Exhibit D

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State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

MONTEREY COUNTY, CALIFORNIA
05-MON-1 PM 72.3/72.9
EA 05-OL5700
Project 05-0000-0145
SCH # 2011071090

Initial Study with Mitigated Negative Declaration

Prepared by the
State of California Department of Transportation

April 2012

General Information About This Document

What's in this document?

This document contains a Mitigated Negative Declaration, which examines the environmental effects of a proposed project on Highway 1 in Monterey County.

The Initial Study and proposed Mitigated Negative Declaration were circulated to the public from August 1, 2011 to August 30, 2011 and second public circulation period was formally noticed from January 3, 2012 to February 6, 2012. Comment letters were received on the draft document. Responses to the circulated document are shown in the Comments and Responses section of this document, which has been added since the draft.

What happens after this?

The proposed project has completed environmental compliance after the circulation of this document. When funding is approved, the California Department of Transportation can design and build all or part of the project.

This document can also be accessed electronically at the following website:
http://www.dot.ca.gov/dist05/projects/

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 alternative formats, please call or write to Department of Transportation, Attn: Matt Fowler, District 5, 50 Higuera Street, San Luis Obispo, CA 93401; (805) 542-4603 Voice, or use the California Relay Service TTY number (805) 542-3259, or dial 711.

SCH# 2011071090
5-MON-1-PM 72.3/72.9
Project 05-000-0145
EA 05-0L5700

Improve State Route 1 near Carmel from approximately 625 feet south of the Rio Road intersection through the Carmel Valley Road intersection (post miles 72.3 to 72.9)

INITIAL STUDY
with Proposed Mitigated Negative Declaration

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

April 23, 2012
Date of Approval

Janet Newland
Acting Office Chief, Central Region
Environmental South
California Department of Transportation

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SCH# 2011071090

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

Caltrans proposes to improve State Route 1 near the City of Carmel-by-the-Sea from approximately 625 feet south of the Rio Road intersection through the Carmel Valley Road intersection (post miles 72.3 to 72.9). The project would build a northbound truck-climbing lane on State Route 1 from Rio Road to Carmel Valley Road.

Determination

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

- The proposed project would have no effect on farmlands/timberlands, cultural/paleontological resources, growth, population and housing, public services, recreation, utilities and service systems.
- The proposed project would have no significant effect on land use, traffic and transportation, hydrology and water quality, geology and soils, hazardous materials, air quality, or noise.
- The proposed project would have no significantly adverse effect on aesthetics, or biological resources because the following minimization and mitigation measures would be implemented to reduce potential effects to a level of insignificance.
- Mitigation measures would reduce impacts to aesthetic resources by incorporating a revegetation and landscape plan into the final design, providing construction staging areas within County and State right-of-way, and providing a Construction Management Plan. Refer to Section 2.1.3.
- Mitigation measures would reduce impacts to biological resources by providing revegetation and species protection. Refer to Sections 2.3.1 to 2.3.4.

Janet Newland
Acting Office Chief, Central Region
Environmental South
California Department of Transportation

April 23, 2012
Date of Approval

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List of Abbreviated Terms

$\mu g/m^3$	microgram of pollutant per cubic meter of air
AB	Assembly Bill
B.A.	Bachelor of Arts
B.S.	Bachelor of Science
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
dBA	A-weighted decibel
FHWA	Federal Highway Administration
HFC	hydrofluorocarbon
HFC-23	fluoroform
HFC-134a	s, s, s, 2 –tetrafluoroethane
HFC-152a	difluoroethane
$L_{eq}(h)$	The steady A-weighted level that is equivalent to the same amount of energy as that contained in the actual time-varying levels over one hour
L_{max}	maximum instantaneous level
M.A.	Master of Arts
mg/m^3	milligrams per cubic meter
M.S.	Master of Science
NEPA	National Environmental Policy Act
PE	Professional Engineer
Ph.D	Doctor of Philosophy
PM	post mile
PM_{10}	particulate matter with a diameter of 10 microns or smaller
$PM_{2.5}$	particulate matter with a diameter of 2.5 microns or smaller

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes improvements to State Route 1 near the City of Carmel-by-the-Sea from approximately 625 feet south of the Rio Road intersection through the Carmel Valley Road intersection. Figures 1-1 (Project Vicinity Map) and 1-2 (Project Location Map), on the following pages, show the location and its surroundings.

Due to heavy tourist traffic, State Route 1 is congested during commute periods and on weekends. The proposed improvements would improve the operations on this section of State Route 1 through 2030. A build alternative has been identified for State Route 1 in the study area. The proposed alternative would build a lane for truck traffic climbing the incline (a truck-climbing lane) on northbound State Route 1 from Rio Road to Carmel Valley Road, and add turn lanes and traffic signals at the intersection of Route 1 with Rio Road, which would improve the operation of the existing intersection. The proposed truck-climbing lane would connect with an existing truck-climbing lane on northbound State Route 1 north of Carmel Valley Road.

No acquisition of new state right-of-way is anticipated, but widening Rio Road to add turn lanes would require some additional county right-of-way.

The Transportation Agency of Monterey County updated its Regional Transportation Plan in 2010. The proposed improvements are listed in the Regional Transportation Plan and the April 2010 Capital Improvement Program for the County of Monterey. The project is also listed in the Association of Monterey Bay Area Government Metropolitan Transportation Plan 2002 Update.

1.2 Purpose and Need

1.2.1 Purpose

The purpose of the proposed project is to improve the level of service on State Route 1 between Rio Road and Carmel Valley Road.

1.2.2 Need

The improvements to State Route 1 between Rio Road and Carmel Valley Road are needed because the arterial level of service on this roadway segment is level of

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FIGURE 1

0 4150 8300
FEET

SOURCE: StreetMap_USA

I:\wrn0604\GIS\Proj Vic Map.mxd (2/9/2010)

State Route 1 Operational Improvements From Rio Road to Carmel Valley Road

Project Vicinity Map

05-MON-1 P.M.72.3/72.9

Figure 1-1 Project Vicinity Map

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Figure 1-2 Project Location Map

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service F during peak traffic hours on weekends and level of service E during peak commute hours on weekdays. This segment of northbound State Route 1 has an uphill grade averaging 6 percent. According to the Caltrans Highway Design Manual (Section 204), long, steep grades reduce overall capacity and level of service, and increase delays, particularly when the traffic flow includes slow-moving trucks, buses, and recreational vehicles.

Level of Service is a qualitative measure of traffic operating conditions, used as an industry standard for quantifying transportation facility operations, whereby a letter grade "A" through "F" is assigned to an intersection or roadway segment, representing progressively worsening traffic operations. Level of service is looked at in two ways: (1) mainline, or arterial, level of service, and (2) intersection level of service. Arterial level of service considers traffic speed between intersections as well the delay at intersections with traffic signals, while intersection level of service is based only on average delay at all approaches at that intersection.

Levels of Service have been computed using methods documented in the Transportation Research Board (TRB) Publication Highway Capacity Manual, Fourth Edition, 2000 (referred to as HCM-2000). For signalized intersections and all-way-stop-controlled (AWSC) intersections, the intersection delays and LOS reported are the average values for the whole intersection, computed based on HCM-2000. For two-way-stop-controlled (TWSC) intersections, the average delays and LOS are reported for the “worst-case” movement, computed based on HCM-2000. The delay-based LOS criteria for different types of intersection control are outlined in Table 1.1. The speed-based urban arterial segment LOS thresholds, also from HCM-2000, are shown in Table 1.2.

The traffic report prepared for the project relied on 2003 traffic count data to determine existing conditions. Although that data are now eight years old, an addendum prepared in August 2010 indicated that measured traffic volumes remain representative of existing and construction-year (2011 & 2012) conditions. While the annual average daily traffic volumes in the study area have fluctuated, the overall trend has been a reduction since 2005, probably because of slow economic conditions and a decline in tourism in the region in recent years. In fact, there has not been a significant increase in traffic volumes on any of the roadway segments in the study area between 2003 and 2009. It is not known when economic conditions and traffic volumes will recover, but it is unlikely that traffic volumes will exceed the existing volumes of 2003 in the near term (before 2013). As a result, the existing traffic

Table 1.1 HCM-2000 Based Level-of-Service Definitions and Criteria for Intersections

Level of Service	Flow Type	Operational Characteristics	Intersection Control Delay (seconds/vehicle)	
			Signal Control	Two-Way-Stop or All-Way Stop Control
"A"	Stable Flow	Free-flow conditions with negligible to minimal delays. Excellent progression with most vehicles arriving during the green phase and not having to stop at all. Nearly all drivers find freedom of operation.	≤ 10	0 – 10
"B"	Stable Flow	Good progression with slight delays. Short cycle-lengths typical. Relatively more vehicles stop than under LOS "A". Vehicle platoons are formed. Drivers begin to feel somewhat restricted within groups of vehicles.	> 10 – 20	> 10 – 15
"C"	Stable Flow	Relatively higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant, although many still pass through without stopping. Most drivers feel somewhat restricted.	> 20 – 35	> 15 – 25
"D"	Approaching Unstable Flow	Somewhat congested conditions. Longer but tolerable delays may result from unfavorable progression, long cycle lengths, and/or high volume-to-capacity ratios. Many vehicles are stopped. Individual cycle failures may be noticeable. Drivers feel restricted during short periods due to temporary back-ups.	> 35 – 55	> 25 – 35
"E"	Unstable Flow	Congested conditions. Significant delays result from poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures occur frequently. There are typically long queues of vehicles waiting upstream of the intersection. Driver maneuverability is very restricted.	> 55 – 80	> 35 – 50
"F"	Forced Flow	Jammed or grid-lock type operating conditions. Generally considered to be unacceptable for most drivers. Zero or very poor progression, with over-saturation or high volume-to-capacity ratios. Several individual cycle failures occur. Queue spillovers from other locations restrict or prevent movement.	> 80	> 50

Table 1.2 HCM-2000 Based Level-of-Service (LOS) Criteria for Roadway Segments

Urban Street Class	I	II	III	IV
Free Flow Speed Range	55-45 mph	45-35 mph	35-30 mph	30-25 mph
Typical Free Flow Speed	50 mph	40 mph	35 mph	30 mph
LOS	**Average Travel Speed (mph)**			
A	> 42	> 35	> 30	> 25
B	34 – 42	38 – 35	24 – 30	19 – 25
C	27 – 34	22 – 28	18 – 24	13 – 19
D	21 – 27	17 – 22	14 – 18	9 – 13
E	16 – 21	13 – 17	10 – 14	7 – 9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: HCM-2000, Exhibit 15-2 – "Urban Street LOS by Class"

volumes continue to conservatively represent the existing (2011) and construction-year (2012) condition. Also, the forecast traffic volumes for the design year of 2032 are equivalent to the design-year traffic volumes stated in the traffic report for year 2030. This is because the design-year volumes are estimated by escalating the existing traffic volumes.

This segment of northbound State Route 1 operates at an arterial level of service "E" during the weekday morning and evening peak hours and at level of service "F" during peak weekend hours. In the southbound direction, the segment of State Route 1 between Carmel Valley Road and Rio Road operates at an arterial level of service "D" in peak hours (see Table 1.3). Without roadway improvements, conditions forecast for 2032 will decline to level of service "F" in the northbound direction during all peak hours except weekday morning peak hour (south of Rio Road), and level of service "E" in the southbound direction during the weekend peak hours (see Table 1.4).

Table 1.3 State Route 1 Levels of Service During Peak Hours, Existing Roadway with Existing (2011-2012) Traffic

State Route 1 Segment and Direction	Weekday Morning Peak Hour	Weekday Evening Peak Hour	Weekend Evening Peak Hour
South of Rio Road, Northbound	**E**	**E**	**F**
Rio Road to Carmel Valley Road, Northbound	**E**	**E**	**E**
North of Carmel Valley Road, Southbound	B	B	B
Rio Road to Carmel Valley Road, Southbound	D	D	D

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010)
Level of service shown in **bold** indicates deficient operations.

Table 1.4 State Route 1 Levels of Service During Peak Hours, Existing Roadway with 2032 Forecast Traffic

State Route 1 Segment and Direction	Weekday Morning Peak Hour	Weekday Evening Peak Hour	Weekend Evening Peak Hour
South of Rio Road, Northbound	**E**	**F**	**F**
Rio Road to Carmel Valley Road, Northbound	**F**	**F**	**F**
North of Carmel Valley Road, Southbound	B	B	B
Rio Road to Carmel Valley Road, Southbound	D	D	**E**

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Level of service shown in **bold** indicates deficient operations.

During weekend peak hours, the Rio Road intersection operates overall at level of service "D". The Carmel Valley Road intersection operates at an overall level of

service "C", but the westbound-to-northbound movement operates at level of service "E". See Table 1.5 for existing intersection operational conditions.

Table 1.5 Existing (2011-2012) Intersection Level of Service Summary

Intersection with Traffic Signals	Lane Configuration	Movement	Weekday Morning Peak Hour	Weekday Evening Peak Hour	Weekend Peak Hour
Carmel Valley Road/ State Route 1	Northbound 1-Through, 1-Right Southbound 2-Left, 1-Through Westbound 2-Right	**Overall Intersection** Northbound - Through Southbound - Left Westbound - Right	**B** D B B	**C** D C D	**C** D C E
Rio Road/ State Route 1	Northbound 1-Left, 1-Through, 1-Right Southbound 2-Left, 1-Through/ Right Eastbound 1-Left, 1-Through, 1-Through/Right Westbound 1-Left, 1-Through, 1-Right	**Overall Intersection** Northbound - Through Southbound - Through	**C** C C	**C** C C	**D** D D

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).

Without improvements to the route, operating conditions will deteriorate under increasing traffic volumes. By 2032, traffic moving through the Carmel Valley Road intersection would be at level of service "F" in both morning and evening peak hours on weekdays (see Table 1.6). Without improvements, both the Carmel Valley and Rio Road intersections with State Route 1 would operate at an overall level of service "E", with northbound traffic experiencing level of service "E" or worse on weekends.

1.3 Alternatives

A Build Alternative and a No Build Alternative are being considered for this project. The Build Alternative meets the objectives of the project's purpose and need, and has logical termini and independent utility. FHWA defines logical termini as rational end points for a transportation improvement (typically major traffic generation, i.e., intersecting roadways). A project must have independent utility; that is, a project must be able to function on its own, without further construction of an adjoining segment. The proposed truck-climbing lane would continue the flow of truck traffic on State Route 1 from Rio Road to an existing truck-climbing lane north of Carmel Valley Road. The independent utility of the Build Alternative springs from the improved operations of the intersections, which would reduce traffic delays in the project area.

Table 1.6 Forecast 2032 No Build Intersection Level of Service Summary

Intersection with Traffic Signals	Lane Configuration	Movement	Weekday Morning Peak Hour	Weekday Evening Peak Hour	Weekend Peak Hour
Carmel Valley Road/State Route 1	Northbound 1-Through, 1-Right Southbound 2-Left, 1-Through Westbound 2-Right	**Overall Intersection** Northbound - Through Southbound - Left Westbound - Right	**D** F C F	**E** F C F	**E** F C F
Rio Road/ State Route 1	Northbound 1-Left, 1-Through, 1-Right Southbound 2-Left, 1-Through/ Right Eastbound 1-Left, 1-Through, 1-Through/Right Westbound 1-Left, 1-Through, 1-Right	**Overall Intersection** Northbound - Through Southbound - Through	**C** D C	**D** D C	**E** E E

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).

1.3.1 Build Alternative

The Build Alternative would add a truck-climbing lane to northbound State Route 1 from Rio Road to Carmel Valley Road (see Figure 1-3). The truck-climbing lane would continue through the intersection with Carmel Valley Road in a shared through/right-turn lane to join the existing truck-climbing lane. We would add a thin

asphalt concrete overlay to the existing pavement from the southern project limit to the Rio Road intersection and on the Rio Road approaches to State Route 1. North of Rio Road to the Carmel Valley Road/State Route 1 intersection, we would use a variable-thickness asphalt concrete overlay on State Route 1 to modify the existing slope of the banked curve to match current Caltrans standards. About 450 feet north of Rio Road, the outside shoulder would go from 8 feet to 4 feet wide to reduce the amount of fill slope required to build 4:1 side slopes.

At the Rio Road intersection, the project calls for a second westbound right-turn lane to northbound State Route 1 and a dedicated right-turn lane on southbound State Route 1 to westbound Rio Road. The northbound right-turn lane approaching the intersection would be converted into a shared through/right lane. In addition, the project would add 4-foot-wide bicycle lanes on westbound Rio Road approaching the intersection and on southbound State Route 1 approaching the intersection to avoid interference between bicyclists and traffic turning right from either road. The pedestrian facilities at the same intersection, including curb ramps, crosswalks, and sidewalk, would be upgraded to meet current standards. The curb ramps on the east side of the Rio Road/State Route 1 intersection are designed to accommodate bicyclists and pedestrians using the Carmel Hills Trail. All through and turn lanes would be 12 feet wide at both intersections.

The estimated cost of the Build Alternative is $2.77 million. This includes $2.64 million in construction and mitigation costs and $129,000 in right-of-way costs.

1.3.1.1 Nonmotorized and Pedestrian Features

The proposed project would build sidewalks and crosswalks at the Rio Road intersection with State Route 1. Sidewalks would be added on both sides of Rio Road east of State Route 1 to join with existing sidewalks. There are no existing sidewalks west of State Route 1 on either side of Rio Road. The bus stop on the south side of Rio Road just east of State Route 1 would not be moved. The location and width of the crosswalk and curb ramps on the east leg of the Rio Road intersection have been coordinated with the recently constructed Carmel Hills Trail.

1.3.2 No-Build Alternative

The No-Build Alternative would keep the project area as it is, would make no improvements, and would not reduce congestion. Even with recent improvements to the north of the Carmel Valley Road intersection, the existing deficient operational conditions are forecast to deteriorate further as traffic volumes increase (see Table 1.2

for 2030 forecast level of service). Because existing traffic operations are already worse than the minimally acceptable level of service D, the No-Build Alternative would fail to address current and future operational issues.

1.3.3 Comparison of Alternatives

Table 1.7 provides a comparison between the Build Alternative and the No Build Alternative.

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Figure 1-3 Aerial Map and Project Layout

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Table 1.7 Comparison of Impacts for the Project Alternatives

Environmental Issue		Build Alternative	No Build Alternative
Land Use		Consistent with applicable transportation plans and General Plans. No land use changes.	None
Community Impacts	Coastal Zone	Restriping a travel and turn lane within the Coastal Zone. A Coastal Development Permit will be obtained.	None
	Parks and Recreation	None	None
	Relocations	1,413 square feet of right-of-way acquisition from a commercial parcel (Chevron Gas Station).	None
Utilities and Emergency Services		Temporary construction impact for relocation or protection in place.	None
Traffic and Transportation		Temporary construction impact. Improve operational level of service and safety.	Increased permanent traffic congestion, continued level of service deterioration, and increased vehicle density.
Visual and Aesthetics		Removal of up to nine trees on the east side of State Route 1, somewhat reducing the visual quality and character of an area designated visually sensitive.	None
Hydrology and Floodplains		Temporary construction impact. Minor temporary and permanent floodplain encroachment.	None
Water Quality and Storm Water Runoff		Potential temporary increase in pollutant loading during construction.	None
Geology, Soils, Seismic, and Topography		Potential temporary erosion and stability impacts.	None
Hazardous Wastes and Materials		Temporary construction impact.	None
Air Quality		Temporary construction impact.	Potential permanent increase in pollutants associated with increased congestion.
Noise		Temporary construction impact.	None
Natural Communities		None	None
Wetlands and Other Waters		None	None
Plant Species		None	None
Animal Species		None	None
Threatened and Endangered Species		Potential impact to the California red-legged frogs.	None
Invasive Species		Potential spread of invasive plant species as a result of construction activities.	None
Cumulative Impacts		Not significant for planned projects.	Not significant
Climate Change		Anticipated permanent reduction due to improved traffic flow.	Not significant

1.3.4 Identification of A Preferred Alternative

After the circulation of the Initial Study/Mitigated Negative Declaration and consideration of public comments received, the Build Alternative was selected as the Preferred Alternative.

The Build Alternative meets the purpose and need of the proposed project as defined in Section 1.2 above, and incorporates avoidance and minimization measures as specified herein that would reduce the project's environmental effects. The Build Alternative is consistent with the Transportation Agency of Monterey County's Regional Transportation Plan (2010) and the April 2010 Capital Improvement Program for the County of Monterey.

The Build Alternative would improve the operations on the proposed segment of State Route 1 through 2030. Without the Build Alternative, operating conditions will deteriorate under increasing traffic volumes. The No-Build Alternative would not meet the purpose and need of the project because it would not provide operational improvements to accommodate existing and planned future growth.

No acquisition of new state right-of-way is anticipated with the Build Alternative, but widening of Rio Road to add turn lanes would require some additional County right-of-way.

1.3.5 Alternatives Considered But Eliminated From Further Discussion

The Project Study Report approved for the proposed project in 2005 indentified one Build Alternative. Other design alternatives, specifically a roundabout analyzed in the Responses to Comments provided in Appendix E, were determined to be infeasible. Therefore, no other Build Alternatives were considered for the project.

The Build Alternative identified in the 2005 Project Study Report was carried forth as the Build Alternative for the proposed project with slight modifications. Those modification included reducing the width of the shoulder adjacent to the climbing lane on the east side of State Route 1 to 4 feet, adding bike lanes at the Rio Road/State Route 1 intersection, and coordinating the proposed project with the recently-constructed Carmel Hills Bicycle Trail (a Class I bicycle path that runs parallel to the project in the State right-of-way east of State Route 1).

1.4 Permits and Approvals Needed

The following permits, reviews, and approvals would be required for project construction:

Agency	Permit/Approval	Status
Monterey County Planning Department	Coastal Development Permit (CDP)	Anticipated submittal of CDP application to Planning Department after final environmental document.
State Water Resources Control Board	Construction General Permit	Anticipated submittal of Construction General Permit application with State Board after final environmental document.

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

This chapter explains the impacts that the project would have on the human, physical, and biological environments in the project area. It describes the existing environment that could be affected by the project, potential impacts from each of the alternatives, and proposed avoidance, minimization, and/or mitigation measures. Any indirect impacts are included in the general impacts analysis and discussions that follow.

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.

- **Environmental Justice:** No defined low-income or minority neighborhoods exist in the vicinity of the proposed project, and no individual property owners would be affected.
- **Wild and Scenic Rivers:** The proposed project is not located near any wild and scenic rivers.
- **Growth:** The Build Alternative does not induce community growth because it would not remove obstacles to community growth in the area.
- **Farmlands/Timberlands:** The Farmland Mapping and Monitoring Program for the California Resources Agency indicates that no Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is located in the project area.
- **Cultural Resources:** The Historical Resources Compliance Report identified one previously recorded archaeological site, CA-MNT-290, within the project area limits. However, a field survey identified no archaeological cultural resources within the project area limits, including evidence of CA-MNT-290. The site has been disturbed by commercial development, including buildings, landscaping, and dirt and paved parking lots, as well as the realignment of State Route 1. The proposed project has no potential to affect cultural resources. (Historic Resources Compliance Report, February 2008).
- **Paleontology:** The potential for the proposed project to affect paleontological resources is documented in the Paleontological Resources Memorandum prepared

for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (Paleontological Resources Memorandum, July 2008). Because the project involves widening State Route 1 with only minimal excavation planned to approximately 2 feet deep, no paleontological resources would be affected.

