of the proposed improvements. The project will implement standard engineering practices to ensure that geotechnical and soil hazards do not result from its construction. Refer to Section 2.11 *Geology/Soils/Seismic/Topography*, of this document.

3.2.1.11 Air Quality

The proposed project is in conformance with the Clean Air Act and the State Implementation Plan. Construction of the proposed project would not cause or contribute to violations of carbon monoxide (CO) standards. Construction of the proposed project would not substantially increase MSAT emissions within the project limits. Regional MSAT emissions would not change due to the project. Refer to Section 2.13 *Air Quality*, of this document.

3.2.1.12 Noise

The Caltrans *Traffic Noise Analysis Protocol (TNAP)* states that a traffic noise impact may be considered significant under CEQA if the project is predicted to result in a substantial increase in traffic noise. A substantial noise increase is defined as an increase of 12 dBA Leq(h) above existing conditions. The results of the traffic noise modeling indicate that the project will typically result in increases of zero (0) to two (2) dBA Leq(h) throughout the study area. The highest increases would be two (2) dBA Leq(h), which would not be a perceptible increase. Therefore, traffic noise impacts of the proposed project are considered less than significant under CEQA. Refer to Section 2.14, *Noise*, of this document.

3.2.1.13 Biological Environment and Resources

The proposed project would not directly affect natural communities of concern, such as riparian or aquatic habitats. The project will not create new substantial barriers to the movement of wildlife and/or fish passage. The project will not affect wetland habitat or other waters in the vicinity of the proposed roadway improvements. With the mitigation measures outlined in Sections 2.15 *Natural Communities*, 2.16 *Wetlands and Other Waters*, 2.17 *Plant Species*, 2.18 *Animal Species*, 2.19 *Threatened and Endangered Species*, and 2.20 *Invasive Species*, of this document, the project will not affect any special-status plant species.

The proposed project would not significantly affect individual American peregrine falcons or bank swallows or foraging habitat used by these state threatened or endangered species.

3.2.2 Significant Environmental Effects of the Proposed Project

3.2.2.1 *Cultural Resources*

Two separate Environmentally Sensitive Areas are included as part of the project and will be maintained for each resource. ESA 1 is for CA-SMa-162 and ESA 2 is for CASMa-268. Inclusion of the mitigation measures CULT-1.1 and CULT-1.2 outlined in Section 2.8 *Cultural Resources*, will reduce any effects on cultural resources.

For areas outside the two ESAs, measures CULT-2.1 and CULT-2.2 outlined in Section 2.8 *Cultural Resources*, will avoid potential impacts to unknown resources in the site area.

3.2.2.2 *Hazardous Waste/Materials*

Fuel leak incidents have been reported on and near the project SR 1 alignment that have resulted in residual petroleum hydrocarbon concentrations in soil and ground water. Fuel leak incidents reported at 4460 Cabrillo Highway (former Union Oil Station) within the project alignment, and at 2095 Coast Highway (currently active Alliance Station) located near the project, have affected soil and/or ground water quality in areas where earthwork activities associated with the planned highway improvements are proposed. Materials likely used in soils at the Vallemar Station property could still be present in soils at this location.

In addition, soil with elevated concentrations of lead is likely to be present. An embankment consisting of unknown fill materials is present within the project limits, and naturally-occurring asbestos may be present in rock within the project alignment. Lastly, structures located within the project alignment presumably will be demolished that may include asbestos-containing materials. Construction of the proposed project, therefore, may result in hazardous materials effects because the presence of contamination could expose construction workers to those substances in concentrations that exceed regulatory thresholds.

Incorporation of the mitigation measures described in Section 2.12 *Hazardous Waste/Materials*, which are included in the project, will reduce hazardous materials impacts to a less-than-significant level.

3.2.2.3 *Biological Resources*

Construction activities during the breeding season of loggerhead shrike, yellow warbler, San Francisco common yellowthroat, and white-tailed kite could affect breeding success of these special-status species.