2.1 Human Environment

2.1.1 Land Use

2.1.1.1 Existing and Future Land Use

The following information is summarized from the County of Monterey's Carmel Area Land Use Plan (March 2008) and Carmel Valley Master Plan (October 2010). According to the Carmel Area Land Use Plan, the area northwest and southwest of the project site is medium-density residential. According to the Carmel Valley Master Plan Land Use Plan, commercial, planned commercial, and visitor accommodations/ professional offices are located east and southeast of the project site (see Figure 1-3). Open land uses border the project site directly to the east and separate State Route 1 from the commercial land uses.

Affected Environment

Staging, access, and areas of construction impact, would be located on the east side of the project site. This area consists of urban landscape (commercial areas) fringed by narrow patches of open land with native vegetation.

Environmental Consequences

Land use compatibility is limited to acquisition of 1,413 square feet of right-of-way for the County from a commercial parcel (Chevron gas station) to widen Rio Road. However, the project would not conflict with existing and future land uses. See Section 2.1.5 for further information.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

2.1.2 Consistency With State, Regional, and Local Plans

2.1.2.1 Affected Environment

Carmel Area Land Use Plan (Local Coastal Program, Certified April 1983)

3.1.2 Key Policy

Monterey County will take a strong and active role in guiding future use and development of Highway 1 and all categories of land use related to and dependent on the highway. State Route 1 south of the Carmel River will remain a two-lane highway.

3.1.3 Highway 1 and Transportation Policies

2. In order to afford reasonable traveling speeds for residents and visitors, protect emergency use of the highway, and enhance the quality and enjoyment of the scenic driving experience, reductions in peak use period traffic should be sought. A combination of measures, including public education and regulation of highway use during peak periods should be considered to achieve an improved service level.
3. Studies of Highway 1 capacity and means to improve the highway's level of service along the Big Sur Coast should be expanded to include the section of Highway 1 in the Carmel area. Caltrans should conduct origin and Destination Studies of traffic on Highway 1 in the Carmel area on a regular basis in order to provide up to date information on trends in recreational and residential use of the highway.
5. All highway improvements would be consistent with the retention of Highway 1 as a scenic two lane road south of the Carmel River. This policy is not intended to preclude widening of the Carmel River bridge, if necessary, or providing adequate access to properties in the vicinity of Point Lobos. The overall objective for Highway 1 should be to maintain the highest possible standard of scenic quality in management and maintenance activities carried on within the State right-of-way. Bike lanes and left turn lanes are permitted.

Carmel Valley Master Plan (Amended November 1996)

7.2.2.5 (CV)

The County would discourage the removal of healthy, native oak and madrone and redwood trees in the Carmel Valley Master Plan Area. A permit would be required for the removal of any of these trees with a trunk diameter in excess of six inches,

measured two feet above ground level. Where feasible, trees removed will be replaced by nursery-grown trees of the same species and not less than one gallon in size. A minimum fine, equivalent to the retail value of the wood removed, would be imposed for each violation. In the case of emergency caused by the hazardous or dangerous condition of a tree and requiring immediate action for the safety of life or property, a tree may be removed without the above permit, provided the County is notified of the action within ten working days. Exemptions to the above permit requirement would include tree removal by public utilities, as specified in the California Public Utility Commission's General Order 95, and by governmental agencies.

Monterey County Zoning Ordinance

The Monterey County Zoning Ordinance (Section 21.64.260) further states that no landmark oak tree would be removed in any area except as may be approved by the Director of Planning and Building Inspection per Subsection 21.64.260D. The County defines landmark oaks as “those trees which are twenty-four (24) or more inches in diameter when measured at two feet above the ground, or are visually significant, historically significant, or exemplary of their species.”

Regional Transportation Plan for Monterey County (2010)

The proposed project is consistent with the Regional Transportation Plan for Monterey County. The Regional Transportation Plan identified that the northbound climbing lane project completed in 2002 provided congestion relief for peak travel in that direction. The Regional Transportation Plan identifies that the extension of this widening lane between Carmel Valley Road and Rio Road is under environmental review. Further, given ongoing congestion on this facility (State Route 1), the climbing lane extension project has been identified as a regional transportation priority and construction is expected within the first five years of the regional plan.

2.1.2.2 Environmental Consequences

The project would build a northbound truck-climbing lane on State Route 1 from Rio Road to Carmel Valley Road, consistent with the Carmel Area Land Use Plan Policy 3.1.3(2). The proposed improvements would not change the character or nature of the existing facility, would achieve an improved service level, and would maintain a high standard of scenic quality as described in the avoidance, minimization, and/or mitigation measures below.

The project would remove one coast live oak tree with two trunks, which would be considered a landmark oak.

2.1.2.3 Avoidance, Minimization, and/or Mitigation Measures

Landscape Plan

Tree removal activities would be included in the Coastal Development Permit issued by the County. For additional information, see Section 2.1.9, Visual/Aesthetics.

2.1.3 Coastal Zone

2.1.3.1 Regulatory Setting

This project lies in a coastal zone. The Coastal Zone Management Act of 1972 is the main federal law enacted to preserve and protect coastal resources. The Coastal Zone Management Act sets up a program under which coastal states are encouraged to develop coastal management programs. States with an approved coastal management plan are able to review federal permits and activities to determine whether 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 Coastal Zone Management Act; they include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of environmentally sensitive areas; the protection of agricultural lands; the protection of scenic beauty; and the protection of property and life from coastal hazards. The California Coastal Commission is responsible for implementation and oversight under the California Coastal Act.

The proposed project would require local coastal approval. Just as the federal Coastal Zone Management Act delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments (15 coastal counties and 58 cities) to enact their own local coastal programs. Local coastal programs determine the short- and long-term use of coastal resources in their jurisdiction consistent with California Coastal Act goals.

2.1.3.2 Affected Environment

The Coastal Zone of Monterey County has been divided into four segments: North County, Big Sur, Carmel, and Del Monte Forest (Figure 2-1: Coastal Zone). The Carmel Coastal Segment extends from Pescadero Canyon in the north to Malpaso

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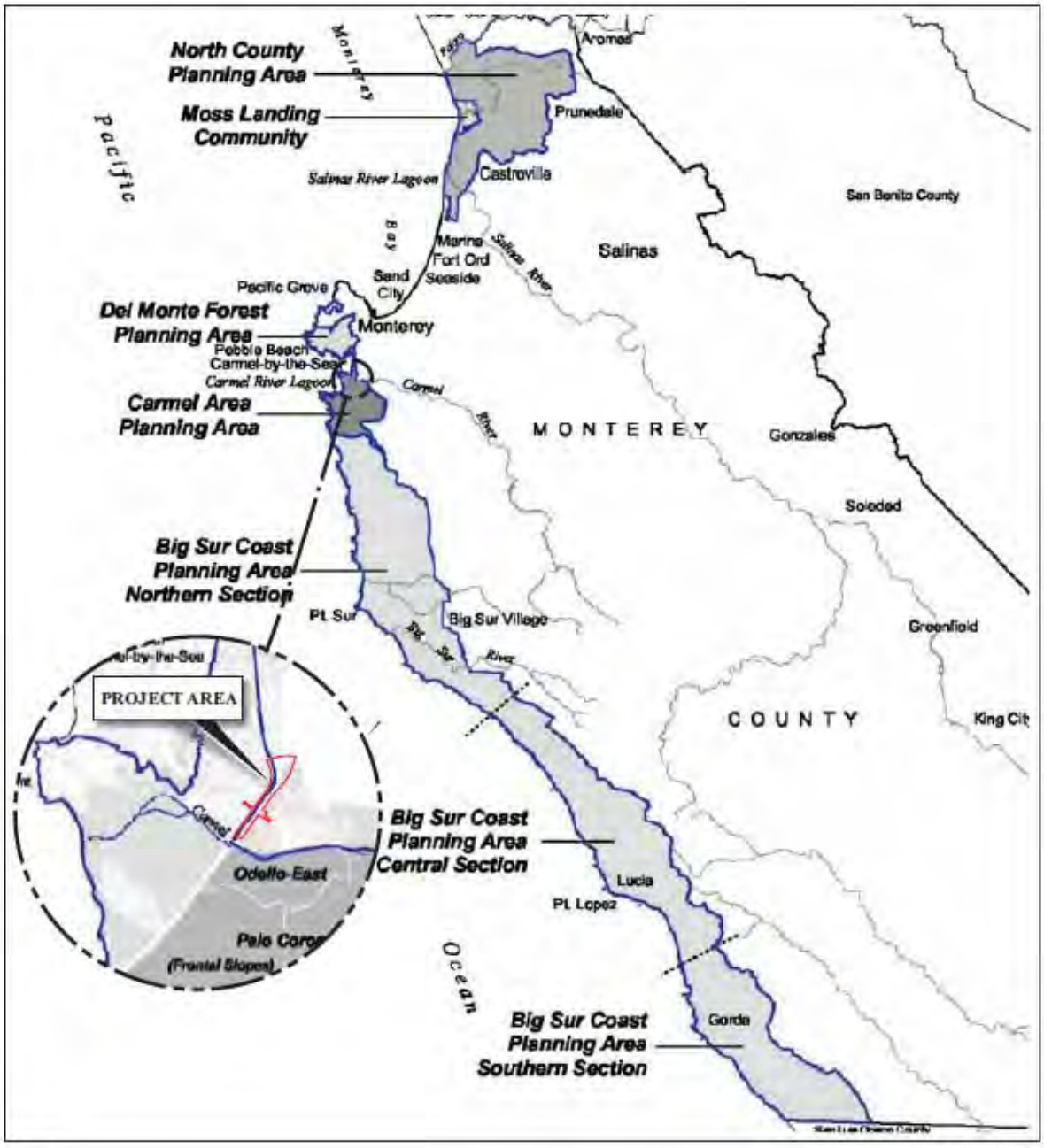

Figure 2-1 Coastal Zone

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Creek in the south. Between Pescadero Canyon and the Carmel River, the coastal zone includes the unincorporated area west State Route 1; south of the river, it extends inland for a distance of 1 to 3.7 miles, as shown on Figure 2-1. Therefore, the proposed project is within the coastal zone of the County Local Coastal Program (Carmel Area Land Use Plan, Local Coastal Program, certified April 14, 1983).

The County of Monterey's Carmel Area Land Use Plan, Highway 1 and Transportation Policies state that State Route 1 be maintained as a scenic two-lane road in rural areas such as the portion of the Carmel area south of the Carmel River. The Highway 1 and Transportation Policies also identify that remaining highway capacity be reserved for priority uses. The limited capacity of State Route 1 to accommodate local and recreation traffic at a level that affords reasonable service and emergency use, as well as an enjoyable scenic recreational experience, is a major concern. Traffic volumes alongs ections of State Route 1 are at or are approaching capacity during peak use periods, and future demand is expected to exceed the capacity of State Route 1. The ultimate capacity will be a major constraint on the long-range development of the Carmel area south of the Carmel River

2.1.3.3 Environmental Consequences

Because the proposed project would be relieving peak-hour congestion on State Route 1 north of the Carmel River, the proposed project is consistent with the County of Monterey Carmel Area Land Use Plan policies.

The improvements within the coastal zone would consist of restriping a travel lane and a turning lane on Rio Road and constructing a climbing lane on northbound State Route 1. All development in the coastal zone is required to obtain a Coastal Development Permit from the County of Monterey. Final action on Coastal Permits would be taken by the Board of Supervisors for standard subdivisions; all other development would be considered by the Planning Commission subject to board appeals. A Coastal Development Permit issued by the County will be required prior to construction.

2.1.3.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

2.1.4 Parks and Recreational Facilities

2.1.4.1 Affected Environment

According to the County of Monterey's Carmel Area Land Use Plan (March 2008) and Carmel Valley Master Plan (October 2010), no parks are adjacent to the proposed

project limits, nor are there any in the vicinity where park users would have views of the project. However, the State right-of-way east of State Route 1 in the project area and in Hatton Canyon was transferred from Caltrans to the California State Parks for creating a state park. Caltrans retains easement rights over all of the State Park's right-of-way south of Carmel Valley Road for highway purposes.

The Carmel Hills Trail was completed in September 2010 from the north bank of the Carmel River northward in the State Parks property, east of State Route 1. It crosses Rio Road at grade and passes under Carmel Valley Road in a concrete box tunnel. The Carmel Hills Trail is now the main north-south bicycle route in the project area (rather than the shoulder of State Route 1).

2.1.4.2 Environmental Consequences

The Carmel Hills Trail connects to the project at the curb ramps on the east side of the Rio Road/State Route 1 intersection. The proposed project would build sidewalks and crosswalks at the Rio Road intersection with State Route 1. Sidewalks would be provided on both sides of Rio Road to the east of State Route 1 to join with existing sidewalks. There are no existing sidewalks on either side of Rio Road to the west of State Route 1. The bus stop on the south side of Rio Road just east of State Route 1 would remain in its current location. The location and width of the crosswalk and curb ramps on the east leg of the Rio Road intersection have been coordinated with the recent construction of the Carmel Hills Trail. Therefore, the proposed project would not result in impacts to the Carmel Hills Trail or other recreational resources.

2.1.4.3 Avoidance, Minimization, and/or Mitigation Measures

The proposed project has been designed to coordinate with the existing Carmel Hills Trail. Mitigation planting for this project will be used to enhance the trail corridor.

2.1.5 Relocations and Real Property Acquisition

2.1.5.1 Regulatory Setting

Caltrans' Relocation Assistance Program 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 Part 24. The purpose of the Relocation Assistance Program 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 D for a summary of the Relocation Assistance Program.

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 United States Code 2000d et seq.). Please see Appendix C for a copy of Caltrans's Title VI Policy Statement.

2.1.5.2 Affected Environment

The following information is summarized from the County of Monterey's Carmel Area Land Use Plan (March 2008) and Carmel Valley Master Plan (October 2010). According to the Carmel Area Land Use Plan, the area to the northwest and southwest of the project site is medium-density residential. According to the Carmel Valley Master Plan Land Use Plan, commercial, planned commercial, and visitor accommodations/professional offices are located to the east and southeast of the project site (Figure 1-3 in Chapter 1). Open land uses border the project site directly to the east and separate State Route 1 from the commercial land uses.

In 2002, after the planned freeway bypass through Hatton Canyon was halted, the State right-of-way that had previously been acquired for it was transferred to the California State Parks. A portion of the proposed project lies within the State right-of-way under the control of California State Parks. The Agreement for Transfer of Control and Possession of State-Owned Real Property shows that the transferor (Caltrans) retained an easement for State highway purposes over all State rights-of-way necessary for this project. Therefore, no acquisition from California State Parks would be necessary. However, some coordination between Caltrans, California State Parks, and the County of Monterey may be required.

2.1.5.3 Environmental Consequences

The proposed project would not cause the relocation of businesses or residences. The right-of-way impacts of the Build Alternative are limited to the acquisition of a total of 1,413 square feet from a commercial parcel (Chevron gas station) for the widening of Rio Road. The Chevron gas station's planter box, commercial sign, and driveway into the gas station would be affected by construction of the new sidewalk.

2.1.5.4 Avoidance, Minimization, and/or Mitigation Measures

The Chevron station's planter box, commercial sign and driveway would be rebuilt farther north. The driveway and sidewalk reconstruction would require lowering the grade of the existing pavement on the gas station parcel next to the driveway in a transition band a few feet wide. As a result, some portion of the pavement on the parcel would need to be rebuilt. A right-of-entry would be required on the same

parcel to rebuild the driveway at the Chevron gas station due to the change in grade caused by the widening. No State involvement is anticipated; the County of Monterey would perform the right-of-way acquisition. No avoidance, minimization, and/or mitigation measures are required.

2.1.6 Utilities/Emergency Services

2.1.6.1 Affected Environment

Utility facilities in the project area include the following:

- Pacific Gas & Electric overhead electrical power lines along the east side of State Route 1 and crossing State Route 1 at Rio Road
- Comcast overhead cable lines on the Pacific Gas & Electric poles
- AT&T underground telephone lines in State Route 1
- Carmel Area Wastewater District sewer lines in State Route 1 and Rio Road
- Pacific Gas & Electric gas lines in State Route 1 and Rio Road
- California American Water Company lines in State Route 1 and Rio Road

Emergency Services in the project area include the following:

- Carmel Fire Department, Carmel
- Carmel Valley Fire Department, Carmel Valley
- Monterey County Sheriff's Department
- Carmel Police Department

2.1.6.2 Environmental Consequences

The proposed changes in grade at underground utility locations are minimal, so only adjustments of manhole covers or valve covers, with no relocation of underground utilities, are anticipated. Five Pacific Gas & Electric poles along the east side of State Route 1 would be relocated. Pacific Gas & Electric would be notified of the poles to be moved before construction. The proposed project would not create the need for additional public services. Emergency response times for police and fire protection may be slightly slower during construction due to temporary lane closures. However, implementation of the proposed project would not result in significant interruption of emergency services or routes because at least one traffic lane would remain open at all times, and emergency access for police and fire protection would be maintained during construction through the provision of traffic detours.

2.1.6.3 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

2.1.7 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.1.7.1 Affected Environment

The potential for the proposed project to affect traffic and transportation facilities is documented in the Traffic Operations Technical Memorandum (April 2004) and Traffic Operations Analysis Addendum (August 2010) prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road. The findings of this memorandum are discussed in the paragraphs below.

The traffic report prepared for the project relied on 2003 traffic count data to determine existing conditions. Although that data are now eight years old, an addendum prepared in August 2010 indicates that measured traffic volumes remain representative of existing and construction-year (2011 & 2012) conditions. Although the annual average daily traffic volumes in the study area have fluctuated, the overall trend has been a reduction since 2005, probably because of slow economic conditions and a decline in tourism in the region in recent years. In fact, there has not been a significant increase in traffic volumes on any of the roadway segments in the study area between 2003 and 2009. It is not known when economic conditions and traffic volumes will recover, but it is unlikely that traffic volumes will exceed the existing volumes of 2003 in the near term (before 2013). As a result, the existing traffic volumes continue to conservatively represent the existing (2011) and construction-year (2012) condition. Also, the forecast traffic volumes for the design year of 2032 are equivalent to the design-year traffic volumes stated in the traffic report for year 2030. This is because the design-year volumes are estimated by escalating the existing traffic volumes.

Existing Conditions Traffic Operations

Intersection Operations

Intersection and roadway traffic operations were quantified for the study facilities under existing traffic volumes both with and without the proposed improvements. Table 2.1 presents existing conditions for intersection traffic operations under current facilities with no improvements (No-Build Alternative).

As shown in Table 2.1, both study intersections are currently operating at level of service C or better conditions during the weekday morning and afternoon peak hour, although the Rio Road intersection drops to level of service D during weekend afternoon peak-hour conditions.

Table 2.1 Existing (2011–2012) Conditions—Intersection Traffic Operations with No Improvement

Intersection	Control Type	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
State Route 1/Rio Road	Signal	24.9	C	24.2	C	35.9	D
State Route 1/Carmel Valley Road	Signal	14.8	B	28.1	C	32.7	C

Sources: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010)
Delay = average control delay in seconds/vehicle
LOS = level of service

Roadway Segment Operations

Table 2.2 summarizes existing conditions for roadway operations for the State Route 1 study area segments under existing facilities (with no improvements in place).

Table 2.2 State Route 1 Study Segment with No Improvements—Existing (2011–2012) Conditions Roadway Segment Traffic Operations

State Route 1—Arterial Segment	Direction	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Speed	LOS	Speed	LOS	Speed	LOS
South of Rio Road	Northbound	14.2	E	13.7	E	12.4	F
South of Carmel Valley Road	Northbound	15.4	E	16.3	E	14.8	E
Northbound Total		**14.9**	**E**	**15.1**	**E**	**13.7**	**E**
North of Carmel Valley Road	Southbound	32.4	B	32.3	B	31.6	B
North of Rio Road	Southbound	19.6	D	20.5	D	19.0	D
Southbound Total		**23.0**	**C**	**23.8**	**C**	**22.3**	**C**

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Note: "Total" refers to the total project area (as opposed to the segments within the project area).
LOS = level of service
Speed = average travel speed in miles per hour (with a free-flow speed of approximately 45 miles per hour, the State Route 1 study segment is regarded as a Highway Capacity Manual-2000 Class II Arterial)

As shown in Table 2.2, the northbound State Route 1 study segment is operating at an arterial peak-hour level of service E or worse. All other directional State Route 1 segments through the study area are operating at peak-hour level of service D or better.

2030 Traffic Operations

Intersection and roadway traffic operations were quantified for the study facilities under 2030 traffic volumes both with and without the proposed improvements.

Intersection Operations

Table 2.3 shows 2030 intersection traffic operations under current facilities with no improvements (No-Build Alternative).

Table 2.3 2030 Conditions Intersection Traffic Operations with No Improvements

Intersection	Control Type	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
State Route 1/Rio Road	Signal	27.8	C	38.0	D	64.1	E
State Route 1/Carmel Valley Road	Signal	51.9	D	56.3	E	70.7	E

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Delay = average control delay in seconds/vehicle
LOS = overall intersection level of service

As shown in Table 2.3, both study intersections, with no improvements to existing facilities, are projected to operate at 2030 weekend afternoon peak-hour level of service E conditions. Furthermore, the State Route 1/Carmel Valley Road intersection with no improvements is projected to operate at a 2030 weekday afternoon peak-hour level of service E condition.

Table 2.4 summarizes 2030 roadway operations for State Route 1 study segments, assuming no improvements are made.

As shown in Table 2.4, the northbound State Route 1 study segment is projected to operate at 2030 arterial peak-hour level of service “F” conditions if no improvements to existing facilities are made. The southbound State Route 1 segment just north of Rio Road with no improvements is projected to operate at 2030 weekend peak-hour level of service “E” conditions.

Nonmotorized Operations

State Route 1 through the project area is a designated bicycle route (road with bicycle lane). Existing paved shoulders are 5 feet wide at some locations, too narrow to meet Caltrans standards. There are no existing sidewalks on either side of Rio Road to the

Table 2.4 State Route 1 Study Segment with No Improvements—2030 Conditions Roadway Segment Traffic Operations

State Route 1– Arterial Segment	Direction	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Speed	LOS	Speed	LOS	Speed	LOS
South of Rio Road	Northbound	13.1	E	10.8	F	9.2	F
South of Carmel Valley Road	Northbound	9.2	F	8.9	F	7.6	F
Northbound Total		**10.5**	**F**	**9.6**	**F**	**8.2**	**F**
North of Carmel Valley Road	Southbound	31.9	B	31.9	B	30.9	B
North of Rio Road	Southbound	20.5	D	17.8	D	16.5	E
Southbound Total		**23.7**	**C**	**21.4**	**D**	**20.0**	**D**

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Note: "Total" refers to the total project area (as opposed to the segments within the project area listed above the "Total" line).
LOS = level of service
Speed = average travel speed in miles per hour (with a free flow speed of approximately 45 miles per hour, the State Route 1 study segment is regarded as a Highway Capacity Manual-2000 Class II Arterial)

west of State Route 1. There is an existing bus stop on the south side of Rio Road just east of State Route 1.

The Carmel Hills Trail was built in September 2010 between the north bank of the Carmel River northward in the State Park's property to the east of State Route 1. It crosses Rio Road at grade and passes under Carmel Valley Road in a concrete box tunnel. The Carmel Hills Trail is now the main north-south bicycle route in the project area (rather than the shoulder of State Route 1).

2.1.7.2 Environmental Consequences

The proposed project would add a northbound truck-climbing lane on State Route 1 between Rio Road and Carmel Valley Road. At the State Route 1/Rio Road intersection, a second through lane for the northbound approach and a second right-turn lane for the westbound approach are also proposed to efficiently feed traffic to the two northbound receiving lanes on the State Route 1 segment just north of Rio Road.

Existing Conditions Traffic Operations

Intersection Operations

Table 2.5 shows the opening day conditions for intersections with the proposed improvements in place.

Table 2.5 Opening Day (2012) Intersection Traffic Operations with Proposed Improvements

Intersection	Control Type	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
State Route 1/Rio Road	Signal	23.1	C	22.4	C	29.7	C
State Route 1/Carmel Valley Road	Signal	13.8	B	17.3	B	17.8	B

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Delay = average control delay in seconds/vehicle
LOS = overall intersection level of service

As shown in Table 2.5, with the proposed improvements in place, traffic operations are projected to be at level of service "C" or better under the weekday morning and afternoon peak hours as well as weekend afternoon peak-hour traffic volume conditions.

Roadway Segment Operations

Table 2.6 summarizes roadway operations for the study State Route 1 segments with the proposed improvements in place.

Table 2.6 State Route 1 Study Segment with Proposed Improvements—Opening Day (2012) Roadway Segment Traffic Operations

State Route 1–Arterial Segment	Direction	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Speed	LOS	Speed	LOS	Speed	LOS
South of Rio Road	Northbound	21.0	D	21.6	D	21.4	D
South of Carmel Valley Road	Northbound	18.2	D	18.2	D	19.0	D
Northbound Total		**19.5**	**D**	**19.9**	**D**	**20.3**	**D**
North of Carmel Valley Road	Southbound	35.8	A	32.3	B	31.6	B
North of Rio Road	Southbound	19.4	D	19.6	D	18.1	D
Southbound Total		**25.1**	**C**	**23.0**	**C**	**21.6**	**D**

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Note: "Total" refers to the total project area (not just the segments listed above the "Total" line)
LOS = level of service
Speed = average travel speed in miles per hour (free-flow speed is about 45 miles per hour)

As shown in Table 2.6, all State Route 1 segments through the study area are projected to operate at peak-hour level of service "D" or better conditions under existing or opening day traffic volumes with the proposed operational improvements in place.

2032 Traffic Operations

Intersection Operations

Table 2.7 shows the 2032 conditions for intersections with the proposed improvements in place.

Table 2.7 2032 Conditions Intersection Traffic Operations with Proposed Improvements

Intersection	Control Type	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS
State Route 1/Rio Road	Signal	25.0	C	32.2	C	39.7	D
State Route 1/Carmel Valley Road	Signal	20.0	C	25.0	C	23.0	C

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Delay = average control delay in seconds/vehicle
LOS = overall Intersection level of service

As shown in Table 2.7, with the proposed operational improvements in place, 2032 condition traffic operations are projected to be at level of service D or better under the weekday morning and afternoon peak hour as well as weekend afternoon peak-hour traffic volume conditions.

Roadway Segment Operations

Table 2.8 summarizes 2032 roadway operations for the State Route 1 study segments with the proposed operational improvements in place.

Table 2.8 State Route 1 Study Segment with Proposed Improvements—2032 Conditions Roadway Segment Traffic Operations

State Route 1–Arterial Segment	Direction	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekend Afternoon Peak Hour	
		Speed	LOS	Speed	LOS	Speed	LOS
South of Rio Road	Northbound	19.9	D	18.7	D	19.5	D
South of Carmel Valley Road	Northbound	15.5	E	15.5	E	17.6	D
Northbound Total		**17.6**	**D**	**17.2**	**D**	**18.6**	**D**
North of Carmel Valley Road	Southbound	31.9	B	31.9	B	30.9	B
North of Rio Road	Southbound	19.5	D	17.0	D	14.4	E
Southbound Total		**22.8**	**C**	**20.7**	**D**	**18.0**	**D**

Source: *Traffic Operations* Technical Memorandum (April 2004) and Addendum (August 2010).
Note: "Total" refers to the total project area (not to the segments listed above the "Total" line), LOS = level of service
Speed = average travel speed in miles per hour (free-flow speed is about 45 miles per hour)

As shown in Table 2.8, all State Route 1 segments through the study area are projected to operate at arterial level of service "D" or better in peak-hour conditions

in year 2032 with the proposed operational improvements in place. The northbound State Route 1 segment just south of Carmel Valley Road and the southbound State Route 1 segment just north of Rio Road are projected to experience level of service "E" conditions in year 2032 under weekday morning and afternoon peak-hour and weekend afternoon peak-hour periods, respectively. However, overall, the State Route 1 study segments are anticipated to operate at arterial peak-hour level of service D or better conditions in 2032; therefore, acceptable operations are generally projected through 2032 with the proposed operational improvements in place.

Permanent Impacts

If no improvements are made to State Route 1 (the No-Build Alternative), traffic congestion will worsen with future traffic demand. As shown earlier in Tables 2.5–2.8, the proposed project would provide an acceptable level of service at the intersections and roadway segments in the study area.

Nonmotorized Operations

The Build Alternative has been coordinated with local nonmotorized planning. The Carmel Hills Trail was built parallel to the proposed project and will connect to the project at the curb ramps on the east side of the Rio Road/State Route 1 intersection. The proposed project would build sidewalks and crosswalks at the Rio Road intersection with State Route 1. Sidewalks would be built on both sides of Rio Road to the east of State Route 1 to join with existing sidewalks. No sidewalks currently exist west of State Route 1 on either side of Rio Road. The location and width of the crosswalk and curb ramps on the east leg of the Rio Road intersection was coordinated with the construction of the Carmel Hills Trail. All sidewalks would be built with ramps for access to the sidewalk and would comply with Americans with Disabilities Act requirements. Curb returns would have Americans with Disabilities Act-compliant ramps as required in the Title 24 California Code of Regulations. The bus stop on the south side of Rio Road just east of State Route 1 would be kept where it is.

The proposed project would improve traffic operations along State Route 1 from Rio Road to Carmel Valley Road and would not have any permanent adverse impacts on traffic in the project area. Therefore, no mitigation would be required for long-term impacts.

Temporary Impacts

Construction of the Build Alternative would result in traffic delays that would temporarily impact residents living in the communities surrounding the project area. No extended lane closures are anticipated for this project. During construction, one lane in each direction would remain open. Construction of the proposed project would temporarily affect traffic on State Route 1, Rio Road, and Carmel Valley Road.

Highway operations may be affected during construction of the improvements. Limiting construction to off-peak hours could mitigate capacity reduction of State Route 1 during ongoing construction, if necessary. It may briefly be necessary to close the highway.

Sidewalk closures on Rio Road and Carmel Valley Road during construction would affect pedestrian access. A pedestrian detour plan to accommodate sidewalk closures would be included in the Traffic Management Plan for the project.

Implementation of the Traffic Management Plan, as discussed in Section 2.1.8, Traffic and Transportation/Pedestrian and Bicycle Facilities, would avoid or minimize temporary traffic impacts during construction.

2.1.7.3 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be incorporated to minimize traffic impacts during construction. Implementation of the mitigation measure below, which includes implementation of a Traffic Management Plan during construction, would reduce impacts to less than significant levels.

Traffic Management Plan

The Traffic Management Plan will be prepared by Caltrans in consultation with Monterey County prior to completion of plans, specifications, and estimates, and will consist of but not be limited to the following standard measures to alleviate traffic inconvenience caused by construction activities:

- **Traffic Control:** This project will require traffic control elements such as lane/ shoulder closures and temporary signing/striping on local streets and State Route 1. In addition, continuous access will be provided for the Chevron gas station during construction activities associated with that parcel.
- **Construction Zone Enhanced Enforcement Program:** Through coordination with Caltrans and the California Highway Patrol, this program was developed to provide a safer work zone for construction workers and the motoring public. The

program uses two California Highway Patrol officers who enforce lane closures and also provide a visual deterrent to errant/speeding vehicles.

- **Public Awareness Campaign:** Although most major closures would be scheduled to happen at night, vehicles traveling through the construction zone at all hours would likely experience longer than normal delays. To reduce these delays and limit confusion to the motoring public during construction, the County in conjunction with Caltrans would implement a public awareness campaign. The purpose of such a campaign is to keep the surrounding community abreast of the project's progress and construction activities that could affect its travel plans. The use of mailers/flyers, local newspaper advertising, local radio information, and public meetings, as appropriate, should be effective tools for making this information available to the public.
- **Signing:** Post information signing on State Route 1 and the local arterials prior to and during construction to inform motorists of delays, ramp closures, and alternate travel routes.
- **Pedestrian, Americans with Disabilities Act, and Bicycle Access:** Provide a pedestrian detour for use during sidewalk closures. Pedestrian, Americans with Disabilities Act, and bicycle access would be accommodated during construction activities.

2.1.8 Visual/Aesthetics

2.1.8.1 Regulatory Setting

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

2.1.8.2 Affected Environment

The potential for the proposed project to affect visual resources is documented in the Scenic Resources Evaluation Report prepared for the State Route 1/Rio Road to Carmel Valley Road Operational Improvements Project (Scenic Resources Evaluation, October 2010). The findings of that report are discussed in the paragraphs below.

The land uses surrounding the project area include low-density residential to the north, west, and southwest of the project site. Commercial, planned commercial, and visitor accommodations/professional offices are located to the east and southeast of

the project site. Open land uses border the project site directly to the east and separate State Route 1 from the commercial areas. The visual character of the project area, including State Route 1, Monterey County, and State right-of-way, is primarily urban landscape (commercial areas) fringed by narrow patches of open land with native vegetation. The visual character of the general area south and east of the project site is semirural due to the low-density residential, undeveloped, and open space land uses (see Figure 2-2).

The main viewer groups in the visual study area are motorists, pedestrians, and bicyclists using State Route 1, Rio Road, and Carmel Valley Road; residents; and patrons of the commercial areas on the east side of State Route 1. Residents are the most sensitive because of the permanent nature of their view. Residential land uses are west and east of State Route 1 beyond the commercial land uses and Hatton Canyon. Pedestrians and bicyclists use the Carmel Hills Trail (a recreational use), which is parallel to State Route 1 on the east side.

The Natural Environment Study (Minimal Impact) (October 2010) found patches of native trees, willow riparian woodland, coastal scrub, and ornamental plantings present in the study area. The study area contains small groves and various individual native trees, including Monterey cypress (*Cupressus macrocarpa*), Monterey pine (*Pinus radiata*), coast live oak (*Quercus agrifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), and willow (*Salix lasiolepis*). Nonnative trees include blackwood acacia (*Acacia melanoxylon*), myoporum (*Myoporum polymorph*), and prune/plum (*Prunis* sp.). Existing development has eliminated some of the natural vegetation. Figure 2-2 shows the existing site conditions, key view locations, and visual resources.

Caltrans identifies State Route 1 within the project limits as a State Scenic Highway, and the County General Plan describes the areas directly east of the project limits as visually sensitive for viewers from the scenic route. There are no specific county-designated or county-protected scenic vistas within the project limits.

Figure 2-2 Visual Resources

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Key Views

Key views were selected to represent the line of sight of various viewer groups looking from different land uses, including motorists, pedestrians, bicyclists, and residents. The key views include views from State Route 1 and facing the project site from outside of the project limits.

Key View 1 (*Figure 2-3*)

Key View 1 faces north from the east side of State Route 1. The observer sees State Route 1 as it curves before reaching Carmel Valley Road and a portion of the parking area for the commercial parcel east of the project limits (right side of photograph). The visual resources in Key View 1 include the trees on both sides of the road and the hills in the distance. On the east side of State Route 1, the photograph shows one coast live oak, five black cottonwoods, and one willow. The coast live oak meets the requirements of a "landmark" oak as defined in the Monterey County Zoning Ordinance. The existing visual quality rating for this key view of northbound State Route 1 is moderately high because of the tree clusters and the hills.

Key View 2 (*Figure 2-3*)

Key View 2 faces south from the east side of State Route 1, south of Carmel Valley Road. Similar to Key View 1, the visual resources in Key View 2 include the trees on both sides of State Route 1 and the hills in the distance. The existing visual quality rating for this key view is moderately high because of the trees, the mountains, and the way the sky meets the mountain horizon.

Key View 3 (*Figure 2-4*)

Key View 3 faces north from the east side of State Route 1 at the Carmel Valley intersection. The visual resources in Key View 3 include the steep, rocky terrain on the west side of State Route 1 and the skyline. The existing visual quality rating for this key view is moderately high because of the visual resources and lack of human-made encroachments.

Key View 4 (Figure 2-4)

Key View 4 faces west from Carmel Knolls Drive, a residential street that intersects Carmel Valley Road. The visual resources in this view include Hatton Canyon in the foreground and the skyline in the distance. The existing visual quality rating for this key view is high because of the trees in the valley, the excellent color, and the lack of human-made encroachments. Key View 4 is seen by the residents east of Hatton

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Key View 1 faces north and shows the trees on the east side of SR-1.

Key View 2 is a south facing view of SR-1 from the center of the study area.

FIGURE 6

State Route 1 Operational Improvements
From Rio Road to Carmel Valley Road
Existing Setting Key Views 1 & 2
05-MON-1 PM 72.3/72.9

I:\wrs0604\G\Keyview 1_2.cdr (4/14/09)

Figure 2-3 Existing Setting Key Views 1 and 2

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Key View 3 faces northwest toward the steep terrain on the west side of SR-1 near Carmel Valley Road.

Key View 4 faces west toward SR-1 (as identified) from Carmel Knolls Drive.

FIGURE 7

State Route 1 Operational Improvements From Rio Road to Carmel Valley Road

Existing Setting Key Views 3 & 4

05-MON-1 PM 72.3/72.9

I:\wrs0604\G\Keyview 3_4.cdr (1/29/10)

Figure 2-4 Existing Setting Key Views 3 and 4

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Canyon. State Route 1, as identified on the photograph, is not highly visible from this view.

2.1.8.3 Environmental Consequences

Evaluation of the potential visual impacts of the proposed project included consideration of changes that would occur as a result of construction of an additional truck-climbing lane on State Route 1. These changes were considered in the context of the view from the existing State Route 1, as shown in Figure 2-3 (Key View 1).

The visual simulation (Figure 2-5) in this study was created by applying the conceptual designs for the project to Key View 1 (Figure 2-3) to show the anticipated postproject condition. This visual analysis is based on the proposed construction of the Build Alternative, as shown on the conceptual plans (see Appendix B). The visual simulation represents a typical view in the study area and the maximum potential changes that can be expected at project build out. The visual simulation is strictly for conceptual analysis and is not intended to provide a precise, scaled depiction of the proposed project; rather, it illustrates the potential future postproject visual character of the project area.

Each of the key views and expected changes with implementation of the proposed project are described below.

Key Views

Key View 1 (*Proposed View with Build Alternative, Figure 2-5*)

Figure 2-5 shows the visual simulation for Key View 1 (previously shown on Figure 2-3). Figure 2-5 shows an added northbound lane on State Route 1 and assumes worst case conditions, which would result in removal of the coast live oak, black cottonwoods, and willow in the foreground to accommodate the widened road. Implementation of the Build Alternative will reduce the visual quality of Key View 1 because of the added road surface to State Route-1 and by the widening of the adjacent embankment slope to the east by approximately 20 feet. Some of the trees in the foreground will be removed, eliminating a visual resource. For purposes of this visual simulation, it is assumed that all trees in this view would be removed; however, it is more likely that the trees furthest away from the roadway, such as some of the black cottonwoods and willow, would remain protected in place. Should all the trees in this view be removed, the visual character of it may be more urban. Viewer exposure at this key view is high because State Route 1 is heavily traveled within the project limits.

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This is Key View 1 with the conceptual visual simulation of Alternative 2.

FIGURE 8

State Route 1/Rio Road to Carmel Valley Road
Operational Improvements
Proposed Key View 1
KP 116.3/117.2 (PM 72.3/72.9)
05-MON-1
EA No. 05-0L5700

I:\wn0604\G\PropKeyview 1 Fig 8.cdr (10/14/10)

Figure 2-5 Key View with Proposed Improvements

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Viewer sensitivity is moderate to high because State Route 1 is a scenic highway and major commuting route. Conversely, the duration of the view is brief and the activity (commuting) is not a highly sensitive one. Moreover, removal of the trees will open up the view of the distant hills. The viewer response to the proposed project at Key View 1 is predicted to be moderate. Traffic is expected to flow more efficiently, reducing the visual impacts due to traffic stacking at high commute times.

Key View 2 (*Figure 2-3*)

The predicted visual quality rating for this key view with implementation of the proposed project is moderate, a slight decrease from the existing visual quality. Similar to Key View 1, the visual quality would be slightly reduced by the removal of several trees east of the roadway in this view (one coast live oak, five black cottonwoods, and one willow) and the increased amount of pavement in the view. The visual character, however, will remain the same under the proposed Build Alternative, because the view will still be of a highway in a semirural setting. The predicted viewer response is neutral because of the low viewer exposure from this key view.

Key View 3 (*Figure 2-4*)

The proposed visual quality rating for this key view of the steep terrain along northbound State Route 1 is moderate. The visual quality will go down slightly because the widening of State Route 1 will create more encroachments on the view. The steep terrain and vivid horizon will remain unchanged, however. The visual character will remain the same under the proposed alternative because the view will still be of a highway in a semirural setting. The predicted viewer response is neutral because of the low viewer exposure and activity from this key view.

Key View 4 (*Figure 2-4*)

The proposed visual quality rating for this key view over Hatton Canyon toward State Route 1 is high, unchanged from the existing view, because of the excellent color and form. The visual character of this view will remain the same because the project elements will not be visible. Viewer response to the project is predicted to be non-contentious because the changes to State Route 1 would barely be noticeable from this key view.

Overall Project

Because the project would improve an existing road and is not adding a new road to an undeveloped area, it would not substantially change the visual quality and

character of the existing setting within the project limits. However, the project would remove as many as nine trees on the east side of State Route 1, somewhat reducing the visual quality and character of an area designated visually sensitive.

The project would remove one coast live oak with two trunks. Under the Carmel Valley Master Plan, this coast live oak is a designated "landmark" tree (combined diameter at breast height greater than 3 feet). Other trees to be removed include five black cottonwoods (approximately 1–1.5 feet in diameter at breast height) and three small willows (less than 6 inches in diameter at breast height). Based on the project plans (see Appendix B), all of these trees would be removed by the proposed road improvements. Trees increase the aesthetic quality of State Route 1, and the removal of up to nine trees would result in a cumulative level of adverse visual impact to all viewer groups.

In addition, the Carmel Valley Master Plan and the County of Monterey Zoning Ordinance (Section 21.64.260) states that no landmark oak tree can be removed in any area unless approved by the Director of Planning and Building Inspection per Subsection 21.64.260D. The County defines landmark oaks as "those trees which are twenty-four (24) or more inches in diameter when measured at two feet above the ground, or are visually significant, historically significant, or exemplary of their species." Under this definition, the coast live oak with two trunks would be considered a landmark oak. Tree removal activities would be included in the Coastal Development Permit issued by the County.

Because State Route 1 is a State Scenic Highway within the project limits, it is of special concern for visual changes. As previously stated, the proposed project would remove as many as nine trees that are considered visual resources on the east side of State Route 1. However, because the existing project setting includes a busy highway and two busy intersections, the overall visual character of State Route 1 within the project limits would remain nearly the same under the proposed project. The project would slightly change the visual character of the project study area by increasing the urban elements in the setting and decreasing some of the natural elements (trees).

Temporary Impacts

Build Alternative

Visual impacts from construction activities include the presence of equipment, materials, and workers at the project intersections and staging areas. Construction activities would also cause the temporary alteration of landforms and vegetation

within the project area. Cars and trucks associated with the project would be visible and heavy equipment such as backhoes, graders, and excavators would be prevalent. Project components and workers would be active on the site during clearing, grading, lane expansion, site cleanup, and landscape restoration. Construction equipment and activities would be seen in proximity to the project area by various viewers, including residents, motorists on nearby roads, and pedestrians. These construction impacts would occur over a relatively short duration and would end with construction activities.

With implementation of the measures discussed under Construction and Staging Areas as well as Construction Plan (Section 2.1.9.4), the temporary construction-related visual impacts of the Build Alternative would not be adverse.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would be put in place to avoid, minimize, and/or mitigate visual impacts associated with construction of the proposed project. The minimization measures below would enhance any new project features, minimizing adverse visual impacts. Avoidance and minimization measures below would reduce short-term visual impacts associated with construction of the proposed project.

Trees

Impacts to existing trees would be minimized as much as possible. Measures may include localized adjustments to planned grading adjacent to trees and the addition of retaining boxes to protect root crowns and root zones.

Landscape Plan

A landscape plan would be prepared for review and approval by California State Parks and Caltrans landscape architect. The landscape plan would show the following:

- A minimum of 25 oak trees would be planted from minimum 15-gallon containers. The planting would conform to Caltrans planting and other policies, including the Caltrans Highway Design Manual, Topic 902, and the Caltrans Highway Planting Standards and Guidelines. Each tree would be supported with wooden tree stakes.
- Oak trees would be planted on California State Parks property, northeast of the intersection of State Route 1 and Rio Road. At least 50 percent of the oak trees would be planted within the area marked “tree planting location” on the Conceptual Geometric Plan (Appendix B, Grading Plan) included in this report.

The trees would be planted in a natural appearing pattern with an undulating perimeter. The rest of the oak trees would be planted as directed by California State Parks and within 900 feet north of Rio Road.

- Black cottonwoods and willows will be replanted at a 1:1 ratio along the eastern edge of the infiltration ditch to be constructed along the eastern edge of State Route 1, north of Rio Road.
- A minimum 3-year plant establishment period would be included in the contract for all new trees. During the plant establishment period, all trees would be maintained in a healthy condition. If any tree becomes unhealthy or dies during that period, the tree would be replaced.
- Before construction begins, a maintenance agreement between California State Parks and the County of Monterey would be concluded that assigns the responsibility for the planting and establishment of trees to the County of Monterey and the maintenance of the trees after the plant establishment period expires to California State Parks.

Construction and Staging Areas

Construction staging areas or storage yards would be located within Monterey County and State rights-of-way, and construction access and staging would be within the maximum project footprint.

Construction Plan

The project would be constructed in accordance with Caltrans Standard Specifications, which include measures to reduce visual impacts, noise, and air pollution emissions during construction. A staged construction program would be implemented to allow for the continuation of local circulation through the project area during construction of the project.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

2.2.1.1 Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. Requirements for compliance are outlined in 23 Code of Federal Regulations 650 Subpart A. To comply, the following must be analyzed:

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

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

2.2.1.2 Affected Environment

The potential for the proposed project to affect hydrology and floodplains is documented in the Summary Floodplain Encroachment Report (November 2007). The findings of this report are discussed in the paragraphs below.

The southern portion of the project lies within the Carmel River 100-year floodplain and is subject to flooding during storms, per Federal Emergency Management Agency Flood Insurance Rate Map panel 06053C0320G (April 2, 2009) (Figure 2-6). In the project area, runoff from State Route 1 flows east to the undeveloped area within the state right-of-way, where it infiltrates. A storm drain system in Rio Road conveys the runoff from that roadway to the Carmel River.