Implementation of the Narrow Median Build Alternative would replace 5.53 acres of upland habitats potentially occupied by California red-legged frogs with pavement. The Landscaped Median Build Alternative would result in an additional 0.77 acres of impact to dispersal habitat. An additional 4.12 acres of potentially occupied upland habitats would be temporarily impacted during construction. Construction activities may adversely affect individual California red-legged frogs dispersing or foraging within the construction zone.

Implementation of the Narrow Median Build Alternative would also replace 5.53 acres of upland habitats potentially occupied by dispersing San Francisco garter snakes with pavement. (This is the same habitat as for California red-legged frogs.) The Landscaped Median Build Alternative would result in an additional 0.77 acres of impact to dispersal habitat. An additional 4.12 acres of potentially occupied upland habitats would be temporarily affected during construction. Construction activities may adversely affect individual San Francisco garter snake dispersing or following prey within the construction zone.

With incorporation of the mitigation measures outlined in Section 2.19 *Threatened and Endangered Species*, of this document, the proposed project would not substantially affect movement or dispersal of California red-legged frogs or San Francisco garter snakes.

3.2.2.4 Construction Impacts

Construction activities have the potential to adversely affect water quality in nearby creeks and waterways.

Without proper emissions control measures in place, air quality impacts during construction could be substantial. Standard Caltrans construction management practices are adequate to assure that associated air quality impacts will be minimal. These include requiring emission controls on construction equipment and spraying water on exposed surfaces to minimize dust.

Noise from construction activities is likely to constitute a temporary annoyance at residences located along SR 1 during specific activities. Construction activities may also generate noticeable ground vibration at nearby residences, with pile driving being the construction source that could produce the greatest ground vibrations, if used in the project.

3.2.2.5 Mandatory Findings of Significance

- 1) *Does the project have the potential to 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, 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?*

The project's potential impacts upon sensitive habitats or special status species are discussed in Sections 2.15-2.19 of this report. The project's potential impacts to important examples of the major periods of California history or prehistory are evaluated in Section 2.8 *Cultural Resources*, of this report, and in Section 3.2.2.1 *Cultural Resources*, above.

- 2) *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

The cumulative impacts of the project are evaluated in Section 2.22 *Cumulative Impacts*, of this report.

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

The project would not result in significant impacts upon human beings. Refer to Sections 2.1-2.8 of this report.

- 4) *Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?*

The project is not anticipated to achieve short-term environmental goals to the disadvantage of long-term environmental goals. Refer to Sections 2.1-2.8 of this report.

3.2.3 Unavoidable Significant Environmental Effects

The proposed project, with the avoidance, minimization, and mitigation measures described above and in Section 2.0, *Affected Environment, Environmental Consequences, & Avoidance, Minimization and/or Mitigation Measures*, of this document, would not result in any unavoidable, significant impacts under CEQA.

3.2.4 Growth-Inducing Impacts

The project is located within an urbanized area of the city of Pacifica and its construction would not open additional areas to development. The project is proposed to remove an existing bottleneck for traffic congestion and improve the level of service operation in the immediate project area. While the proposed widening and intersection improvements would improve traffic operations, the overall capacity of SR 1 would not substantially change because the SR 1 segments north and south of the project would remain unchanged. The project would not create any new connections to other roadways or areas. Similarly, the overall capacity of Reina Del Mar Avenue and Fassler Avenue/Rockaway Beach Avenue will not substantially change because the project alternatives would not add any new through lanes to those roadways.

There are no pending or recently-approved projects whose construction is conditioned upon the implementation of the project.

The project would not result in any direct growth-inducing impacts, because no development is tied to the construction of the widening and intersection improvements. Indirect growth-inducing impacts would be minimal as the project does not include the construction of extended segments of new through lanes on the freeways or local streets

3.3 CLIMATE CHANGE

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gases (GHGs), 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's in 1988, has led to increased efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas (GHG) Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

Transportation sources (passenger cars, light duty trucks, other trucks, buses and motorcycles) in the state of California make up the largest source (second to electricity generation) of greenhouse gas emitting sources. Conversely, the main source of GHG emissions in the United States is electricity generation followed by transportation. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improve system and operation efficiencies; 2) reduce growth of vehicle miles traveled (VMT); 3) transition to lower GHG fuels; and 4) improve vehicle technologies. To be most effective all four should be pursued collectively. The following regulatory setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

3.3.1 Regulatory Setting

3.3.1.1 *State*

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate change at the state level.