2.2.1.3 Environmental Consequences

The floodplain encroachment that would result from building the proposed project would not block the flow of floodwaters. There are no new structures proposed within the 100-year floodplain. The project involves widening the existing roadways without raising their elevation. Therefore, there would be no significant floodplain-related risks to life or property associated with implementation of the proposed project.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

Because this project drains storm water either to land it infiltrates or to the Carmel River through vegetated swales, no avoidance, minimization, and/or mitigation measures would be required.

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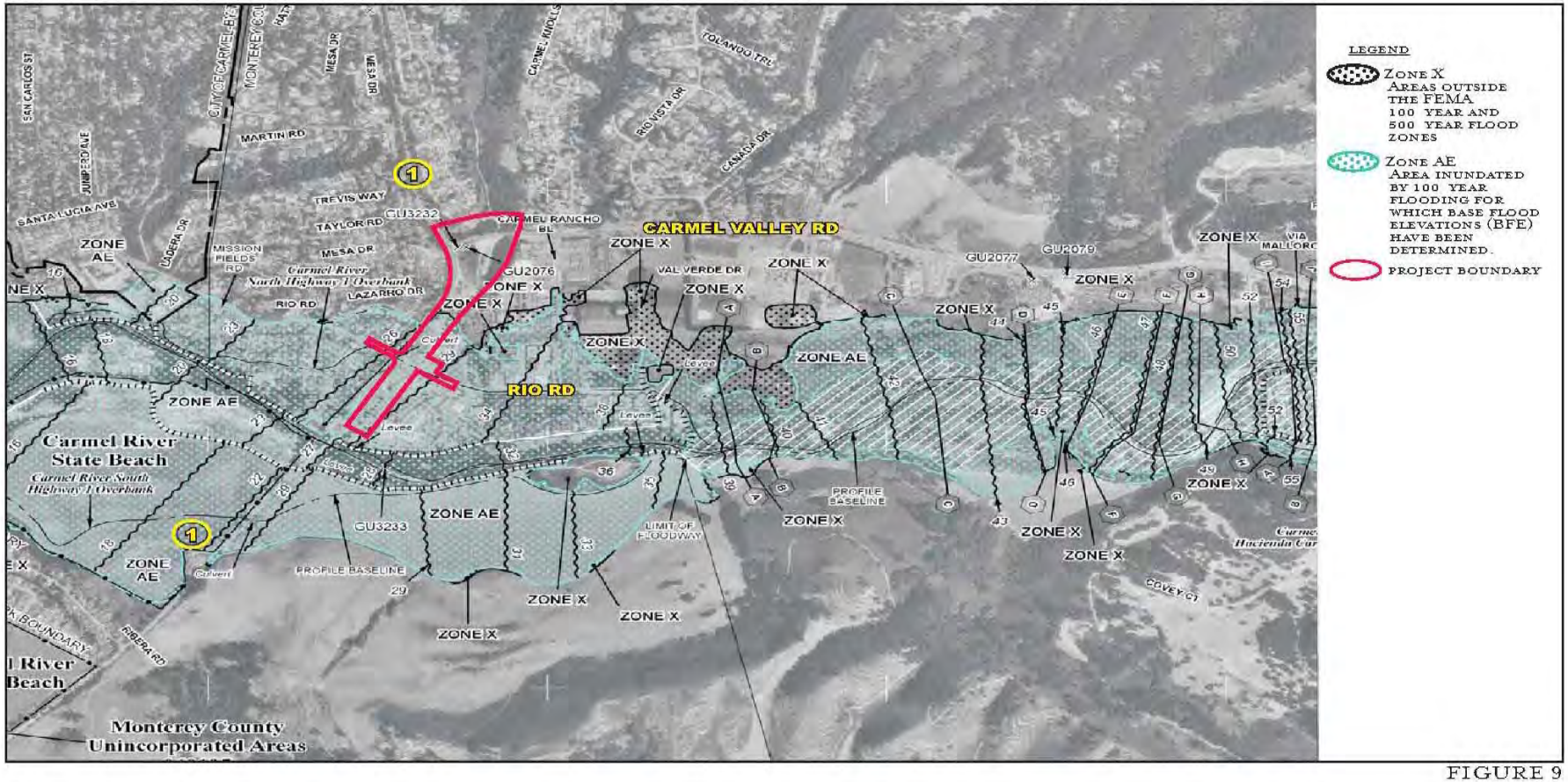

FIGURE 9

State Route 1 Operational Improvements
From Rio Road to Carmel Valley Road
FEMA FIRM Map
05 MON 1 P.M. 72.3/72.9

MAP SOURCE: Federal Emergency Management Agency

I:\WRS0604\G\Fig 9 FIMA FIRM.cdr (3/29/11)

Figure 2-6 FEMA Firm Map

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2.2.2 Water Quality and Storm Water Runoff

2.2.2.1 Regulatory Setting

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 permit. The Federal Water Pollution Control Act was amended again in 1977 and was renamed the Clean Water Act. The Clean Water Act, as amended in 1987, directed that storm water discharges are point source discharges. The 1987 Clean Water Act amendment established a framework for regulating municipal and industrial storm water discharges under the National Pollutant Discharge Elimination System program. Important Clean Water Act 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 that may result in a discharge to waters of the United States to obtain certification from the State that the discharge will comply with other provisions of the act.
- Section 402 establishes the National Pollutant Discharge Elimination System, a permitting system for the discharges (except for dredge or fill material) into waters of the United States. Regional Water Quality Control Boards 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 United States Army Corps of Engineers.

The objective of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

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 groundwater of the state.

The State Water Resources Control Board and Regional Water Quality Control Boards are responsible for establishing the water quality standards (objectives)

required by the Clean Water Act and regulating discharges to ensure that the objectives are met. Details regarding water quality standards in a project area are contained in the applicable Regional Water Quality Control Board 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 Clean Water Act Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source controls, the Clean Water Act requires establishing Total Maximum Daily Loads. Total Maximum Daily Loads establish allowable pollutant loads from all sources (point, nonpoint, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The State Water Resources Control Board administers water rights, water pollution control, and water quality functions throughout the state. Regional Water Quality Control Boards are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

The State Water Resources Control Board adopted Caltrans Statewide National Pollutant Discharge Elimination System Permit (Order No. 99-06-DWQ) on July 15, 1999. This permit covers all Caltrans rights-of-way, properties, facilities, and activities in the State. National Pollutant Discharge Elimination System permits establish a 5-year permitting time frame. National Pollutant Discharge Elimination System permit requirements remain active until a new permit has been adopted.

In compliance with the permit, Caltrans developed the Statewide Storm Water Management Plan to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The Storm Water Management Plan describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non–storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of best management practices. The proposed project will be programmed to follow the guidelines and procedures outlined in the 2003

Storm Water Management Plan to address storm water runoff or any subsequent Storm Water Management Plan version, draft and approved.

Municipal Separate Storm Sewer System Program

The United States Environmental Protection Agency defines a Municipal Separate Storm Sewer System 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 National Pollutant Discharge Elimination System program, United States Environmental Protection Agency initiated a program requiring that entities having Municipal Separate Storm Sewer Systems apply to their local Regional Water Quality Control Boards 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 of less than 100,000.

Construction Activity Permitting

Section H.2, Construction Program Management of Caltrans' National Pollutant Discharge Elimination System permit states: "The Construction Management Program would be in compliance with requirement of the National Pollutant Discharge Elimination System General Permit for Construction Activities (Construction General Permit)". Construction General Permit (Order No. 2009-009-DWQ, adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a disturbed soil area of 1 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 1 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.

Caltrans Statewide National Pollutant Discharge Elimination System Permit requires Caltrans to submit a Notice of Construction to the Regional Water Quality Control Board to obtain coverage under the Construction General Permit. Upon project completion, a Notice of Completion of Construction is required to suspend coverage. This process will continue to apply to Caltrans projects until a new Caltrans Statewide National Pollutant Discharge Elimination System Permit is adopted by the State Water Resources Control Board. A Notice of Completion or equivalent form will be submitted to the Regional Water Quality Control Board at least 30 days prior to construction if the associated disturbed soil area is 1 acre or more. In accordance with Caltrans's Standard Specifications, a Water Pollution Control Plan is used for projects with disturbed soil areas less than 1-acre.

During the construction phase, compliance with the permit and Caltrans' Standard Special Conditions requires appropriate selection and deployment of both structural and nonstructural best management practices. These best management practices must achieve performance standards of best available technology economically achievable/best conventional pollutant control technology to reduce or eliminate storm water pollution.

2.2.2.2 Affected Environment

The potential for the proposed project to affect water quality and storm water runoff is documented in the Water Quality Assessment Report (Water Quality Assessment Report, February 2008). The findings of this report are discussed in the paragraphs below.

The project lies within the Carmel River watershed, which spans approximately 256 square miles and ultimately drains into the Pacific Ocean at Monterey Bay. The nearest surface waters to the project site are Hatton Canyon and the Carmel River. Hatton Canyon is east of the project area and runs parallel to State Route 1. The Carmel River is south of the project area and runs perpendicular to State Route 1. Hatton Canyon drains to the Carmel River, which drains to the Carmel Lagoon and then to the Carmel Bay Area of Special Biological Significance (the significant area). The significant area sits immediately adjacent to the town of Carmel; it's south of the Monterey Peninsula, just north of the Santa Lucia Mountain range and west of Carmel Valley. The significant area includes 6.2 miles of coastline extending from Pescadero Point to Granite Point.

Within the project area, runoff from State Route 1 sheet flows to the east to the undeveloped area within the State right-of-way. A storm drain system in Rio Road conveys the runoff to the Carmel River. Since this project drains storm water either to land it infiltrates or to the Carmel River through vegetated swales (an indirect discharge to surface waters), the discharge prohibition associated with the significant area will not affect this project.

The project site is located in the Carmel Valley Groundwater Basin, which is located along the downstream portion of the Carmel River. The Carmel Valley aquifer is highly permeable and recharges rapidly after extended dry periods. Recharge of the groundwater basin is primarily from the Carmel River, which constitutes 85 percent of the net recharge. The remaining recharge is from tributaries, direct precipitation, inflow from subsurface bedrock, and return flow from septic and irrigation systems. The Initial Site Assessment reported groundwater mapped at approximately 9 feet below groundwater surface.

2.2.2.3 Environmental Consequences

Short-Term Impacts

Pollutants of concern during operation of a transportation facility include sediments, trash, and metals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality.

Construction activities would disturb approximately 2.27 acres under the proposed project. The depth of the excavation planned for the proposed project is 3 feet below ground surface, so contact with groundwater during construction (at 9 feet below ground surface) is not anticipated.

Long-Term Impacts

The proposed project would increase the area of impervious surface by 0.9 acre, which would slightly increase storm water discharges and pollutant loading from the project site. However, the increase in impervious surface is not expected to substantially change peak flow volumes or velocities of storm water discharges from the site. It is expected that the capacity of the existing system would be able to accommodate any additional storm water flow generated by the proposed project.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The following standard conditions would be implemented to avoid and minimize potential impacts associated with implementation of the proposed project. These

conditions include construction site and design pollution prevention best management practices.

Storm Water Pollution Prevention Plan

The County and Caltrans will ensure that the contractor develops and implements a Storm Water Pollution Prevention Plan during project construction to prevent water pollution during construction. The Storm Water Pollution Prevention Plan would be consistent with the Caltrans Storm Water Pollution Prevention Plan and Water Pollution Control Program Preparation Manual. Construction site best management practices such as erosion and sediment control practices detailed in the Storm Water Pollution Prevention Plan would be implemented during construction.

Best Management Practices

The County would incorporate design pollution prevention best management practices into the project to ensure that the project does not cause off-site erosion and that the project site is permanently stabilized. The proposed project's design pollution prevention best management practices will be designed so that storm water runoff either infiltrates to land or to the Carmel River through vegetated swales (an indirect discharge to surface waters) so as not to be directly connected to the watershed.

2.2.3 Geology/Soils/Seismic/Topography

2.2.3.1 Regulatory Setting

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

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. 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 from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.2.3.2 Affected Environment

The potential for the proposed project to affect geology is documented in the Final Geotechnical Design and Materials Report (February 2009). The findings of this report are discussed in the paragraphs below.

The project site lies in the *Spreckels, California* 7.5-minute United States Geological Survey quadrangle, Monterey County, California. The *Spreckels* quadrangle lies at the north end of the Sierra De Salinas and extends from the Salinas Valley on the northeast across Los Laureles Ridge south to Carmel Valley, an intermontane valley that separates the Santa Lucia Range from the Sierra De Salinas. Geologically, the project area is formed with alluvium, sedimentary rock, and Salinian complex plutonium rock.

The regional structure of the area consists of a complex series of steeply dipping, northwesterly striking faults. Significant earthquakes, which have occurred in this area, are generally associated with crustal movements along well-defined active fault zones. Faults in the vicinity of the site with a moderate to high potential for surface rupture include the Cypress Point Fault, Sur Arroyo Laguna-San Simeon Fault, Tularcitos Navy Fault, and San Gregoriopalo Colorado Fault.

A major earthquake on these faults may produce low to medium ground shaking at the proposed site. Earthquake data, including faults in the project vicinity, the magnitude of Maximum Credible Earthquakes, and distances to faults are shown in Table 2.9.

Table 2.9 Earthquake Data

Fault	Type	Estimated Distance From Project Site (miles)	Maximum Credible Earthquake
Tularcitos Navy Fault	Strike-Slip	2.5	7.0
Sur Arroyo Laguna-San Simeon	Strike-Slip	4.4	7.5
Cypress Point Fault	Unknown	0.62	6.0
San Gregoriopalo Colorado Fault	Strike-Slip	4.0	7.5

Source: *Draft Geotechnical Design and Materials Report* (February 2008).

Generally, the State Route 1 alignment within the project limits passes through hilly terrain. The roadway grade generally ascends north from Rio Road to Carmel Valley Road.

Based on the United States Department of Agricultural Soil Survey for the project site area, the following surface soil types exist: Elder Very Fine Sandy Loam, Santa Ynez Fine Sandy Loam, and Santa Lucia Shaly Clay Loam. The texture of these soils can be classified as sandy clay to clay. The erosion potential of these soils is low. The infiltration capacity within the project impact area would be considered moderate.

Liquefaction turns soil to a jellylike state (saturated cohesionless soils lose shear strength under earthquake shaking). Submerged cohesionless sands and silts of low relative density are the type of soils that usually are susceptible to liquefaction.

2.2.3.3 Environmental Consequences

Because no active faults pass through the site, the potential for fault rupture is low.

The roadway widening work east of State Route 1 between Rio Road and Carmel Valley Road would require embankment fill (sliver widening). This slope is proposed at 4:1. Landslides are common in the county due to the combination of the rapid geologic uplifting along the coastal mountain range, locally weak rocks, and sometimes-intense rainfall along the coast. However, the steeper parts of the project site are granite bedrock outcroppings or decomposed granite, and the proposed embankment slopes are shallow and would be finished 4:1 or flatter, so the landslide potential is considered to be low.

Runoff rates are expected to be moderately low in the lower-lying areas of the project site due to a moderate infiltration capacity. These soils are expected to be only moderately susceptible to erosion from storm water.

Clays are not generally susceptible to liquefaction. For these relatively low-risk improvements the liquefaction potential at the project site is considered low.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

Compliance with County and Caltrans Seismic Design Criteria would prevent adverse seismic impacts associated with regional seismic activity.

2.2.4 Hazardous Waste/Materials

2.2.4.1 Regulatory Setting

Hazardous waste in California is regulated mainly 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.

The health and safety of both workers and the public are key when dealing with hazardous materials that may affect people and the environment. Proper disposal of any hazardous material disturbed during project construction is vital.

2.2.4.2 Affected Environment

The potential for the project to affect hazardous waste is documented in the Initial Site Assessment prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (Initial Site Assessment, February 2008). The findings of the report are discussed in the paragraphs below.

The site contains electrical utilities, pole-mounted transformers, yellow pavement markings, and utility facilities typically associated with an urban roadway. The Initial Site Assessment determined whether the project could be affected by any recorded or visible hazardous waste problems. The assessment included a search of government records to obtain a list of properties or known incidents from state or federal databases for hazardous waste sites within the project area and a site survey (undertaken from available public right-of-way) to identify any visible potential contamination.

Utility pole-mounted transformers were seen along the roadway in the project limits during the site visit. Polychlorinated biphenyls were used in electrical transformers manufactured between 1929 and 1977. None of these transformers appeared to be leaking when observed at a distance during the site visit, and they should not be considered an environmental concern unless begin to leak.

Five sites on the FirstSearch report and one on the GeoTracker Web site had releases within 0.25 mile of the project limits. A total of eight releases of hazardous substances were recorded near the proposed project. Four of the sites—the Chevron Station, Arco Station, Tosco Texaco Station, and Carmel Area Wastewater District—all had releases that contaminated groundwater. The Arco Station and Carmel Area Wastewater District had remedial action conducted, and the site cases are closed. The Chevron and Texaco Stations, as well as a Safeway site, are in agency review. The Safeway site is being evaluated for pollution characterization. The Chevron Station is in postremedial action. The Tosco Texaco Station is currently in remedial action.

The GeoTracker database listed one site that was not included in the FirstSearch database search. The site had two releases south of the project limits. The releases from the Carmel Area Wastewater District Treatment Plant (also listed as the Carmel Treatment Facility), located at 26900 State Route 1, were from two leaking underground storage tanks. The first tank leaked an unknown amount of diesel fuel oil and additives. A second leak was discovered during a tank closure with an unknown amount of gasoline having leaked into the soil and contaminated groundwater (not used for drinking). Methyl tertiary-butyl ether testing was conducted. A site assessment was conducted in January 1997, and in April 2000, the site was excavated for the removal of soil and treatment. Regulatory review continued through April 2002. The case was closed in April 2003.

Table 2.10 provides a summary of the hazardous releases within 0.25 mile of the project site. The locations of the hazardous releases are shown in Figure 2-7. Historically, groundwater levels encountered near project limits have been recorded at approximately 11 feet below ground surface at a monitoring well located in Caltrans right-of-way on the west side of State Route 1, approximately 10 feet from the highway and approximately 70 feet southwest of Rio Road. The Second Quarter Ground Water Monitoring Report, prepared by Science Applications International Corporation for the Chevron station, recorded groundwater at 8.92–14.40 feet below ground surface. A groundwater monitoring well (Monitoring Well 21), approximately 400 feet east of State Route 1 in the project area, is used to monitor groundwater contamination from the Tosco Facility Texaco Station at 544 Carmel Rancho Boulevard. In April 2006, the depth to water at this well was recorded at 9.65 feet below ground surface. In April 2007, the depth was recorded at 13.47 feet below ground surface.

2.2.4.3 Environmental Consequences

The project improvements may require removing and disposing of yellow traffic stripe and pavement marking materials (paint, thermoplastic, permanent tape, and temporary tape). Yellow paints made before 1995 may exceed hazardous waste criteria under Title 22, California Code of Regulations, and require disposal at a Class I disposal site.

There is a history of leaking tanks and groundwater contamination in the project area, which may have contaminated local groundwater. The Initial Site Assessment reported groundwater mapped at about 9 feet below groundwater surface. The proposed project would acquire 1,413 square feet from the Chevron gas station for the

widening of Rio Road. The gas station's planter box, commercial sign, and driveway into the gas station would be affected by construction of the new sidewalk; they would be reconstructed farther north. The driveway and sidewalk reconstruction would require lowering the grade of the existing pavement on the gas station parcel next to the driveway in a transition band a few feet wide. As a result, some portion of the pavement on the parcel would have to be rebuilt. And based on the proposed depth of excavation for the project (3 feet below ground surface), contact with contaminated groundwater during construction is not anticipated. Based on these findings, neither additional investigation/monitoring efforts, nor any coordination with regulatory agencies for approvals, permits, or site closures, are anticipated to be necessary.

Table 2.10 Hazardous Releases within 0.25 Mile of Proposed Project

Map Identification Number	Subject Site	Databases	Status
1	Chevron Station 3645 Rio Road Carmel, CA 93923	Leaking Underground Storage Tank GeoTracker	In October 1998, an unknown amount of gasoline leaked from the piping of an underground storage tank. The leak was discovered during subsurface monitoring. Methyl tertiary-butyl ether monitoring was done, and in June 2001, a maximum groundwater concentration was found to be 720 parts per billion. The current status of the site is in postremedial action monitoring.
2	Arco Service Station 7 Carmel Center Place Carmel, CA 93921	Leaking Underground Storage Tank	In April 1987, an unknown amount of waste oil leaked from an underground storage tank. The leak was caused by corrosion and discovered during a tank test. An aquifer was affected by the leak. In April 2000, the contaminated soil was excavated and disposed of to an approved site. The case is closed.
3	TOSCO Facility Texaco No. 4598 544 Carmel Rancho Boulevard Carmel, CA 93923	Leaking Underground Storage Tank GeoTracker	In April 1998, an unknown amount of gasoline leaked from an underground storage tank. An additional leak occurred in April 1999. The site was then placed under a site assessment review. The methyl tertiary-butyl ether testing in October 2005 had a maximum groundwater concentration of 64 parts per billion. The site is currently in remedial action status.
4	Safeway Crossroads Shopping Center Carmel, CA 93923	SPILLS	In August 2005, an unknown amount of dry cleaning solvents was released. The site is being evaluated for pollution characterization.
4	Safeway Crossroads Shopping Center Carmel, CA93923	SPILLS	As of January 2007, an unknown amount of an unknown substance was released. The site is being evaluated for pollution characterization.
5	Carmel Area Wastewater District Treatment Plant (also listed as Carmel Treatment Facility) 26900 State Route 1 Carmel, CA 93923	GeoTracker	Case Closure Letter: Two leaking tanks released unknown amounts of gasoline and diesel. They were removed in November 1995. A site characterization was conducted for this site. Monitoring wells were installed in August 1996. Methyl tertiary-butyl ether was tested for in monitoring well 2, with a maximum concentration of 0.0093 parts per million in March 1997, and in monitoring well 3, with a maximum concentration of 0.0037 parts per million in September 1999. Water quality objectives were met when the monitoring wells were discontinued per a Regional Water Quality Control Board letter dated January 2000. In March 2002, a resampling of the water was tested with nondetected levels of contaminant determination.

Source: *Hazardous Waste Initial Site Assessment* (February 2008).

Figure 2-7 Hazardous Releases

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2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following standard conditions would be followed to avoid and minimize potential impacts associated with building the proposed project:

- Handle and dispose of any lead-containing soil in accordance with Caltrans guidelines and the California Health and Safety Code.
- Test and remove any yellow traffic striping and pavement-marking material in accordance with Standard Special Provision XE 15-300.
- Dewatering at the project site is not anticipated, but before construction the question should be revisited to determine whether removal of groundwater will be required as part of the construction effort. Any dewatering will require compliance with the State General Permit or an individual permit from the Regional Water Quality Control Board, Central Coast Region, consistent with National Pollutant Discharge Elimination System requirements. The Regional Water Quality Control Board will decide which permit is applicable and whether sampling is required once it receives and reviews the Notice of Intent.
- Prepare a site-specific Health and Safety Plan consistent with Caltrans requirements to address contact, handling, and disposal of potentially contaminated groundwater and soil, if applicable. The plan would include:
- Identification of key personnel
- Summary or risk assessment for workers, community, and the environment
- Air monitoring plan
- Emergency response plan
- Unless tested, any leaking transformers observed during the course of the project should be handled as a potential polychlorinated biphenyl hazard.
- To notify and ensure that the utility owners mark the locations of underground transmission lines and facilities, call the Underground Service Alert of California at 1-800-227-2600 at least two working days prior to subsurface excavation, per Government Code, Section 4216.2 (a).
- If suspect hazardous waste or underground tanks are encountered during construction, the contractor would stop work and follow the procedures outlined in Appendix D, Caltrans Unknown Hazards Procedures for Construction.

2.2.5 Air Quality

2.2.5.1 Regulatory Setting

The Clean Air Act as amended in 1990 is the federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws 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. Standards have been established for six criteria pollutants that have been linked to potential health concerns; the criteria pollutants are: carbon monoxide, nitrogen dioxide, ozone, particulate matter, lead, and sulfur dioxide.

Under the 1990 Clean Air Act Amendments, the United States Department of Transportation cannot fund, authorize, or approve federal actions to support programs or projects that are not first found to conform to the State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels: first, at the regional level, and second, at the project level. The proposed project must conform at both levels to be approved.

Regional-level conformity in California is concerned with how well the region is meeting the standards set for carbon monoxide, nitrogen dioxide, ozone, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the Regional Transportation Plan, an air quality model is run to determine whether or not implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as the Transportation Agency for Monterey County or Association of Monterey Bay Area Governments, and the appropriate federal agencies, such as the Federal Highway Administration, make the determination that the Regional Transportation Plan is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the Regional Transportation Plan must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the Regional Transportation Plan, 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 and/or particulate matter. A region is a “nonattainment” area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called “maintenance” areas. Hot spot analysis is essentially the same, for technical purposes, as carbon

monoxide or particulate matter analysis performed for the National Environmental Policy Act purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the carbon monoxide standard to be violated, and in nonattainment areas, the project must not cause any increase in the number and severity of violations. If a known carbon monoxide or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violations as well.

2.2.5.2 Affected Environment

The potential for the proposed project to affect air quality is documented in the Air Quality Report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (Air Quality Report, April 2008). The findings of the report are discussed in the paragraphs below.

The proposed project site is located in northern Monterey County. The study area is in the southern portion of the North Central Coast Air Basin, which encompasses Santa Cruz, San Benito, and Monterey Counties. The North Central Coast Air Basin is generally bounded by the Diablo Range on the northeast with the southern portion of the Santa Cruz Mountains; this range forms the Santa Clara Valley, which extends into the northeastern tip of the North Central Coast Air Basin. Farther south, the Santa Clara Valley transitions into the San Benito Valley, which runs northwest-southeast and has the Gabilan Range as its western boundary. To the west of the Gabilan Range is Salinas Valley, which extends from Salinas at the northwest end to King City at the southeast end. The northwest portion of the North Central Coast Air Basin is dominated by the Santa Cruz Mountains.

The major sources of air pollution in the county are vehicular traffic and agricultural operations. On the Monterey Peninsula, the major source of air pollution in the area is vehicles; the limited agricultural operations in the area have a minimal effect on air quality.

According to data recorded by the Monterey station, the project area experiences moderate temperatures and humidities. Temperatures average 58 degrees Fahrenheit annually. Summer afternoon high temperatures average 61 degrees Fahrenheit, decreasing to an average 50 degrees Fahrenheit overnight. Winter temperatures average 56 degrees Fahrenheit in the daytime and 43 degrees Fahrenheit in the nighttime. Temperatures above 70 degrees Fahrenheit or below 40 degrees Fahrenheit occur only in unusual weather conditions. Because of the moderating marine

influence, which decreases with distance from the ocean, monthly and annual spreads between temperatures are greatest inland and smallest at the coast. Temperature influences basin wind flow, dispersion along mountain ridges, vertical mixing, and photochemistry.

2.2.5.3 Environmental Consequences

Air quality impacts resulting from the proposed project development can be divided into either short-term or long-term effects. Short-term emissions are associated with project construction. Long-term impacts are typically associated with build-out conditions and are from vehicle exhaust. The proposed project neither attracts vehicles nor creates direct emissions. While vehicles will use this segment of roadway, these vehicles are (or will be) on the road already and are not a direct result of project implementation. Thus, at the completion of construction, any potential impacts associated with the proposed project are directly related to local shifts in traffic patterns and local air quality (the creation of carbon monoxide hot spots).

Based on the results of the conformity-requirement decision flowcharts provided in the Air Quality Analysis Technical Report, the proposed project is not expected to result in any concentrations exceeding the 1-hour or 8-hour carbon monoxide concentrations. Therefore, a detailed CALINE4 carbon monoxide hot-spot analysis was not required.

The North Central Coast Air Basin is in attainment or unclassified status (in conformity) for all National Ambient Air Quality Standards, as shown in Table 2.11. Because the project is in an attainment/unclassified area for all current federal air

Table 2.11 Federal and State Attainment Status

Pollutant	State	Federal
O_3 1-hour	Nonattainment	Revoked June 2005
O_3 8-hour	Not established	Attainment/Unclassified
PM_{10}	Nonattainment	Attainment/Unclassified
$PM_{2.5}$	Attainment	Attainment/Unclassified
CO	Attainment	Attainment/Unclassified
NO_2	Attainment	Attainment/Unclassified
All others	Attainment/Unclassified	Attainment/Unclassified

Source: California Air Resources Board, 2007 (http://www.arb.ca.gov/desig/desig.htm).
CO = carbon monoxide
NO_2 = nitrogen dioxide
O_3 = ozone
$PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or smaller
PM_{10} = particulate matter with a diameter of 10 microns or smaller

quality standards, conformity requirements do not apply. The North Central Coast Air Basin is in nonattainment for State PM_{10} standards.

An Air Quality Management Plan describes air pollution control strategies for air districts that are not in attainment of state or federal ambient air quality standards. The North Central Coast Air Basin is not in attainment for (*consistent with*) California Ambient Air Quality Standards for ozone and particulate matter. Therefore, the proposed project must be shown to be consistent with the Monterey Bay Air Pollution Control District's Air Quality Management Plan. The proposed project will not emit significant quantities of pollutants that would hinder the goal of the Air Quality Management Plan of attaining California Air Quality Standards for ozone and particular matter. Furthermore, the Transportation Agency of Monterey County had updated its Regional Transportation Plan in 2010, which includes the proposed project improvements. Therefore, the project is consistent with the Monterey Bay Air Pollution Control District's Air Quality Management Plan and the region's state air quality attainment goals.

Air quality monitoring stations are located throughout the nation and maintained by the local air districts and State air quality regulating agencies. Data collected at permanent monitoring stations are used by the United States Environmental Protection Agency to identify regions as attainment or nonattainment, depending on whether the regions met the requirements stated in the primary national ambient air quality standards. Nonattainment areas are imposed with additional restrictions as required by the United States Environmental Protection Agency. In addition, different classifications of attainment, such as marginal, moderate, serious, severe, and extreme, are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the national ambient air quality standards. The national and state ambient air quality standard's attainment status for each of the criteria pollutants is listed in Table 2.12.

The Monterey Bay Unified Air Pollution Control District, together with the California Air Resources Board, maintains ambient air quality monitoring stations in the North Central Coast Air Basin. This station's air quality monitoring station closest to the site is the Carmel Valley Station. Because the Carmel Valley Station only monitors ozone and particulate matter 10 microns or less in diameter concentrations (PM_{10}), the data from the Salinas Station was used for the remaining pollutants. Their air quality trends are representative of the ambient air quality in the project area. The

ambient air quality data in Table 2.13 show that none of the federal or State air quality standards have been exceeded in the project vicinity within the past 3 years.

Regional traffic trips would remain similar; therefore, no new long-term regional emissions would result from implementation of the proposed project. The proposed project will improve traffic movement in the project vicinity, thereby lowering the total pollutants emitted by motor vehicles. Long-term emissions would improve from the enhanced traffic flow due to the interchange improvements under the proposed Build Alternative. The objective of the proposed project is to address current operational deficiencies on State Route 1. The Build Alternative is not expected to generate any additional traffic that would not already be occurring with or without the project.

Monterey County is among the counties listed as containing serpentine and ultramafic rock. However, the project site is not in a region of the County that has been identified as containing serpentine or ultramafic rock (*A General Location Guide for Ultramafic Rocks in California—Areas More Likely to Contain Naturally Occurring Asbestos*, Department of Conservation, Division of Mines and Geology, August 2000). Therefore, the impact from naturally occurring asbestos during project construction would be minimal to none.

In addition to the criteria air pollutants for which there are national ambient air quality standards, the United States Environmental Protection Agency also regulates air toxics. Most air toxics originate from humanmade sources, including on-road mobile sources, non-road mobile sources (for example, airplanes), area sources (such as dry cleaners), and stationary sources (like factories or refineries).Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS).[1] In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics

[1] http://www.epa.gov/ncea/iris/index.html

Table 2.12 Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard	Federal Standard	Health and Atmospheric Effects	Typical Sources
Ozone (O_3)[a]	1 hour 8 hours	0.09 ppm 0.070 ppm	–[b] 0.075 ppm	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include a number of known toxic air contaminants.	Low-altitude ozone is almost entirely formed from reactive organic gases (ROG) and nitrogen oxides (NO_x) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes. Biologically produced ROG may also contribute.
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm[c] 6 ppm	35 ppm 9 ppm –	Asphyxiant. CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.
Respirable Particulate Matter (PM_{10})[a]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 –	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (windblown dust, ocean spray).
Fine Particulate Matter ($PM_{2.5}$)[a]	24 hours Annual	– 12 µg/m^3	35 µg/m^3 15 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter, considered a toxic air contaminant, is in the $PM_{2.5}$ size range. Many aerosol and solid compounds are part of $PM_{2.5}$.	Combustion, including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants, including NO_x, sulfur oxides (SO_x), ammonia, and ROG.
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	– 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain.	Motor vehicles and other mobile sources; refineries; industrial operations.
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours Annual	0.25 ppm – 0.04 ppm –	– 0.5 ppm 0.14 ppm 0.030 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing.

Table 2.12 Ambient Air Quality Standards

Pollutant	Averaging Time	State Standard	Federal Standard	Health and Atmospheric Effects	Typical Sources
Lead (Pb)[d]	Monthly Quarterly	1.5 µg/m^3 –	– 1.5 µg/m^3	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also considered a toxic air contaminant.	Primary: lead-based industrial process like batter production and smelters. Past: lead paint, leaded gasoline. Moderate to high levels of aerially deposited lead from gasoline may still be present in soils along major roads, and can be a problem if large amounts of soil are disturbed.

Sources: California Air Resources Board Ambient Air Quality Standards chart, February 16, 2010 (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).
Sonoma-Marin Area Rail Transit Draft Air Pollutant Standards and Effects table, November 2005, pages 3–52.
United States Environmental Protection Agency and California Air Resources Board air toxics websites, May 17, 2006

[a] Annual PM10 NAAQS revoked October 2006; was 50 µg/m^3. 24-hr. PM2.5 NAAQS tightened October 2006; was 65 µg/m^3.

[b] December 22, 2006 Federal court decision may affect applicability of Federal 1-hour ozone standard. Prior to June 2005, the 1-hour standard was 0.12 ppm. Case is still in litigation.

[c] Rounding to an integer value is not allowed for the State 8-hour CO standard. A violation occurs at or above 9.05 ppm.

[d] The ARB has identified lead, vinyl chloride, and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM10 and, in larger proportion, PM2.5. Both the Air Resources Board and United States Environmental Protection Agency have identified various organic compounds that are precursors to ozone and PM2.5 as toxic air contaminants. There is no threshold level of exposure for adverse health effect determined for toxic air contaminants, and control measures may apply at ambient concentrations below any criteria levels specified for these pollutants or the general categories of pollutants to which they belong.

ppm = parts per million
µg/m^3 = micrograms per cubic meter

Table 2.13 Ambient Air Quality at the Carmel Valley and Salinas Air Monitoring Stations

Pollutant	Standard	2004	2005	2006
Carbon Monoxide				
Maximum 1-hour concentration (ppm)		1.9	2.1	2.5
Number days exceeded: State	> 20 ppm/1-hour	0	0	0
Federal	> 35 ppm/1-hour	0	0	0
Maximum 8-hour concentration (ppm)		1.2	0.9	1.0
Number days exceeded: State	9.0 ppm/8-hour	0	0	0
Federal	9 ppm/8-hour	0	0	0
Ozone				
Maximum 1-hour concentration (ppm)		0.093	0.073	0.085
Number days exceeded: State	> 0.09 ppm/1-hour	0	0	0
Maximum 8-hour concentration (ppm)		0.079	0.065	0.072
Number days exceeded: State	> 0.07 ppm/8-hour	no data	no data	no data
Federal	> 0.08 ppm/8-hour	0	0	0
Particulates (PM_{10})				
Maximum 24-hour concentration ($\mu g/m^3$)		31	23	28
Number days exceeded: State	> 50 $\mu g/m^3$/24-hour	0	0	0
Federal	> 150 $\mu g/m^3$/24-hour	0	0	0
Annual Arithmetic Average ($\mu g/m^3$)		11.7	11.3	11.7
Exceeded: State	> 20 $\mu g/m^3$ annual arithmetic average	No	No	No
Federal	> 50 $\mu g/m^3$ annual arithmetic average	No	No	No
Particulates ($PM_{2.5}$)				
Maximum 24-hour concentration ($\mu g/m^3$)		22.3	16.2	15.0
Number days exceeded: Federal	> 65 $\mu g/m^3$/24-hour	0	0	0
Annual Arithmetic Average ($\mu g/m^3$)		7.0	6.8	7.1
Exceeded: State	> 12 $\mu g/m^3$ annual arithmetic average	No	No	No
Federal	> 15 $\mu g/m^3$ annual arithmetic average	No	No	No
Nitrogen Dioxide				
Maximum 1-hour concentration (ppm)		0.139	0.052	0.067
Number days exceeded: State	> 0.25 ppm/1-hour	0	0	0
Annual arithmetic average concentration (ppm)		0.007	0.008	0.007
Exceeded: Federal	> 0.053 ppm annual arithmetic average	No	No	No

Sources: United States Environmental Protection Agency and California Air Resources Board, 2007.
$\mu g/m^3$ = microgram of pollutant per cubic meter of air
no data = there was insufficient or no data available to determine the value
$PM_{2.5}$ = particulate matter with a diameter of 2.5 microns or smaller
PM_{10} = particulate matter with a diameter of 10 microns or smaller
ppm = parts per million

Assessment (NATA).[1] These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter (POM). While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of

[1] http://www.epa.gov/ttn/atw/nata1999/

future EPA rules. The proposed project will build a northbound truck lane along State Route 1 between Rio Road and Carmel Valley Road. As shown in Figure 1-3, the proposed project would shift the truck traffic to the east away from the sensitive residential uses in the project area. In addition, the proposed project would improve the level of service along the local roadways. Therefore, under the project Build Alternative, it is expected that there would be similar or lower mobile source air toxics emissions in the study area relative to the No-Build Alternative.

During construction, airborne dust generated by clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces may temporarily degrade air quality). Construction-related effects on air quality from most highway projects are greatest during site preparation. If not properly controlled, these activities would temporarily generate PM_{10}, $PM_{2.5}$, and small amounts of carbon monoxide, sulfur dioxide, nitrogen oxide, and volatile organic compounds. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans Standard Specifications (Section 10) pertaining to dust minimization requirements require use of water or dust-palliative compounds that will reduce potential fugitive dust emissions during construction.

The total area of disturbance (grading and excavation) for the truck-climbing lane project is anticipated to be 2.27 acres. If this area were graded four times over a 4-week period, average daily grading (assuming 5 workdays per week) would be 0.45 acre per day. From this it can be estimated that average PM_{10} emissions would be 23 pounds per day at 50 pounds per acre. This level is well below the Monterey Bay Unified Air Pollution Control District threshold of significance for fine particulates; therefore, no mitigation measures are required.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate carbon monoxide, sulfur dioxide, nitrogen oxide, volatile organic compounds and some soot particulate (PM_{10}

and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, carbon monoxide and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Sulfur dioxide is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 5,000 parts per million of sulfur, whereas on-road diesel is restricted to less than 15 parts per million of sulfur. However, under California law and California Air Resources Board regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so sulfur dioxide-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site. Such odors would be quickly dispersed below detectable thresholds as distance from the site increases.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in adverse or long-term conditions. Implementation of the following measures will reduce any air quality impacts resulting from construction activities.

2.2.5.5 Standard Conditions

The contractor would comply with Caltrans Standard Specifications Section 14-9.01 Air Pollution Control, Section 14-9.02 Dust Control, and follow the Monterey Bay Unified Air Quality Management District standard conditions. Implementation of these measures during construction of the Build Alternative would avoid, substantially reduce, or minimize air pollutant emissions associated with construction activities.

Fugitive PM_{10} management measures techniques (employ as applicable):

- Reduce the amount of disturbed area where possible.
- Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour. Reclaimed (i.e., nonpotable) water should be used whenever possible.
- Wet down all dirt stockpile areas daily as needed.

- Implement permanent dust control measures identified in the approved revegetation and landscape plans as soon as possible following any soil-disturbing activities.
- Sow exposed ground areas that would be reworked more than one month after initial grading with a fast-germinating native grass seed and watered until vegetation is established.
- Stabilize all disturbed soil areas not subject to revegetation using approved chemical soil binders, jute netting, or other methods approved in advance by the Monterey Bay Unified Air Pollution Control District.
- Pave all roadways, driveways, sidewalks, etc., as soon as possible.
- Limit vehicle speed for all construction vehicles to 15 miles per hour on any unpaved surface at the construction site.
- Cover the loads of all trucks hauling dirt, sand, or other loose materials or be sure they maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114.
- Install wheel washers where vehicles enter and exit unpaved roads onto streets, or trucks and equipment leaving the site should be washed.
- Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible.
- Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off site. Their duties would include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons would be provided to the Monterey Bay Unified Air Pollution Control District.

Standard Minimization Measures for Construction Equipment

- Maintain all construction equipment in proper condition according to manufacturer's specifications.
- Fuel all off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, and auxiliary power units with motor diesel fuel certified by the California Air Resources Board (nontaxed version suitable for off-road).
- As much as possible, use diesel construction equipment meeting the California Air Resources Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.

Discretionary Minimization Measures for Construction Equipment

- Electrify equipment where feasible.
- Substitute gasoline-powered for diesel-powered equipment where feasible.
- Use construction equipment on site that is fueled by alternative power, where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel.
- Use equipment that has Caterpillar prechamber diesel engines.

Discretionary Activity Management Techniques

- Develop a comprehensive management plan to keep the smallest possible fleet of large construction equipment operating on site during any given time period.
- Schedule construction truck trips during nonpeak hours to reduce peak-hour emissions.
- Limit the length of the construction work day if necessary.
- Phase construction activities if appropriate.

2.2.6 Noise

2.2.6.1 Regulatory Setting

California Environmental Quality Act

The California Environmental Quality Act 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 the California Environmental Quality Act, then the California Environmental Quality Act dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

The following graphic (Figure 2-8) lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

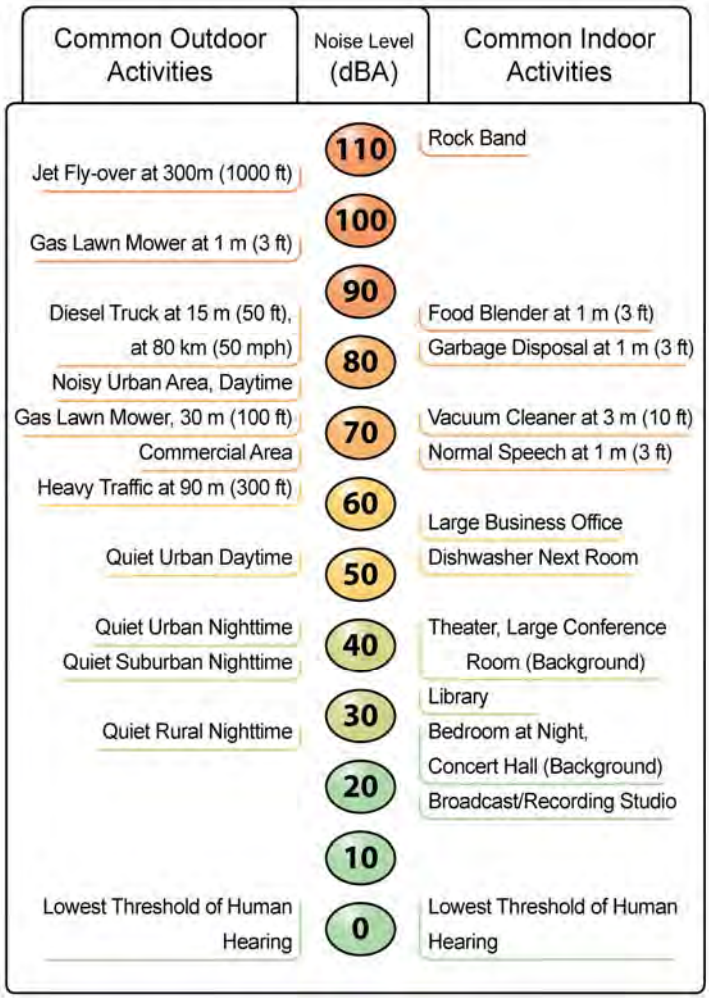

Figure 2-8 Noise Levels of Common Activities

In accordance with Caltrans'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 A-weighted decibel or more increase).

If it is determined that the project will have noise impacts, 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 into the project.

Caltrans's *Traffic Noise Analysis Protocol* 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 5 A-weighted decibel 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 agency input, newly constructed development versus development predating 1978, and the cost per benefited residence.

2.2.6.2 Affected Environment

The analysis of the potential noise impacts of the proposed State Route 1 from Rio Road to Carmel Valley Road Improvement Project is based on the Noise Impact Analysis (April 2008). The Noise Impact Analysis is on file and available for review at the County and Caltrans.

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Within each land use category, sensitive receptors were identified. Land uses in the project vicinity include single-family residential and commercial developments. The generalized land use data and the locations of particular sensitive receptors were the basis for the selection of the noise monitoring and analysis sites. A total of 34 receptor locations were modeled to represent the land uses in the project vicinity. All modeled receptors were residential except for R-16 and R-34.

The primary source of noise in the project area is traffic on State Route 1. Ambient (15-minute) noise measurements were conducted to document the existing noise levels at three representative sensitive receptor locations along the project alignment. These noise measurements were used to calibrate the noise model and to predict the noise levels at all 34 modeled sensitive receptor locations in the project area. Figure 2-9 shows the distribution of these locations. Table 2.14 shows the results of these measurements.

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Figure 2-9 Monitoring and Modeled Receptor Locations

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Table 2.14 Short-Term Ambient Noise Monitoring Results

Monitoring No.	Date	Start Time	Duration	dBA L_{eq}
M-1	7/26/07	11:15 a.m.	15 minutes	58.4
M-2	7/26/07	1:35 p.m.	15 minutes	61.2
M-3	7/26/07	2:15 p.m.	15 minutes	50.9

Source: LSA Associates, Inc., April 2008.
dBA = A-weighted decibels
L_{eq} = equivalent continuous noise level over a specified period of time

2.2.6.3 Environmental Consequences

Permanent Impacts

Traffic Noise

Traffic noise was evaluated for 2030 as the worst-case scenario. The traffic noise model results for existing, future no build, and future build conditions are shown in Table 2.15.