Assembly Bill 1493 (AB 1493), Pavley: Vehicular Emissions: Greenhouse Gases (AB 1493), 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the United States Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be

working with Federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order S-3-05: (signed on June 1, 2005, by Governor Arnold Schwarzenegger) the goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

AB32 (AB 32), the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in Executive Order S-3-05, while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

Executive Order S-01-07: Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this Executive Order, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by 2020.

Senate Bill 97 (Chapter 185, 2007): required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the State CEQA Guidelines for addressing greenhouse gas emissions. The Amendments became effective on March 18, 2010.

3.3.1.2 Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are , no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and Executive Order 13514- *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the interagency Climate Change Adaptation Task Force, which is engaged in developing a U.S. strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding**: The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur

hexafluoride (SF₆)--in the atmosphere threaten the public health and welfare of current and future generations.

- **Cause or Contribute Finding:** The Administrator found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009.³² On May 7, 2010 the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* were published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a memorandum on May 21, 2010.³³

The final combined USEPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon (MPG) if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On January 24, 2011, the U.S. EPA along with the U.S. Department of Transportation and the State of California announced a single timeframe for proposing fuel economy and greenhouse gas standards for model years 2017-2025 cars and light-trucks. Proposing the new standards in the same timeframe (September 1, 2011) signals continued collaboration that could lead to an extension of the current National Clean Car Program.

3.3.2 Affected Environment

3.3.2.1 *Project Analysis*

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.³⁴ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections

³² <http://www.epa.gov/climatechange/endangerment.html>.

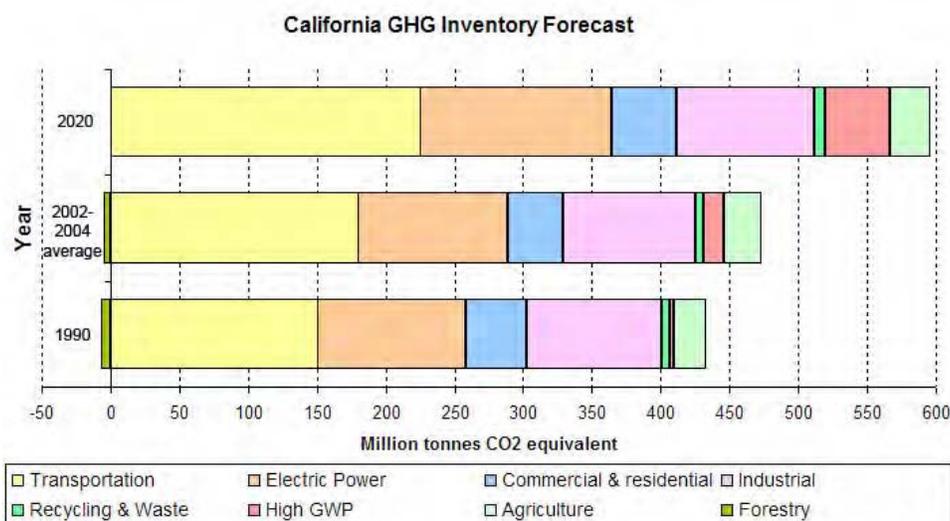
³³ <http://epa.gov/otaq/climate/regulations.htm>.