As shown in Table 2.15, the increase in traffic noise between the existing and 2030 Build conditions would be 0 to 2 A-weighted decibels. This increase in noise is less than the 3 A-weighted decibel increase that is perceptible to the average human ear in an outdoor environment. Therefore, no significant noise impact would occur as a result of the project, and no abatement measures for long-term traffic noise levels would be required.

Temporary Impacts

Construction Noise

Two types of short-term noise impacts would occur during construction of the project. First, construction crew commutes and the transport of construction equipment and materials to the project site would incrementally raise noise levels on access roads leading to the site. The heavy equipment for grading and construction activities will be moved on site, will remain for the duration of each construction phase, and will not add to the daily traffic volume in the project vicinity. A tractor-trailer rig traveling to the site would raise the noise level of upon arrival to 87-A-weighted decibels at a distance of 50-feet. Once the rig has left the site, the noise level would immediately return to back ground noise levels.

However, construction traffic would not be a substantial contributor to existing traffic volumes on State Route 1 and Rio Road. Any associated long-term noise level changes would not be perceptible to human hearing. Therefore, short-term

Table 2.15 Projected Traffic Noise Levels, dBA L_{eq}

Receiver Number	Location	Existing Noise Level (dBA L_{eq})	2030 Predicted Noise Level without Project (dBA L_{eq})	2030 Predicted Noise Level with Project (dBA L_{eq})	Noise Impact Requiring Abatement Consideration
R-1	Fisher Drive	51	52	52	No
R-2	Fisher Drive	52	53	54	No
R-3	Aspen Place	55	56	56	No
R-4	Aspen Place	53	54	54	No
R-5	Aspen Place	45	46	46	No
R-6	Fisher Place	61	62	62	No
R-7	Fisher Place	56	57	57	No
R-8	Fisher Place	49	49	49	No
R-9	Fisher Place	46	46	46	No
R-10	Rio Road	59	59	59	No
R-11	Birch Place	53	53	53	No
R-12	Rio Road	50	50	51	No
R-13	Birch Place	65	65	65	No
R-14	Birch Place	61	61	62	No
R-15	Birch Place	54	54	54	No
R-16	Rio Road	40	41	42	No
R-17	Birch Place	48	48	49	No
R-18	Oliver Road	53	53	53	No
R-19	Oliver Road	60	60	60	No
R-20	Oliver Road	64	64	64	No
R-21	Oliver Road	60	60	61	No
R-22	Oliver Road	53	53	55	No
R-23	Lazarro Drive	48	48	50	No
R-24	Lazarro Drive	50	50	51	No
R-25	Lazarro Drive	50	50	52	No
R-26	Mesa Place	56	56	57	No
R-27	Mesa Place	52	51	53	No
R-28	Mesa Place	50	49	51	No
R-29	Mesa Place	44	44	45	No
R-30	Mesa Place	47	48	48	No
R-31	Mesa Place	61	62	62	No
R-32	Mesa Place	63	64	64	No
R-33	Carmel Hills Drive	62	63	63	No
R-34	The Barnyard	40	40	42	No

Source: LSA Associates, Inc., April 2008.
dBA = A-weighted decibels
L_{eq} = hourly equivalent continuous noise levels

construction-related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact would be from noise generated during excavation, grading, and roadway construction. Construction happens in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would generate different noise levels along the alignments as construction progresses.

Despite variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Typical noise levels at 50 feet from an active construction area range up to a 91 A-weighted decibel maximum instantaneous noise level during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backhoes, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings. Construction of the proposed project is expected to require the use of earthmovers, bulldozers, water trucks, and dump trucks. Noise associated with the use of construction equipment is estimated between 79 and 89 A-weighted decibel maximum instantaneous noise levels at a distance of 50 feet from the active construction area for the grading phase. The maximum instantaneous noise level generated by each scraper is assumed to be approximately 87 A-weighted decibels at 50 feet from the scraper in operation. Each bulldozer would also generate an approximately 85 A-weighted decibel maximum instantaneous noise level at 50 feet. The maximum instantaneous noise level generated by water trucks and dump trucks is approximately 86 A-weighted decibels at 50 feet from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 A-weighted decibels. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be a 91 A-weighted decibel maximum instantaneous noise level at a distance of 50 feet from an active construction area.

The closest sensitive receptors, which are located 50 feet from the project construction areas, would be subject to short-term noise reaching a 91 A-weighted decibel maximum instantaneous noise level.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

To minimize the construction noise impact for sensitive land uses adjacent to the project site, construction noise will be regulated consistent with Caltrans's Standard Specifications, Section 14-8.02 "Noise Control," in the Standard Special Provisions. These provisions follow:

- The contractor would comply with all local sound control and noise level rules, regulations, and ordinances that apply to any work performed pursuant to the contract.
- Each internal combustion engine, used for any purpose on the job or related to the job, would be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the job site without an appropriate muffler.

Additionally, since a well-informed public is much more likely to be tolerant of short-term construction noise, the resident engineer would:

- Notify surrounding residences in advance of the construction schedule through the local news media. The notice is provided to local newspapers, radio, and television by the District 5 Public Information Office after they are notified by the resident engineer of the pending start of construction.

If noise complaints are received, or other circumstances dictate the need to further minimize temporary construction noise impacts, appropriate measures from this list should be implemented at the resident engineer's discretion:

- Shield especially loud pieces of stationary construction equipment when working in close proximity to residential areas.
- Locate portable generators, air compressors, etc., away from sensitive noise receptors
- Limit grouping major pieces of equipment operating in one area to the greatest extent feasible.
- Use newer equipment that is quieter and ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine covers, and engine vibration isolators intact and operational. Internal combustion engines used for any purpose on or related to the job would be equipped with a muffler or baffle of a type recommended by the manufacturer.

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration.

Habitat fragmentation occurs when human-caused land use changes such as roads, urban development or agriculture dissect habitat into isolated patches. Habitat fragmentation generally reduces biological diversity in isolated patches and increases the threat of invasive species, which leads to habitat degradation.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in Threatened and Endangered Species, Section 2.3.5. Wetlands and other waters are discussed in Section 2.3.2.

2.3.1.1 Affected Environment

The potential for the proposed project to impact natural communities is documented in the Natural Environment Study (Minimal Impact) report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (October 2010). The findings of the report are discussed in the paragraphs below.

The project site is located primarily within an urban landscape fringed by patches of open land supporting native and nonnative vegetation. Patches of native trees, willow riparian woodland, coastal scrub, and ornamental plantings are present on site (Figure 2-10).

Willow riparian woodland and coastal scrub are the only vegetation on site that represent natural communities. Individual native trees and ornamental plantings are not considered natural communities. High-quality willow riparian woodland occurs along the Carmel River (to the south of the project site) and in Hatton Canyon at the northern end of the biological study area. The willow riparian woodland is dominated by arroyo willow (*Salix lasiolepis*), but the understory of the patch in the western portion of the project site (just south of Carmel Valley Road) has been invaded by English ivy (*Hedera helix*), an invasive non-native plant. The dominant native shrub species in the coastal scrub are California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), and poison oak (*Toxicodendron diversilobum*). Small numbers of California buckwheat (*Eriogonum faciculatum* var. *polyfolium*) are also present in the area.

2.3.1.2 Environmental Consequences

The proposed project will impact approximately 2.14 acres of ruderal habitat adjacent to existing State Route 1. According to the grading plan, none of the willow riparian woodland or coastal scrub within the biological study area (Figure 2-10) will be impacted by the Build Alternative.

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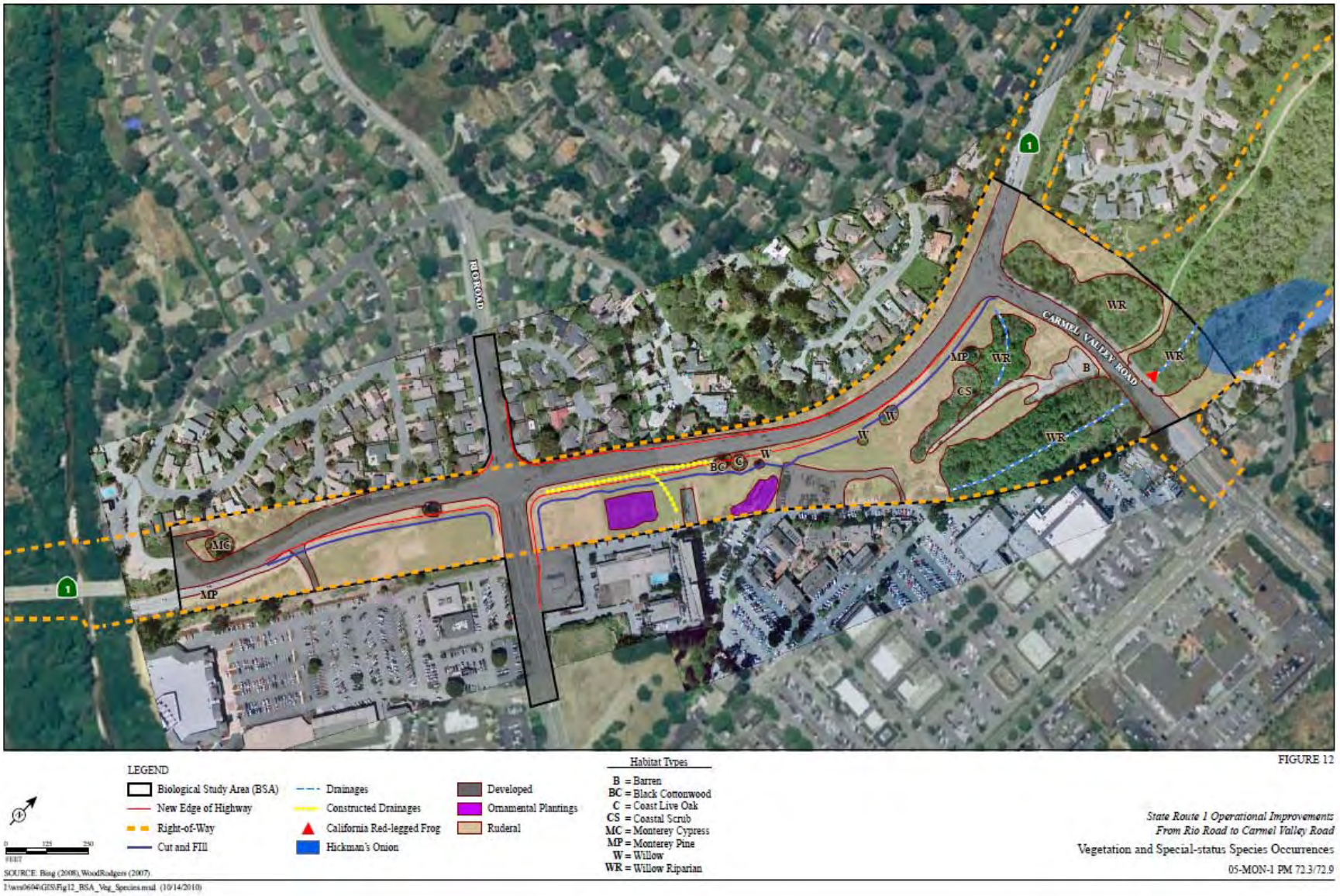

Figure 2-10 Vegetation and Special-Status Species Occurences

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The Build Alternative would improve an existing transportation facility, but would not result in fragmentation of habitat or impacts to wildlife corridors. In addition, there is no approved Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plans applicable to this site.

2.3.1.3 Avoidance, Minimization, and/or Mitigation Measures

Environmentally Sensitive Area Fencing

To prevent any incidental impacts to natural communities immediately adjacent to the cut-and-fill area, the project would install and maintain environmentally sensitive area construction fencing around the willow riparian woodland and coastal scrub habitat before construction starts. The fencing would be maintained throughout the project and removed when construction ends.

2.3.2 Wetlands and Other Waters

2.3.2.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Clean Water Act (33 United States Code 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 United States Army Corps of Engineers with oversight by the United States Environmental Protection Agency.

The Executive Order for the Protection of Wetlands (Executive Order 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, 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) that the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Game and the Regional Water Quality Control Boards. In certain circumstances, the California Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600–1607 of the Fish and Game Code require any agency that proposes a project that would substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the California Department of Fish and Game before beginning construction. If the California Department of Fish and Game determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement would be required. The California Department of Fish and Game 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 United States Army Corps of Engineers may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the California Department of Fish and Game.

The regional water quality control boards were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The boards also issue water quality certifications in compliance with Section 401 of the Clean Water Act. Please see the Water Quality section for additional details.

2.3.2.2 Affected Environment

The potential for the proposed project to impact wetlands is documented in the Natural Environment Study (Minimal Impact) report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (October 2010). The findings of the report are discussed in the paragraphs below.

The drainage along Hatton Canyon in the northeastern portion of the biological study area, which is outside the construction impact area, is likely under the jurisdiction of the United States Army Corps of Engineers, Regional Water Quality Control Board, and the California Department of Fish and Game due to the presence of wetland vegetation and a distinct ordinary high water mark. The small side drainage entering the biological study area from under State Route 1 may also be under the jurisdiction

of these agencies for these same reasons. However, these drainages are outside the construction impact area.

A shallow, constructed roadside ditch and a connecting ditch are present in the biological study area north of Rio Road (Figure 2-10). These ditches lack wetland vegetation and an evident ordinary high water mark, and were dry during the field survey.

2.3.2.3 Environmental Consequences

The constructed roadside ditch and short connecting ditch on the east side of State Route 1 just north of Rio Road do not support wetland vegetation, have no evident ordinary high water mark, and thus do not meet the regulatory definition of Waters of the United States under the Clean Water Act.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

2.3.3 Plant Species

2.3.3.1 Regulatory Setting

The United States Fish and Wildlife Service and California Department of Fish and Game 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 and/or the California Endangered Species Act. Please see the Threatened and Endangered Species, Section 2.3.5, in this document for detailed information regarding these species.

This section of the document discusses all the other special-status plant species, including California Department of Fish and Game fully protected species and species of special concern, United States Fish and Wildlife Service candidate species, and nonlisted California Native Plant Society rare and endangered plants.

The regulatory requirements for the Federal Endangered Species Act can be found at United States Code 16, Section 1531 et. seq. See also 50 Code of Federal Regulations Part 402. The regulatory requirements for the California Endangered Species Act can

be found at California Fish and Game Code, Section 2050 et. seq. Caltrans projects are also subject to the Native Plant Protection Act, found at Fish and Game Code, Sections 1900–1913, and the California Environmental Quality Act, Public Resources Code, Sections 2100–21177.

2.3.3.2 Affected Environment

The potential for the proposed project to impact plant species is documented in the Natural Environment Study (Minimal Impact) report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (October 2010). The findings of the report are discussed in the paragraphs below.

Small groves and individuals of various native trees, including Monterey cypress and Monterey pine, are present in the biological study area. Both the Monterey cypress and Monterey pine are considered special-status species. Both are native species that are often planted for landscaping in urban and rural areas along the central California coast. Most of the Monterey cypress and Monterey pine within the biological study area appear to have been planted (for example, a row of midsized trees along the west side of State Route 1, south of Rio Road) or recently seeded, but other large specimens could be remnants of the native forest that may once have existed in the biological study area.

No other special-status plant species were observed within the biological study area during the July 31, 2007, field survey. Caltrans conducted special-status plant surveys in Hatton Canyon at various times from 1988 through 1998 as part of the Hatton Canyon Highway Project (California Department of Transportation 1998). These surveys included the strip of undeveloped land within the biological study area; no special-status plants were found in this area during these surveys. A population of Hickman's onion (*Allium hickmanii*), however, was discovered during Caltrans surveys in the grassland just north of the biological study area and Carmel Valley Road. Based on field and Caltrans surveys and the existing conditions and activity (including maintenance activities such as mowing, cut-and-fill slopes along State Route 1, and human and vehicle disturbance) within the biological study area and surrounding urban development, no Hickman's onions are expected to occur within the biological study area.

2.3.3.3 Environmental Consequences

No special-status plants are expected to be impacted within the cut-and-fill area. No other special-status species are expected to occur within the cut-and-fill area due to

the proximity of the existing highway and lack of suitable habitat for most special-status species known from the area. Therefore, no impacts to special-status species would occur.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required.

2.3.4 Animal Species

2.3.4.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration Fisheries, and the California Department of Fish and Game 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 2.3.5. All other special-status animal species are discussed here, including California Department of Fish and Game fully protected species and species of special concern, and United States Fish and Wildlife Service or National Oceanic and Atmospheric Administration 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 4150 and 4152 of the Fish and Game Code

2.3.4.2 Affected Environment

The potential for the proposed project to impact animal species is documented in the Natural Environment Study (Minimal Impact) report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (October 2010). The findings of the report are discussed in the paragraphs below.

Many of the of the special-status animal species on the California Natural Diversity Database and California Native Plant Society list for the Monterey, California quadrangles are associated with specific habitats (such as marine environments, sea cliffs, vernal pools, and sand dunes) that are not present in or adjacent to the biological study area. Some species of special-status animals would not be expected to occur in the biological study area because essential habitat components are not present (such as vernal pools or stock ponds), or the urban landscape and associated high levels of human activity render the available habitat unsuitable. Special-status species that have been found within a 2-mile radius of the biological study area are discussed in the Natural Environment Study (Minimal Impact) report prepared for the proposed project (Appendix D, Table 1).

There are no California Natural Diversity Database records of yellow warbler (*Dendroica petechia*) or yellow-breasted chat (*Icteria virens*) (both California species of special concern) within 2 miles of the biological study area, but these two birds are addressed in this study because there are nesting records along the Carmel River (east of State Route 1), and the willow riparian woodland in the northern portion of the study area is potential nesting habitat for both.

2.3.4.3 Environmental Consequences

While the willow riparian woodland in the northern portion of the study area is potential nesting habitat for these birds, they are unlikely to occur regularly there due to the relative isolation of this woodland in an urban landscape and its proximity to a major highway. In addition, according to the grading plan (Appendix B), none of the willow riparian woodland within the biological study area will be impacted by the Build Alternative.

2.3.4.4 Avoidance, Minimization, and/or Mitigation Measures

Environmentally Sensitive Area Fencing

To prevent any incidental impacts to animals immediately adjacent to the cut-and-fill area, the project would install and maintain environmentally sensitive area construction fencing around the willow riparian woodland and coastal scrub habitat would be installed prior to the commencement of construction activities. The fencing would be maintained throughout the project and would be removed when construction ends.

2.3.5 Threatened and Endangered Species

2.3.5.1 Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act: 16 United States Code, Section 1531, et seq. (see also 50 Code of Federal Regulations 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 United States Fish and Wildlife Service and the National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of the Federal Endangered Species Act defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

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

2.3.5.2 Affected Environment

The potential for the proposed project to impact threatened and endangered species is documented in the Natural Environment Study (Minimal Impact) report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (October 2010). The findings of the report are discussed in the paragraphs below.

During Caltrans surveys for the Hatton Canyon Highway Project in June 1998, a single adult California red-legged frog (*Rana aurora draytonii*) (a federally listed threatened species) was observed in the scour pool at the intake of the culvert under Carmel Valley Road, approximately 500 feet east and 200 feet north (across Carmel Valley Road) of the construction impact area. This pool contained water during the field survey for this report, but the drainage downstream of Carmel Valley Road lacked surface water. No California red-legged frogs were seen in this pool during the field survey for this project. Though there are records of California red-legged frogs along Hatton Creek, the frog is unlikely to occur within the project area due to the proximity of a busy roadway and lack of cover suitable for frogs.

The California red-legged frog occur in upland habitats during wet weather and could move through the area between and around the two patches of willow riparian woodland in the northern portion of the biological study area. It is unlikely, however, that California red-legged frogs would occur with any regularity in other parts of the biological study area due to the general lack of surface cover or wetlands.

2.3.5.3 Environmental Consequences

As shown in Figure 2-10, none of the willow riparian woodland within the biological study area would be impacted by the proposed project. Construction staging and equipment storage in areas near Rio Road would not affect California red-legged frogs.

2.3.5.4 Avoidance, Minimization, and/or Mitigation Measures

The following measure will be implemented to avoid and minimize potential impacts to red-legged frogs.

Preconstruction Surveys

A qualified biologist will conduct preconstruction surveys for California red-legged frogs not more than two weeks before the scheduled start of construction. If California red-legged frogs, tadpoles, or eggs are found, all work would cease until

the biologist contacts the United States Fish and Wildlife Service (Service) to determine if formal Section 7 consultation is required. If consultation is required;

- Ground disturbance would not begin until written approval to proceed is received from the Service.
- Only the qualified biologist would participate in activities associated with the capture, handling, and monitoring of California red-legged frog during preconstruction surveys and ongoing monitoring throughout construction of the project.
- The qualified biologist would be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of habitat has been completed.
- Exclusionary environmentally sensitive area construction fencing would be installed to exclude frogs from entering the work site.
- Before any activities begin, the qualified biologist would conduct a training session for all construction personnel. At a minimum, the training would include a description of the California red-legged frog and its habitat, the specific measures that are being implemented by the project to conserve the frog, and the boundaries within which the project may be accomplished.
- During construction, monitoring for red-legged frogs will be provided. Construction equipment will not be staged, stored, or maintained in the open barren area between the two willow patches or near the riparian habitat. Areas adjacent to riparian habitat will not be used for project-related activities.
- During project activities, all trash that may attract predators must be properly contained, removed from the work site and disposed of regularly. When construction ends, all trash and construction debris must be removed from work areas.

2.3.6 Invasive Species

2.3.6.1 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. This Executive 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 National Environmental Policy Act analysis for a proposed project.

2.3.6.2 Affected Environment

The potential for the proposed project impacts related to invasive species is documented in the Natural Environment Study (Minimal Impact) report prepared for the State Route 1 Operational Improvements from Rio Road to Carmel Valley Road Project (October 2010). The findings of the report are discussed in the paragraphs below.

A general biological assessment of the biological study area was conducted on July 31, 2007. Vegetation within the biological study area is generally dominated by ruderal nonnative species such as wild oats (*Avena* sp.), Queen Anne's lace (*Daucus carota*), mustard (*Calystegia macrostegia*), summer mustard (*Hirschfeldia incana*), oriental mustard (*Sisymbrium orientale*), sweet fennel (*Foeniculum vulgare*), hare barley (*Hordeum marinum* spp. *leporinum*), prickly lettuce (*Lactuca serriola*), Italian ryegrass (*Lolium multiflorum*), English plantain (*Plantago lanceolata*), and others. In addition, the understory of the willow riparian woodland patch in the western portion of the biological study area (just south of Carmel Valley Road) has been invaded by English ivy (*Hedera helix*). French broom (*Genista monspessulana*), a highly invasive nonnative shrub, also occurs in the biological study area.

Sweet fennel, English ivy, and French broom are identified on the California Invasive Plant Council inventory rating as "high," meaning they have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Plants with this rating have a reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.

Wild oats, summer mustard, hare barley, and Italian ryegrass are identified on the California Invasive Plant Council inventory rating as "moderate." These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Their ecological extent and distribution may range from limited to widespread.