³⁴ This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals in *How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the SCAQMD (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

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. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG. As part of its supporting documentation for the Draft Scoping Plan, CARB released the GHG inventory for California (Forecast last updated: 28 October 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

FIGURE 3.1 CALIFORNIA GREENHOUSE GAS INVENTORY

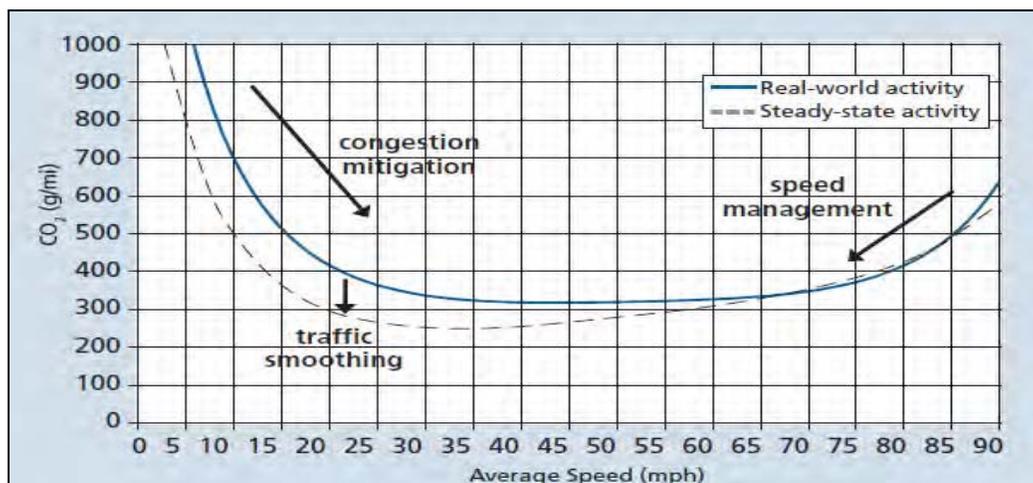


Taken from : <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

The Department and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation (see Climate Action Program at Caltrans (December 2006), the Department has created and is implementing the Climate Action Program at the Department that was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>

One of the main strategies in the Department’s Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0-25 miles per hour (see Figure 3.2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors, GHG emissions, particularly CO₂, may be reduced.

FIGURE 3.2 POSSIBLE EFFECTS OF TRAFFIC OPERATION STRATEGIES IN REDUCING ON-ROAD CO₂ EMISSIONS³⁵



As described in Section 1.2 *Purpose and Need for the Proposed Project*, the intent of the project is to improve traffic operations by reducing congestion on this segment of SR 1, which acts as a bottleneck. During the early planning phase of the project, consideration was made of numerous alternatives and solutions to achieve the project purpose. Please refer to Section 1.2 *Purpose and Need for the Proposed Project*, and Section 1.4 *Alternatives*. While the project would provide additional through-lane capacity along this segment of SR 1, the project would not substantially alter travel or distribution patterns.

Modeling of project GHG emissions using CT-EMFAC was completed as part of this analysis. The proposed project would not substantially alter traffic volumes and either of the Build Alternatives would increase travel speeds and reduce travel time through the project corridor.³⁶ The proposed project is expected to result in a decrease in GHG emissions when comparing the existing conditions to the future Build conditions. With either of the project Build Alternatives, the average travel speed through the project limits increased from 8-10 mph to 21-24 mph. This increase in speed would lower the modeled GHG emission rate during the peak hours and result in an approximately 12 percent decrease in GHG emissions (see Table 3.1 below).

Scenario	Tons of CO₂ per year
Existing Conditions (2011)	126.26
Future No-Build (2035)	124.17
Future with either Project Build Alternative (2035)	109.48

Source: Illingworth & Rodkin, June 2011.

³⁵ **Traffic Congestion and Greenhouse Gases:** Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010) <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>

³⁶ Fehr & Peers. Final Traffic Operations Report, SR 1/Calera Parkway, July 2008.

3.3.2.2 Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from 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 mitigated to some degree by longer intervals between maintenance and rehabilitation events.

The project includes measures that will reduce GHG emissions during construction, including the following:

- A transportation management plan (TMP) will be prepared and implemented. Among other benefits, the TMP will reduce traffic congestion during construction.
- Unnecessary idling of internal combustion engines will be strictly prohibited.