English plantain is identified on the California Invasive Plant Council inventory rating as "limited." These species are invasive, but either their ecological impacts are

minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Their ecological extent and distribution are generally limited, but these species may be locally persistent and problematic.

Highway corridors provide opportunities for the movement of invasive species through the landscape. Invasive species can be passively transported by vehicles and in the loads they carry. Invasive plants can be moved from site to site during spraying and mowing operations. Weed seed can be inadvertently introduced into an area on equipment during construction and through the use of mulch, imported soil or gravel, and sod. Some invasive plant species might be deliberately planted in erosion control, landscape, or wildflower projects. Highway right-of-ways provide ample opportunity for weeds in adjacent areas to spread along corridors that, on a national scale, span millions of miles of highway.

2.3.6.3 Environmental Consequences

Construction and operation of the Build Alternative has the potential to spread invasive species as construction equipment or vehicles contaminated by invasive species enter and leave the site. However, measures will be included during construction to reduce the likelihood of spreading invasive species. None of the species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping.

2.3.6.4 Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, Executive Order 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.

2.3.6.5 Bare Soil

Bare soil will be landscaped with Caltrans-approved seed mix from locally adopted species to preclude the invasion of noxious weeds. The use of site-specific materials adapted to local conditions increases the likelihood that revegetation will be successful and maintains the genetic integrity of the local ecosystem.

2.4 Cumulative Impacts

2.4.1.1 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.

California Environmental Quality Act 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 the California Environmental Quality Act can be found in Section 15355 of the California Environmental Quality Act Guidelines. A definition of cumulative impacts under the National Environmental Policy Act can be found in 40 Code of Federal Regulations, Section 1508.7 of the Council on Environmental Quality Regulations.

2.4.1.2 Affected Environment

The project-specific resources to consider in this cumulative effect analysis include impacts to aesthetic resources and natural communities; in particular, trees, such as a coast live oak with two trunks (combined diameter at breast height greater than 3 feet), five black cottonwoods (approximately 1–1.5 feet in diameter at breast height), and three small willows (less than 6 inches in diameter at breast height). Additional project-specific resources to consider in this cumulative effect analysis include impacts to animal species, including those listed as threatened/endangered, which potentially consists of the California red-legged frog.

The study area for the resources identified above is limited to the general project site vicinity because the State Route 1/Rio Road and Carmel Valley Road intersections do not affect an area large enough to be considered regional. Therefore, the study area for cumulative impacts was defined as a more limited local area, including the adjacent Hatton Canyon Open Space area.

The resource study area was primarily either in agricultural use (fields) or sparsely developed for residential land uses and in a natural state in the 1930s and the 1940s. Roads in the area during this time included State Route 1 and Carmel Valley Road. In the 1960s, the project vicinity continues to be characterized by agricultural uses to the east and residential uses to the west. Commercial and light industrial uses begin to appear east of State Route 1 at this time. Also at this time, Rio Road connects to State Route 1 from the residential area west of State Route 1. By the 1970s, the project vicinity consists of predominantly residential and commercial uses directly west and east of State Route 1, respectively. Some land is vacant, but the agricultural land use has almost disappeared in the project vicinity. Rio Road has been continued to the east side of State Route 1, where commercial and light industrial land uses are increasing. By early 2000, commercial development is denser and residential subdivisions are located west of State Route 1.

The project-specific direct and indirect impacts include aesthetic and natural communities' impacts as a result of mature tree removal and potential impacts to various animal species (birds) that potentially use those trees for nesting and foraging. In addition, there are potential direct and indirect impacts to threatened/endangered species, particularly the California red-legged frog, as a result of potential impacts to riparian habitat in the northern portion of the biological study area. Because the proposed project will mitigate impacts to the coast live oak at a 25:1 ratio and the riparian habitat in the northern portion of the biological study will be avoided, there is no contribution to cumulative impacts for this project.

There are currently no proposed or planned projects in the resource study area to contribute to a cumulative impact. One other transportation/recreational development project in the resource study area was constructed in 2010, the Carmel Hills Trail, which is located less than 0.1 mile to the east. The Carmel Hill and River Class 1 Bicycle Trail Project resulted in the removal of five Monterey pine trees and one coast live oak. One of the Monterey pine trees planned for removal as part of the Carmel Hill and River Class 1 Bicycle Trail Project is located within a portion of the canyon that has been identified as a historic Monterey pine forest stand north of

Carmel Valley Road. Although it was considered special status, it was removed during construction of the trail project. However, this impact was fully mitigated to below a level of significance.

The Carmel Hill and River Class 1 Bicycle Trail Project also identified potential indirect and direct impacts to the California red-legged frog. However, the mitigation measures provided for that project will compensate for potential impacts to California red-legged frog habitat by restoring riparian and wetland habitat as a component of project installation (Carmel Hill and River Class 1 Bicycle Trail Project, Draft Environmental Impact Report, Transportation Agency of Monterey County, March 2009). Refer to Sections 2.1.4 and 3.0 for a detailed explanation of coordination efforts among the two projects.

2.4.1.3 Environmental Consequences

In context with other current and reasonably foreseeable development in the vicinity, cumulative aesthetic and biological impacts within the study area are not anticipated. The proposed project will provide sufficient mitigation and minimization measures to mitigate impacts to aesthetic and biological resources to less than significant levels. In addition, the project is not anticipated to significantly increase the urban element in the surrounding area. Cumulative impacts are not expected to result from construction of the project. Therefore, the proposed project's construction and operation would not make a considerable contribution to any significant cumulative aesthetic or biological impact.

2.4.1.4 Avoidance, Minimization, and/or Mitigation Measures

No additional avoidance, minimization, and/or mitigation measures are required to reduce cumulative impacts.

2.5 Climate Change (California Environmental Quality Act)

2.5.1.1 Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of greenhouse gas related to human activity that include carbon dioxide (CO_2), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur

hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with greenhouse gas emissions and climate change at the state level. AB 1493 requires the California Air Resources Board (CARB) 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; however, in order to enact the standards California needed a waiver from the USEPA. The waiver was denied by Environmental Protection Agency in December 2007 and efforts to overturn the decision had been unsuccessful (see *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011). However, on January 26, 2009, it was announced that USEPA would reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5 mpg fuel economy standard for automobiles and light duty trucks which will take effect in 2012. On June 30, 2009 USEPA granted California the waiver. California is expected to enforce its standards for 2009 to 2011 and then look to the federal government to implement equivalent standards for 2012 to 2016. The granting of the waiver will also allow California to implement even stronger standards in the future. The state is expected to start developing new standards for the post-2016 model years later this year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's greenhouse gas 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 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall greenhouse gas emissions reduction goals while further mandating that CARB 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.

With 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 10 percent by 2020.

Climate change and greenhouse gas reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing greenhouse gas emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the USEPA to regulate greenhouse gas as a pollutant under the Clean Air Act (*Massachusetts vs. Environmental Protection Agency et al.*, 549 U.S. 497 (2007). The court ruled that greenhouse gas does fit within the Clean Air Act's definition of a pollutant, and that the USEPA does have the authority to regulate greenhouse gas. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting greenhouse gas emissions.

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)--in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds 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 USEPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009[1]. On May 7, 2010 the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register[2].

The final combined USEPA and National Highway Traffic Safety Administration 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. They require these vehicles to meet an estimated combined

[1] http://www.epa.gov/climatechange/endangerment.html

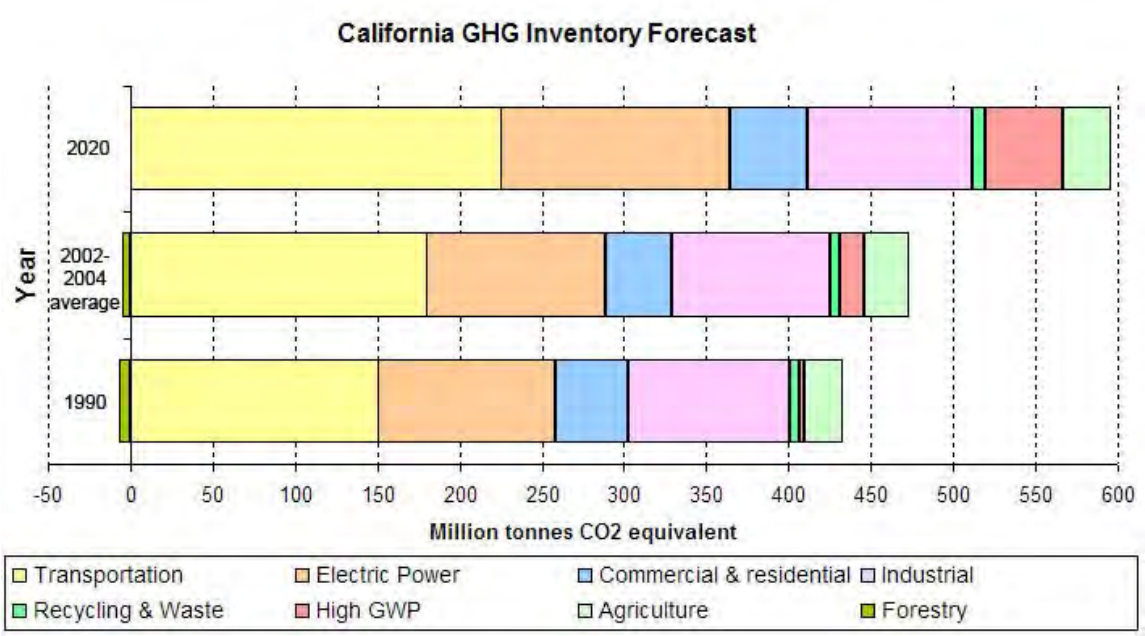
[2] http://www.regulations.gov/search/Regs/contentStreamer?objectId =0900006480a5e7f1&disposition=attachment&contentType=pdf

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 greenhouse gas 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).

According to *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough greenhouse gas 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 greenhouse gas. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines sections 15064(i)(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.

As part of its supporting documentation for the Draft Scoping Plan, CARB recently released an updated version of the greenhouse gas inventory for California (June 26, 2008). Shown below is a graph from that update that shows the total greenhouse gas emissions for California for 1990, 2002-2004 average, and 2020 projected if no action is taken.

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California's greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human made greenhouse gas emissions are from transportation (Caltrans, 2006b), Caltrans has created and is implementing the *Climate Action Program at Caltrans* that was published in December 2006.



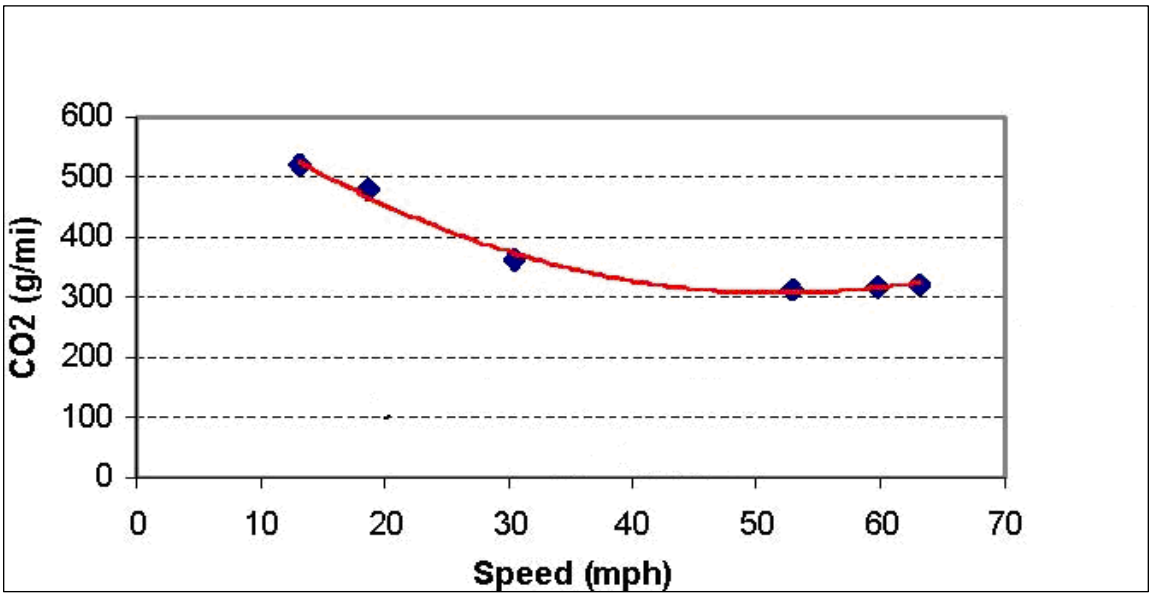
Taken from: http://www.arb.ca.gov/cc/inventory/data/forecast.htm
CO_2 = carbon dioxide
GHG = greenhouse gas

Figure 2-11 California Greenhouse Gas Inventory

2.5.1.2 Project Analysis

One of the main strategies in the California Department of Transportation's Climate Action Program to reduce greenhouse gas 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 mph; the most severe emissions occur from 0–25 miles per hour (Figure 2-12). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors greenhouse gas emissions, particularly CO2, may be reduced.

None of the elements of the proposed project are designed to increase through-capacity, but are designed to increase the operational efficiency of the travelway within the project area. The proposed northbound truck-climbing lane on State Route 1 from Rio Road to Carmel Valley Road will help alleviate congestion caused by lighter duty vehicles being trapped behind slow-moving trucks. The truck-climbing lane would continue through the Carmel Valley Road intersection in a shared through/right-turn lane to join the existing truck-climbing lane. The project will also add turn lanes at the Rio Road intersection. The purpose of the turn lanes is



Source: Center for Clean Air Policy: http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf
CO_2 = carbon dioxide
g/mi = gram per mile
mph = miles per hour

Figure 2-12 Fleet Carbon Dioxide Emissions versus Speed (Highway)

to provide a safer and more efficient turning movement for vehicles and to improve the efficiency of the intersection.

Lastly, the project includes several improvements to bicycle and pedestrian facilities. Bicycle lanes that are 4 feet wide will be added on westbound Rio Road approaching the intersection and on southbound State Route 1 approaching the intersection to avoid interference between bicyclists and traffic using the proposed right-turn lanes. The pedestrian facilities at the Rio Road/State Route 1 intersection, including curb ramps, crosswalks, and sidewalk, will be upgraded to comply with current standards.

Given the elements of the project and the anticipated reduction in vehicle hours traveled, Caltrans does not anticipate an increase in carbon dioxide or other greenhouse gas emissions. While construction emissions of greenhouse gases are unavoidable, there will likely be long term benefits with improved safety, and operational efficiency.

2.5.1.3 Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operation. Construction

greenhouse gas emissions include emissions produced as a result of material processing, emissions produced by on-site 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 greenhouse gas emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

2.5.1.4 California Environmental Quality Act Conclusion

While there will be construction-related increases in greenhouse gas emissions, Caltrans anticipates that the project will not result in any increases in operational greenhouse gas emissions. It is Caltrans determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA California Environmental Quality Act significance, it is too speculative to make a determination regarding significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following sections.

2.5.1.5 Assembly Bill 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as the California Air Resources Board works to implement the Governor's Executive Orders and help achieve the targets set forth in Assembly Bill 32. Many of the strategies Caltrans is using to help meet the targets in Assembly Bill 32 come from the California Strategic Growth Plan, which is updated each year. Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $238.6 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding through 2016.1 As shown on Figure 2-13, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in greenhouse gas 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, yield the promised reduction in congestion. The

[1] Governor's Strategic Growth Plan, Fig. 1 (http://gov.ca.gov/pdf/gov/CSGP.pdf).

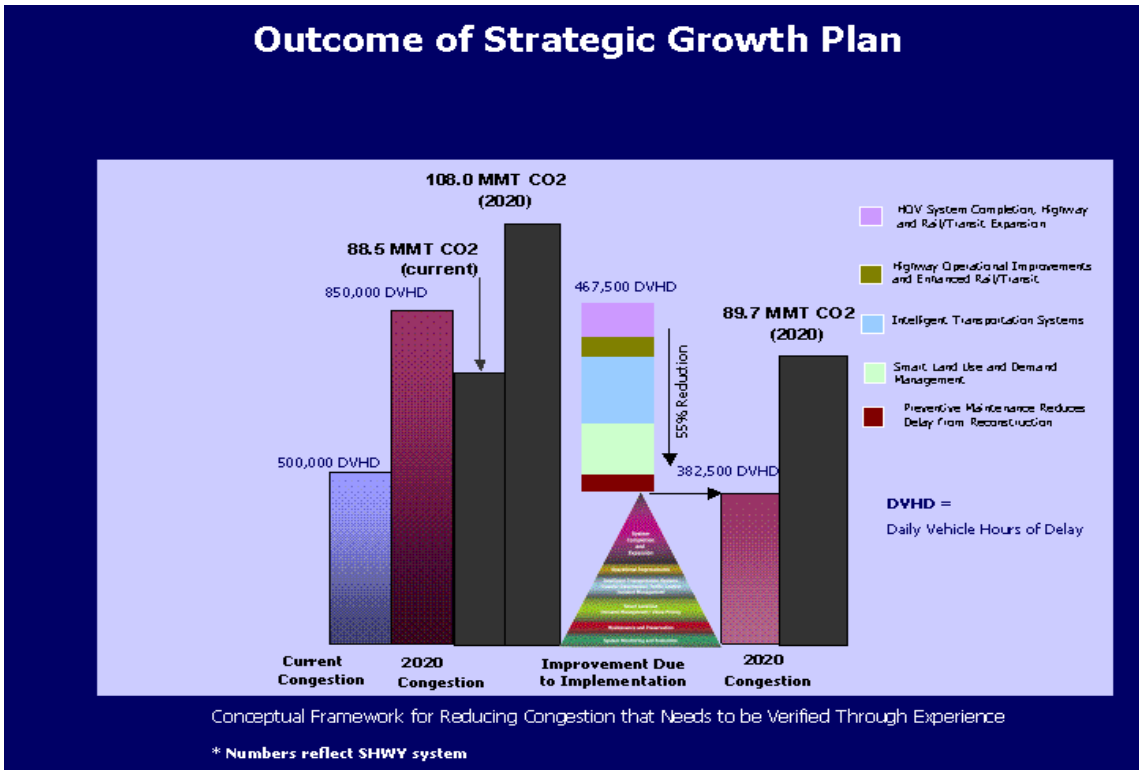


Figure 2-13 Outcome of Strategic Growth Plan

Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

As part of the Climate Action Program at Caltrans (December 2006, http://www.dot.ca.gov/docs/ClimateReport.pdf), Caltrans 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. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars and light- and heavy-duty trucks. Caltrans is doing this by supporting ongoing research efforts at universities, supporting legislative efforts to increase fuel economy, and its participation on the Climate Action Team. It is important to note, however, that control of the fuel economy standards is held by the Environmental

Protection Agency and California Air Resources Board. Lastly, the use of alternative fuels is also being considered; Caltrans is participating in funding for alternative fuel research at the University of California, Davis. Table 2.5.1 summarizes Caltrans and statewide efforts that Caltrans is implementing in order to reduce greenhouse gas emissions. For more detailed information about each strategy, please see the Climate Action Program at Caltrans (December 2006); it is available at.

To the extent that it is applicable or feasible for the project, the following measures can also help to reduce the greenhouse gas emissions and potential climate change impacts from projects.

- **Use of Reclaimed Water:** currently 30 percent of the electricity used in California is used for the treatment and delivery of water. Use of reclaimed water helps conserve this energy, which reduces greenhouse gas emissions from electricity production.
- **Landscaping:** reduces surface warming and through photosynthesis decreases carbon dioxide.
- **Portland Cement:** use of lighter color surfaces such as Portland cement helps to reduce the albedo effect (measure of how much light a surface reflects) and cool the surface; in addition, the California Department of Transportation has been a leader in the effort to add fly ash to Portland cement mixes. Adding fly ash reduces the greenhouse gas emissions associated with cement production. Lighting: Use of energy efficient lighting, such as light-emitting diode traffic signals.
- **Idling Restrictions:** for trucks and equipment.

2.5.1.6 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. 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 rise affecting safety, maintenance and operational improvements of the system and economy of the state. Caltrans 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 from 2008 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.) The project was planned for construction in the year 2012.

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. Caltrans 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 2012.

On August 3, 2009, Natural Resources Agency in cooperation and partnership with multiple state agencies released the 2009 California Climate Adaptation Strategy Discussion Draft, which summarizes the best known science on climate change impacts in seven specific sectors and provides recommendations on how to manage against those threats. The release of the draft document set in motion a 45-day public comment period. Led by the California Natural Resources Agency, numerous other state agencies were involved in the creation of discussion draft, including Environmental Protection; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The discussion draft focuses on sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. The strategy is in direct response to Gov. Schwarzenegger's November 2008 Executive Order S-13-08 that specifically asked the Natural Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect

current findings. A revised version of the report was posted on the Natural Resource Agency website on December 2, 2009; it can be viewed at: http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF.

Currently, Caltrans 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, Caltrans 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, Caltrans 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.

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Chapter 3 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. This chapter summarizes the results of Department efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

3.1 Interagency Coordination and Consultation

The formulation of project alternatives and mitigation has been carried out through a cooperative dialogue among representatives of Caltrans, Monterey County, and the Transportation Agency of Monterey County.

The project team communicated directly (via emails) with Todd Muck of the Transportation Agency of Monterey County and its consultant (Richard Weber, Professional Engineer, of Whitson Engineers) on the design of the Carmel Hills Trail, which was recently constructed adjacent to this proposed project. The project teams' coordination included tree planting for each of the projects to avoid conflicts and inappropriate landscape features for both projects. It also included close coordination of the design of the trail crossing of Rio Road at its intersection with State Route 1 and the design of project drainage features. Plans and exhibits regarding visual impacts were exchanged. Both projects were designed using the same topographic mapping to ensure coordination of vertical and horizontal features.

With respect to utilities, the preliminary project layout was provided and information regarding existing utility facilities was obtained from each utility company, including AT&T (telephone), the Carmel Area Wastewater District (sanitary sewer), California American Water (domestic water), and Pacific Gas and Electric Company. Comcast (cable television) was also contacted, but no reply was received. Cable television facilities were observed in the field on the Pacific Gas & Electric Company pole line and were mapped from those field observations.

3.2 Public Input

A public meeting was held during the development of the 2001 Project Study Report (Project Development Support), but public interest was focused on alternative features under consideration for State Route 1 to the north of Carmel Valley Road. There was no controversy regarding the portion of the project area to the south of the Carmel Valley Road intersection that is the study area for the subject project.