3.3.2.3 CEQA Conclusion

As discussed in the project analysis above, the Department does anticipate a decrease in CO₂ emissions in the project area as a result of the project. However, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a determination regarding the significance of the project's direct impact and its contribution on the cumulative scale to climate change. Caltrans is firmly committed however to taking measures to help reduce energy consumption and greenhouse gas emissions both at the program level and at the project level. These measures are outlined in Section 3.3.2.4 below.

3.3.2.4 Greenhouse Gas Reduction Strategies and AB 32 Compliance

The Department continues to be actively involved on the Governor's Climate Action Team as CARB works to implement the Governor's Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a \$222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 3.3 Mobility Pyramid.

FIGURE 3.3 MOBILITY PYRAMID



The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high density housing along transit corridors. The Department is working closely with local jurisdictions on planning activities; however, the Department does not have local land use planning authority. The Department is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at the UC Davis.

Table 3.2 summarizes the Department and statewide efforts that the Department is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

TABLE 3.2
DEPARTMENT AND STATEWIDE EFFORTS TO REDUCE GHG EMISSIONS

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34

Portland Cement	Office of Rigid Pavement	Cement and Construction Industries	2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs	Goods Movement Action Plan	Not Estimated	Not Estimated
Total				2.72	18.67

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

1. The Department and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. In addition, the San Mateo County Transportation Authority provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity.
3. Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. The project proposes planting in the intersection slopes, drainage channels, and seeding in areas adjacent to frontage roads and planting a variety of different-sized plant material and scattered skyline trees where appropriate but not to obstruct the view of the mountains. The Landscaped Median Build Alternative would also provide landscaping within the roadway median between Fassler Avenue/Rockaway Beach Avenue and Reina Del Mar Avenue. Caltrans has committed to planting a minimum of 40 trees. These trees will help offset any potential CO₂ emissions increase. Based on a formula from the Canadian Tree Foundation, it is anticipated that the planted trees will offset between 7-10 tons of CO₂ per year.
4. The project would incorporate the use of energy efficient lighting, such as LED traffic signals. LED bulbs — or balls, in the stoplight vernacular — cost \$60 to \$70 apiece but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED balls themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the projects CO₂ emissions.
5. According to Caltrans Standard Specification Provisions, idling time for lane closure during construction is restricted to ten minutes in each direction; in addition, the contractor must comply with the Bay Area Air Quality District's rules, ordinances, and regulations in regards to air quality restrictions.

3.3.2.4 *Adaptation Strategies*

“Adaptation strategies” refer to how the Department and others can 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, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaption must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, Governor Schwarzenegger signed Executive Order S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change.

The California Resources Agency (now the Natural Resources Agency, (Resources Agency)), through the interagency Climate Action Team, was directed to coordinate with local, regional, state and federal public and private entities to develop a state Climate Adaptation Strategy. The Climate Adaptation Strategy will summarize the best known science on climate change impacts to California, assess California's vulnerability to the identified impacts and then outline solutions that can be implemented within and across state agencies to promote resiliency.

As part of its development of the Climate Adaptation Strategy, Resources Agency was directed to request the National Academy of Science to prepare a *Sea Level Rise Assessment Report* by December 2010 to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;
- The range of uncertainty in selected sea level rise projections;
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems;
- A discussion of future research needs regarding sea level rise for California.

Furthermore Executive Order S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance and operational improvements of the system and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Prior to the release of the final *Sea Level Rise Assessment Report*, all state agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. However, all projects that have filed a Notice of Preparation, and/or are programmed for construction funding the next five years (through 2013), or are routine maintenance projects as of the date of Executive Order S-13-08 may, but are not required to, consider these planning guidelines. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data. (Executive Order S-13-08 allows some exceptions to this planning requirement.) A Notice of Preparation (NOP) of the Draft EIR/EA for this project was filed with the State Clearinghouse on February 12, 2010.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted as part of Governor's Schwarzenegger's Executive Order on Sea Level Rise and is mobilizing to be able to respond to the National Academy of Science report on Sea Level Rise Assessment which is due to be released by December 2010. Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change impacts, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

CHAPTER 4 COMMENTS AND COORDINATION

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including: project development team meetings, interagency coordination meetings, a public scoping meeting, presentations and other information meetings, and meetings with commercial property owners. This chapter summarizes the results of Caltrans' and SMCTA's efforts to fully identify, address and resolve project-related issues through early and continuing coordination.

Substantial coordination, outreach, and public participation regarding the proposed project has occurred, which is summarized as follows:

- Ø A CEQA Notice of Preparation (NOP) of an EIR was circulated to local, regional, state, and federal agencies from February 12, 2010 through March 17, 2010. Several comment letters were received, including letters from the U.S. Department of the Interior National Park Service, the California Coastal Commission, and the U.S. Fish and Wildlife Service. Issues and concerns raised in these letters have been addressed in this document.

- Ø An Environmental Scoping Meeting was held at the Pacifica Community Center on March 3, 2010. The purpose of this meeting was to present an overview of the project and solicit input regarding the environmental analysis from members of the public in accordance with CEQA. Notices for the Scoping Meeting were mailed to residences and businesses in the project area and were published in the local newspaper. The Scoping Meeting was attended by approximately 100 persons. Written and verbal comments were submitted by those in attendance.

- Ø At the request of many members of the public at the scoping meeting, an additional informational meeting was held at the Pacifica City Council Chambers on June 22, 2010. The main purpose for this meeting was to provide the public with more detail regarding the alternatives for the project that had been considered and the reasons those alternatives were not being evaluated further. Notices for this second meeting were also mailed to residences and businesses in the project area and were published in the local newspaper. Approximately 100 people attended the second informational meeting on June 22, 2010. Prior to the meeting, graphics of the alternatives and a matrix summarizing the alternatives were posted on the SMCTA web site for the public to access and review. The project sponsor and the consultant team presented an overview of the alternatives and answered questions from the public regarding the alternatives and the environmental analysis process.

Ø In addition, the public scoping comment period was extended until July 22, 2010 to allow additional time for the public to submit comments after the second informational meeting in June. Approximately 45 comment letters and emails were received from members of the public raising questions and concerns about the project. Some of the most common comments included the following:

- Opposition to the need for the project and roadway widening;
- Support for other alternatives, including a grade separation or a roundabout alternative;
- Consideration of a reversible lane to address purpose and need;
- Lack of proper noticing regarding meetings;
- Disagreement with traffic analysis and projections;
- Traffic congestion is caused by schools and project should propose more busses instead of widening;
- Questions and concerns regarding pedestrian and bicycle access; and
- Concerns regarding growth inducement.

Due to the extensive interest in other alternatives to meet the purpose and need, subsequent to this public meeting, additional detail was added to Section 1.4 *Project Alternatives* of this document, in order to provide more information to the public regarding the evaluation of various alternatives.

Ø Several consultation meetings have been held with staff from responsible agencies for this project, including the U.S. Fish & Wildlife Service, California Department of Fish and Game, and the California Coastal Commission. These meeting were held to consult with agency staff regarding sensitive environmental resources near the site, to clarify agency review processes for this project, and to obtain input from the agencies regarding potential mitigation and avoidance measures. Meetings to date and agencies represented include:

October 20, 2005	California Department of Fish and Game (CDFG), California Coastal Commission (CCC), U.S. Army Corps of Engineers (USACE), San Mateo County Transportation Agency (SMCTA), Caltrans, City of Pacifica
September 20, 2006	USFWS, CCC, SMCTA, City of Pacifica
July 8, 2008	CCC, SMCTA, Caltrans
August 14, 2008	USFWS, CDFG, CCC, Regional Water Quality Control Board (RWQCB), SMCTA, Caltrans, City of Pacifica
September 5, 2008	USFWS, CCC, CDFG, Caltrans, SMCTA, City of Pacifica
August 10, 2009	USFWS, Caltrans

These meetings provided confirmation to the project team regarding the processes for agency reviews, the technical approach for analyzing potential impacts to coastal wetlands and sensitive habitat areas. Agreement was also obtained regarding the approach for analysis of special-status species impacts, as well as the approach for compensatory mitigation.

- Ø The SMCTA website (www.smcta.com) contains an overview of the project, links to project materials, and information about the schedule for the project's approval and construction (including a listing of upcoming public meetings). The website also provides an opportunity for people to submit comments and questions regarding the project.

The project development team for the proposed project includes staff from the SMCTA, as well as staff from the City of Pacifica and the Department. The City is a partner on the project and will be issuing encroachment permits to the Department/SMCTA for all work that extends onto City streets. Regular meetings of the project development team have been held to coordinate project design issues and the environmental analysis.

Throughout the process Caltrans, the SMCTA, and the City of Pacifica have responded to comments and questions, and have addressed the issues raised by the public and agencies in this environmental document.

CHAPTER 5 LIST OF PREPARERS

The following individuals were principally responsible for preparing this EIR/EA and/or the technical studies upon which the EIR/EA is based:

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This EIR/EA was distributed to the following legislators, public officials, agencies and organizations. Agency names marked with an asterisk (*) received copies through the State Clearinghouse.

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U.S. Fish and Wildlife Service
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Appendix A

CEQA Checklist

Supporting documentation of all CEQA checklist determinations is provided in Chapters 2 and 3 of this Environmental Impact Report/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or compensation measures is under the appropriate topic headings in Chapters 2 and 3.

CEQA Environmental Checklist

04-SM-1

41.7/43.0

04-254600

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P.M/P.M.

E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IV. BIOLOGICAL RESOURCES: Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

V. CULTURAL RESOURCES: Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VI. GEOLOGY AND SOILS: Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VII. GREENHOUSE GAS EMISSIONS: Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- 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?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IX. HYDROLOGY AND WATER QUALITY: Would the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. LAND USE AND PLANNING: Would the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. MINERAL RESOURCES: Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. NOISE: Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIII. POPULATION AND HOUSING: Would the project:

a) Induce substantial 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XIV. PUBLIC SERVICES:

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

Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--	--------------------------------	---------------------------------------	------------------------------	-----------

XV. RECREATION:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 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? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XVI. TRANSPORTATION/TRAFFIC: Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix B

Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION

OFFICE OF THE DIRECTOR
P.O. Box 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
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*Flex your power!
Be energy efficient!*

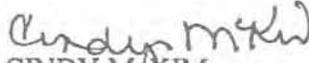
July 20, 2010

TITLE VI POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, or age, please visit the following web page:
http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact Charles Wahnnon, Manager, Title VI and Americans with Disabilities Act Program, California Department of Transportation, 1823 14th Street, MS-79, Sacramento, CA 95811. Phone: (916) 324-1353 or toll free 1-866-810-6346 (voice), TTY 711, fax (916) 324-1869, or via email: charles_wahnnon@dot.ca.gov.


CINDY MCKIM
Director

Appendix C

Summary of Relocation Benefits

California Department of Transportation

Relocation Assistance Program

DECLARATION OF POLICY

“The purpose of this title is to establish a uniform policy for fair and equitable treatment of persons displaced as a result of federal and federally assisted programs in order that such persons shall not suffer disproportionate injuries as a result of programs designed for the benefit of the public as a whole.”

The Fifth Amendment to the U.S. Constitution states, “No Person shall...be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation.” The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations, Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, as discussed below.

FAIR HOUSING

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This Act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require the Department to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized, and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state’s relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations, and also are given a detailed explanation of the Caltrans Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit

organization should commit to purchase or rent a replacement property without first contacting a Department relocation advisor.

RELOCATION ASSISTANCE ADVISORY SERVICES

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the United States. The Department will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are “decent, safe and sanitary.” Nonresidential displacees will receive information on comparable properties for lease or purchase (For business, farm and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin, and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning Federal and State assisted housing programs, and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable “decent, safe and sanitary” replacement dwelling, available on the market, is offered to them by the Department.

RESIDENTIAL RELOCATION PAYMENTS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property), may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is \$22,500. If the total entitlement (without the moving payments) is in excess of \$22,500, the Last Resort Housing Program will be used (See the explanation of the Last Resort Housing Program below).

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by the Department prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when the Department determines that the cost to rent a comparable “decent, safe and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain

limitations noted under the Down Payment section below. The maximum amount payable to any eligible tenant and any owner-occupant of less than 180 days, in addition to moving expenses, is \$5,250. If the total entitlement for rent supplement exceeds \$5,250, the Last Resort Housing Program will be used.

In order to receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe and sanitary” replacement dwelling within one year from the date the Department takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 180 days and tenants in legal occupancy prior to Caltrans’ initiation of negotiations. The down payment and incidental expenses cannot exceed the maximum payment of \$5,250. The one-year eligibility period in which to purchase and occupy a “decent, safe and sanitary” replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the \$22,500 and \$5,250 limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, the Department will within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced;
- Specific arrangements needed to accommodate any family member(s) with special needs;
- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family;
- Preferences in area of relocation;
- Location of employment or school.

NONRESIDENTIAL RELOCATION ASSISTANCE

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items acquired in the Right of Way contract may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.
- Expenses related to searching for a new business site, up to \$2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to \$10,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses which meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than \$1,000 nor more than \$20,000.

ADDITIONAL INFORMATION

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, except for any Federal law providing local "Section 8" Housing Programs.

Any person, business, farm or nonprofit organization which has been refused a relocation payment by the Department relocation advisor or believes that the payment(s) offered by the agency are inadequate, may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from Caltrans Right of Way. California's law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

Appendix D

List of Acronyms

List of Acronyms

BRT	bus rapid transit
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CO ₂	carbon dioxide
CWA	Clean Water Act
EB	eastbound
FHWA	Federal Highway Administration
HOV	high occupancy vehicle
ISA	Initial Site Assessment
MCE	maximum credible earthquake
MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NB	northbound
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
O ₃	ozone
PM	particulate matter
PQS	Professionally Qualified Staff
PRC	(California) Public Resources Code
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	southbound
SHPO	State Historic Preservation Officer
SMCTA	San Mateo County Transportation Authority
SO ₂	sulfur dioxide
SR	State Route
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
WB	westbound

Appendix E

List of Technical Studies

List of Technical Studies

The following technical studies were prepared during the preparation of this EIR/EA for this project. These studies are available for review at the locations listed inside the front cover of this document.

Air Quality Report Highway 1/Calera Parkway Project Pacifica, California. November 3, 2009.

Prepared by Illingworth & Rodkin, Inc. Addenda to this report completed in 2010 and 2011.

Archaeological Survey Report. October 2009. Prepared by Basin Research Associates.

Addendum to this report completed in 2010.

Biological Assessment State Route 1/Calera Parkway Project. Caltrans District 04, City of Pacifica, San Mateo County. December 2010. Prepared by H.T. Harvey & Associates Ecological Consultants.

Historic Property Survey Report. October 2009. Prepared by Basin Research Associates.

Addendum to this report completed in 2010.

Historic Resource Evaluation Report. August 2009. Prepared by Basin Research Associates.

Addendum to this report completed in 2010.

Initial Site Assessment Highway 1/Calera Parkway Project, Pacifica, California. June 2009.

Prepared by Cornerstone Earth Group. Addendum to this report completed in 2010.

Natural Environmental Study State Route 1/Calera Parkway Project. Caltrans District 04, City of Pacifica. San Mateo County. December 2009. Prepared by H.T. Harvey & Associates Ecological Consultants. Addenda to this report completed in 2010 and 2011.

Preliminary Delineation of Wetlands and Other Waters/Delineation of Coastal Zone Wetlands within California Coastal Commission Jurisdiction State Route 1/Calera Parkway Project Improvement Pacifica, San Mateo County, California. August 2009. Prepared by H.T. Harvey & Associates Ecological Consultants.

Preliminary Geotechnical Report Highway 1/Calera Parkway Project 04-SM-1, PM 41.7/43.0 San Mateo County, California. September 2009. Prepared by Parikh Consultants, Inc.

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