Carmel Valley motorists have suggested the permanent implementation of a free right turn from westbound Carmel Valley Road to State Route 1 in lieu of the extension of the climbing lane. This operational feature was recently incorporated as a temporary measure during the construction of the new underpass for the Carmel Valley Bike Trail and was perceived by some to improve traffic flow at the State Route 1 and Carmel Valley Road intersection. Unfortunately, while some improvement was experienced on westbound Carmel Valley Road, a significant number of complaints were registered by northbound motorists on State Route 1 returning from Big Sur who experienced extreme congestion during heavy peaks of tourist traffic. These backups were created because the uncontrolled westbound right turn traffic from Carmel Valley Road to State Route 1 routinely filled all available roadway capacity on State Route 1 north of the State Route 1 and Carmel Valley Road intersection, and consequently Big Sur traffic had nowhere to go during the northbound green signal phase at the Carmel Valley Road intersection. Furthermore, this concept would inhibit the effective implementation of the climbing lane extension because it would force a merge of heavy traffic volumes for both the turning movement and the northbound through movement north of the intersection. While this concept has some merit, it does not address the immediate need for additional throughput for northbound traffic at the State Route 1 and Carmel Valley Road intersection to minimize interruption to the heavy southbound left-turn movement. Extending the climbing lane will provide additional time for the southbound left turn from State Route 1 to Carmel Valley Road, since less signal green time will be needed for the northbound through movement. Westbound right-turn traffic from Carmel Valley Road to State Route 1 will benefit from this extended southbound timing because free westbound movement is allowed during this green phase. In order to achieve the maximum benefit from a westbound free right turn, additional operational improvements are required to create expanded throughput at the signalized intersections on State Route 1 to the north of Carmel Valley Road. Therefore, it has been determined that the above-described concept is a separate project that has clear

independent utility and logical termini with its own need and purpose and would need to be evaluated as a separate potential project.

Two 30-day public comment periods were provided for review of this document. The Carmel Land Use Advisory Committee and the Carmel Valley Road Committee reviewed the Coastal Development Permit application and provided recommendations for the public hearing with the Planning Commission.

The pubic circulation of the draft environmental document was formally noticed from August 1, 2011 to August 30, 2011. An open forum public meeting was held on Tuesday August 16, 2011 in the Board Chambers of the County Government Center in Salinas. No members of the public attended the meeting; however, three comments were received via email (refer to Appendix E for the comments received and responses to comments). The comments were generally supportive of the project and suggested consideration of roundabouts instead of the signalized intersection improvements currently proposed for the project.

In an effort to increase public participation, a second public circulation period was formally noticed from January 3, 2012 to February 6, 2012. A second public meeting was held on Tuesday January 11, 2012 at the Mid-Valley Fire Station in Carmel Valley. No members of the public attended the meeting and no comments were received.

Another opportunity for public input will occur when the Board of Supervisors considers the Initial Study/Mitigated Negative Declaration, as a responsible agency, and approves the final plans and Mitigation Monitoring and Reporting Plan.

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Chapter 4 List of Preparers

This Initial Study/Environmental Assessment was prepared by LSA Associates, Inc. for the County of Monterey and District 5 of Caltrans. The following staff prepared this Initial Study/Environmental Assessment and supporting technical studies:

4.1 California Department of Transportation

David Rasmussen, Project Manager. B.S. Civil Engineering, 16 years of experience. Project Management: scope, cost, and schedule.

Lara Bertaina, Associate Environmental Planner. B.A., Environmental Studies and Planning, 9 years of experience. Environmental document review, coordination, and oversight.

Samer Momani, Environmental Planner. M.S., Environmental Studies, 3 years of experience. Environmental document review, coordination, and oversight.

Matt Fowler, Senior Environmental Planner. B.A. Geographic Analysis, 8 years of experience. Environmental document review and oversight.

Terry Joslin, Archaeologist. M.A., Anthropology, and B.S., Anthropology/Geography, 15 years of experience. Review of historical resources compliance report and technical studies.

Chuck Cesena, Senior Environmental Planner. B.A., Environmental Studies, 26 years of experience. Environmental document review.

Wayne Mills, Transportation Engineer, B.A., Earth Science, and B.A., Social Science, 24 years of experience, Review of air quality and noise technical reports.

William Arkfeld, Transportation Engineer. B.S., Environmental Engineering, 21 years of experience. Review of water quality and hazardous waste initial site assessment technical reports.

Jim Mills, Civil Engineer. B.S., Civil Engineering, 10 years of experience. Review of Floodplain Technical Encroachment Report.

Robert Carr, Associate Landscape Architect. B.S., Landscape Architecture, 20 years of experience. Review of the scenic resources evaluation technical report.

Dan Appelbaum, Transportation Engineer. B.S., Civil Engineering, 6 years of experience. Environmental document review.

Jason Wilkinson, Environmental Planner. B.S., Natural Resource Management, 5 years of experience. Environmental document review, coordination, and oversight.

4.2 County of Monterey

Richard P. Sauerwein, Community Development Manager. B.S., Civil Engineering, MS, Environmental Planning and Policy, 35 years of experience. Environmental document quality control.

Laura Lawrence, REHS, Certified Land Use and Environmental Planner, Planning Services Manager. B.S., Health Science, 20 years of experience, Environmental document review. Environmental document review.

4.3 Consultant Team

Michael Amling, Principal. B.S., Urban and Regional Planning, 18 years of experience. Principal in charge of the project, quality control.

Laura Rocha, Senior Environmental Specialist. B.A. and M.S., Environmental Studies, 6 years of experience. Preparation of the Initial Study/Mitigated Negative Declaration and Water Quality Assessment Report.

Keith Lay, Associate/Senior Air Quality/Noise Specialist. B.S., Civil Engineering, 14 years of experience. Preparation of the noise and air quality technical reports.

Lisa Williams, Associate/Senior Environmental Specialist. M.S., Environmental Studies, and B.S., Biological Sciences, 14 years of experience. Preparation of the Hazardous Waste Initial Site Assessment.

Tung-Chen Chung, Principal, Director of Acoustical and Air Quality Services. Ph.D, Mechanical Engineering, 20 years of experience. Preparation of the noise and air quality technical reports.

Neal Kaptain, Senior Cultural Resources Manager. B.A., Anthropology, 10 years of experience. Preparation of the cultural resources technical reports.

Karin Goetter, Cultural Resources Manager. M.A., Cultural Resources Management, and B.A., Anthropology, 4 years of experience. Preparation of the cultural resources technical reports.

Debra Cooper, Graphics Technician. Engineering, 3 years of experience. Preparation of the graphics.

Eric Lichtwardt, Biologist. B.S., Zoology, 10 years of experience. Preparation of the Natural Environment Study (Minimal Impact).

Laurel Frakes, Environmental Planner. B.S., Environmental Management, 5 years of experience. Preparation of the Initial Study/Mitigated Negative Declaration.

Keith Hallsten, Project Engineer. B.S., Engineering, 26 years of experience. Transportation; project report preparation.

Ali Hemmati, Project Manager. M.S., Civil Engineering, 29 years of experience. Transportation; engineering document review and coordination.

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Appendix A California Environmental Quality Act Checklist

The following checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. The California Environmental Quality Act impact levels include potentially significant impact, less than significant impact with mitigation, less than significant impact, and no impact.

Supporting documentation of all California Environmental Quality Act checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment. Documentation of No Impact determinations is provided at the beginning of Chapter 2. Discussion of all impacts and avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

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	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	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☒	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
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)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES: Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒
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:				
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?	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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 greenhouse gas emissions and CEQA significance, it contains a level of uncertainty 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY: Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
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)?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
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?	☐	☒	☐	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f) 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?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
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:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☒	☐
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?	☐	☐	☐	☒
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
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?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
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?	☐	☐	☒	☐

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

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Appendix B Grading Plan

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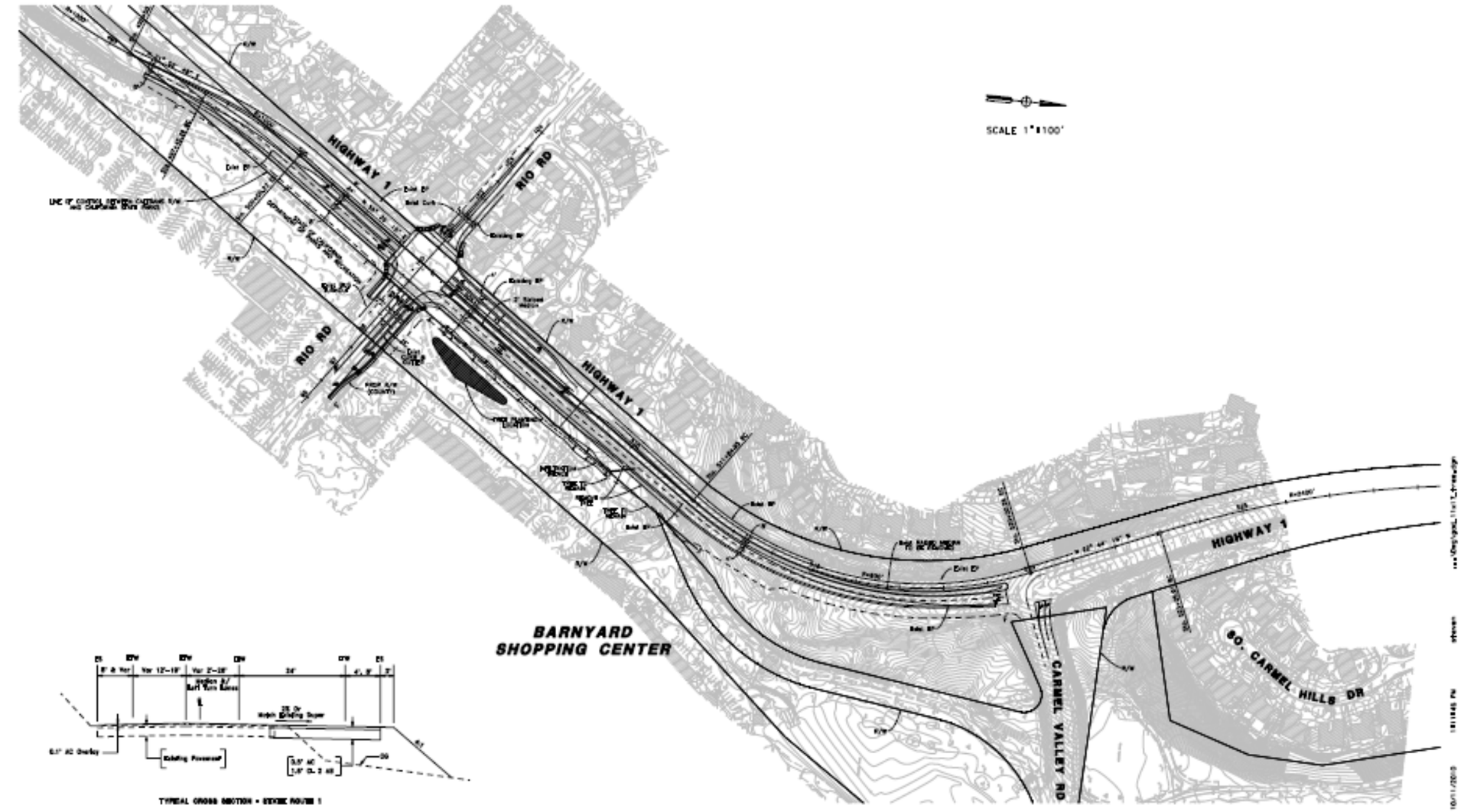
SCALE 1"=100'
HIGHWAY 1
RIO RD
CARMEL VALLEY RD
SO. CARMEL HILLS DR
BARNYARD
SHOPPING CENTER
TYPICAL CROSS SECTION - STATE ROUTE 1
REVISED 10/11/10
WOOD RODGERS
DEVELOPING • INNOVATING • DESIGN • SOLUTIONS
3001 C St, Bldg. 100-2
Sacramento, CA 95816
Tel 916.341.7760
Fax 916.341.7767
PROJECT
STATE ROUTE 1 IMPROVEMENT
(RIO RD - CARMEL VALLEY RD)
CONCEPTUAL GEOMETRIC PLAN

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Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. Box 942873, MS-49
SACRAMENTO, CA 94273-0001
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FAX (916) 654-6608
TTY 711

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 Wahnon, 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_wahnon@dot.ca.gov.

CINDY McKIM
Director

"Caltrans improves mobility across California"

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Appendix D Environmental Commitments Record/Minimization and/or Mitigation Summary

The California Environmental Quality Act, Public Resources Code Section 21081, and Sections 15091 and 15097 of the California Environmental Quality Act Guidelines require that a Mitigation Monitoring and Reporting Program be adopted when the Lead Agency (in this case Caltrans, District 5) adopts an environmental document. The purpose of the Environmental Commitments Record provided in this section is to fulfill this requirement under California Environmental Quality Act and to assign responsibility for the implementation, monitoring, and timing of each mitigation measure that has been identified to reduce an identified environmental impact to a less than significant level. The Lead Agency is required to ensure compliance with each of the adopted avoidance, minimization, and mitigation measures listed in the Environmental Commitments Record because additional significant adverse environmental impacts could result from the project if these measures are not implemented. The County (a Responsible Agency under the California Environmental Quality Act) will administer the design, right-of-way acquisition and construction of the project. Therefore, all the avoidance, minimization, and/or mitigation measures listed in the Environmental Commitments Record will be the responsibility of the County to implement.

The attached table lists each of the project's environmental impacts identified in the environmental document and includes the corresponding avoidance, minimization, and mitigation measures required to reduce or eliminate the project's significant adverse environmental impacts, where possible. The three columns on the right side of the table list the timing of the measures and Caltrans responsible for ensuring that the measure is implemented. The far-right column is left blank to allow staff to add the verification date of each measure. This column should be used as a reference for verifying that each of the mitigation measures is implemented and that ongoing measures are regularly checked. Once the project is constructed, a report should be submitted to Caltrans reporting on the project's compliance with the mitigation measures.

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Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES					
	The Traffic Management Plan will be prepared by the California Department of Transportation (Caltrans) in consultation with the County prior to completion of Plans, Specifications, and Estimates, and will consist of but not be limited to the following standard measures to alleviate traffic inconvenience caused by construction activities: • **Traffic Control:** This project will require traffic control elements such as lane/shoulder closures and temporary signing/striping on local streets and State Route 1. • **Construction Zone Enhanced Enforcement Program:** Through coordination with Caltrans and the California Highway Patrol, this program was developed to provide a safer work zone for construction workers and the motoring public. The program uses two California Highway Patrol officers who enforce lane closures and also provide a visual deterrent to errant/speeding vehicles. • **Public Awareness Campaign:** Although the majority of the major closures will occur at night, vehicles traveling through the construction zone will likely experience longer than normal delays. To reduce these delays and confusion to the motoring public during construction activities, the County, in conjunction with Caltrans, will implement a public awareness campaign. The purpose of the campaign is to keep the surrounding community abreast of the project's progress and construction activities that could affect its travel plans. The use of mailers/flyers, local newspaper advertising, local radio information, and public meetings, as appropriate, should be effective tools for disseminating this information. • **Signing:** Post information signing on State Route 1 and the local arterials prior to and during construction to inform motorists of delays, ramp closures, and alternate travel	Caltrans, the County resident engineer, and the construction contractor	Submit for review and approval prior to commencing construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	routes. • **Pedestrian, Americans with Disabilities Act, and Bicycle Access:** Provide a pedestrian detour plan to accommodate sidewalk closures. Pedestrian, Americans with Disabilities Act, and bicycle access would be accommodated during construction activities.				
VISUAL AND AESTHETICS					
	Trees. Impacts to existing trees would be minimized to the greatest extent possible. Measures may include slope-warping and the construction of retaining boxes to protect root crowns and root zones.	The County resident engineer and the construction contractor	Submit for review and approval prior to commencing construction		
	Landscape Plan. A landscape plan would be prepared for review and approval by the California State Parks and Caltrans landscape architect. The landscape plan would show the following: A minimum of 25 oak trees would be planted from at least 15-gallon container size. The planting would conform to Caltrans planting and other policies, including the Caltrans Highway Design Manual, Topic 902, and the Caltrans Highway Planting Standards and Guidelines. Each tree would be supported by wooden tree stakes. Oak tree planting would be located on California State Parks property, northeast of the intersection of Highway 1 and Rio Road. At least half the oak trees would be planted within the "tree planting location" marked on the Conceptual Geometric Plan (Appendix B, Grading Plan) included in this report. The trees would be planted in a naturally appearing pattern with an undulating perimeter. The remaining oak trees would be planted as directed by the California State Parks, within 900 feet north of Rio Road. Replanting of black cottonwoods and willows will be at a 1:1 ratio. Replanting would be located along the eastern edge of the infiltration ditch to be built along the eastern edge of	The County resident engineer, the California Department of Parks, and Caltrans	Submit for review and approval prior to commencing construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	Highway 1, north of Rio Road. A minimum 3-year plant establishment period would be included in the contract for all new tree planting. During the plant establishment period, all trees would be maintained in a healthy condition. If any tree becomes unhealthy or dies during that period, the tree would be replaced. Prior to construction of the project, California State Parks and the County of Monterey would enter into a maintenance agreement that assigns the responsibility for the planting and establishment of the trees to the County of Monterey and the maintenance of the trees after the plant establishment period to the California State Parks.				
	Construction and Staging Areas. Construction staging areas or storage yards would be located within County and State rights-of-way, and construction access and staging would be within the maximum project footprint.	The County resident engineer and construction contractor	Submit for review and approval prior to commencing construction		
	Construction Plan. The project would be constructed in accordance with California Department of Transportation Standard Specifications, which include measures to reduce visual impacts, noise impacts, and air pollution emissions during construction. A staged construction program would be implemented to allow for the continuation of local circulation through the project area during construction of the project.	The County resident engineer and construction contractor	Submit for review and approval prior to commencing construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
WATER QUALITY AND STORMWATER RUNOFF					
	The County and Caltrans will ensure that the contractor develops and implements a Storm Water Pollution Prevention Plan during project construction to prevent water pollution during construction. The Storm Water Pollution Prevention Plan would be consistent with Caltrans Storm Water Pollution Prevention Plan and Water Pollution Control Program Preparation Manual. Construction site best management practices, such as erosion and sediment control best management practices, detailed in the Storm Water Pollution Prevention Plan would be implemented during construction.	The County resident engineer, Caltrans, and construction contractor	Submit for review and approval prior to commencing construction		
	The County would incorporate design pollution prevention best management practices into the project to ensure that the project does not cause off-site erosion and that the project site is permanently stabilized. The proposed project's design pollution prevention best management practices will be designed so that storm water runoff either infiltrates to land or to the Carmel River through vegetated swales (an indirect discharge to surface waters) so as not to be directly connected to the watershed.	The County resident engineer, Caltrans, and construction contractor	Submit for review and approval prior to commencing construction		
HAZARDOUS WASTES OR MATERIALS					
	Lead-containing soil would be handled and disposed of in accordance with Caltrans guidelines and the California Health and Safety Code. Test and remove any yellow traffic striping and pavement-marking material in accordance with SSP XE 15-300. Prior to construction, determine whether removal of groundwater will be required during construction of the project. At this time dewatering is not anticipated. Any dewatering will require compliance with the State General Permit or an individual permit from the Regional Water Quality Control Board, Central Coast Region, consistent with National Pollutant Discharge Elimination System requirements. The	The County resident engineer, Caltrans, and construction contractor	Submit for review and approval prior to commencing construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	Regional Water Quality Control Board will decide which permit is applicable and whether sampling is required once it receives and reviews the Notice of Intent. Prepare a site-specific Health and Safety Plan consistent with Caltrans requirements to address contact, handling, and disposal of potentially contaminated groundwater and soil, if applicable. The plan would include: • Identification of key personnel • Summary or risk assessment for workers, community, and the environment • Air monitoring plan • Emergency response plan Unless tested, any leaking transformers observed during the course of the project should be considered a potential PCB hazard and should be handled accordingly. To notify and ensure that the utility owners mark the locations of underground transmission lines and facilities, call the Underground Service Alert of California at 1-800-227-2600 at least two working days prior to subsurface excavation, per Government Code, Section 4216.2 (a). If suspect hazardous waste or underground tanks are encountered during construction, the contractor would stop work and follow the procedures outlined in Appendix D, Caltrans Unknown Hazards Procedures for Construction.				

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
AIR QUALITY					
	Fugitive particulate matter less than 10 microns in diameter Management Measures Techniques (employ as applicable): • Reduce the amount of disturbed area where possible. • Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency would be required whenever wind speeds exceed 15 miles per hour. Reclaimed (i.e., nonpotable) water should be used whenever possible. • All dirt stockpile areas should be sprayed daily as needed. • Permanent dust control measures identified in the approved revegetation and landscape plans should be implemented as soon as possible following completion of any soil-disturbing activities. • Exposed ground areas that would be reworked more than one month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established. • All disturbed soil areas not subject to revegetation should be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the Monterey Bay Unified Air Pollution Control District. • All roadways, driveways, sidewalks, etc., to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading, unless seeds or soil binders are used. • Vehicle speed for all construction vehicles should not exceed 15 miles per hour on any unpaved surface at the construction site. • All trucks hauling dirt, sand, or other loose materials are to be covered or should maintain at least 2 feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section	The County resident engineer, Caltrans, and construction contractor	Submit for review and approval prior to commencing construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	23114. • Wheel washers should be installed where vehicles enter and exit unpaved roads onto streets, or trucks and equipment leaving the site should be washed. • Streets should be swept at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed water should be used where feasible. • The Contractor or builder should designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off site. Their duties would include holidays and weekend periods when work may not be in progress. The names and telephone numbers of such persons would be provided to the Monterey Bay Unified Air Pollution Control District prior to land use clearance for map recordation and land use clearance for finish grading of the structure.				
	Standard Minimization Measures for Construction Equipment • Maintain all construction equipment in proper condition according to manufacturer's specifications. • Fuel all off-road and portable diesel-powered equipment, including, but not limited to, bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, and auxiliary power units, with motor diesel fuel certified by the California Air Resources Board (nontaxed version suitable for off-road). • Maximize, to the extent feasible, the use of diesel construction equipment meeting the California Air Resources Board's 1996 or newer certification standard for off-road heavy-duty diesel engines.	The County resident engineer, Caltrans, and construction contractor	Submit for review and approval prior to commencing construction		
	Discretionary Minimization Measures for Construction Equipment • Electrify equipment where feasible.	The County resident engineer, Caltrans, and construction	Submit for review and approval prior to commencing		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	• Substitute gasoline-powered for diesel-powered equipment where feasible. • Use alternatively fueled construction equipment on site, where feasible, such as compressed natural gas, liquefied natural gas, propane, or biodiesel. • Use equipment that has Caterpillar prechamber diesel engines.	contractor	construction		
	Discretionary Activity Management Techniques • Develop a comprehensive construction activity management plan designed to minimize the amount of large construction equipment operating during any given time period. • Schedule construction truck trips during nonpeak hours to reduce peak-hour emissions. • Limit the length of the construction work day if necessary. • Phase construction activities if appropriate.	The County resident engineer, Caltrans, and construction contractor	Submit for review and approval prior to commencing construction		
NOISE					
	To minimize the construction noise impact for sensitive land uses adjacent to the project site, construction noise will be regulated consistent with Caltrans's Standard Specifications, Section 5-1, "Sound Control Requirements," in the Standard Special Provisions. These provisions follow: • The contractor would comply with all local sound control and noise level rules, regulations, and ordinances that apply to any work performed pursuant to the contract. • Each internal combustion engine, used for any purpose on the job, or related to the job, would be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine would be operated on the job site without an appropriate muffler.	Construction contractor	During construction		
	Additionally, since a well-informed public is much more likely to be tolerant of short-term construction noise, the resident engineer would:	The County resident engineer	Prior to construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	• Notify surrounding residences in advance of the construction schedule through the local news media. The notice is provided to local newspapers, radio, and television by the Caltrans District 5 Public Information Office after they are notified by the resident engineer of the pending start of construction.				
	If noise complaints are received, or other circumstances dictate the need to further minimize temporary construction noise impacts, appropriate measures from this list should be implemented at the resident engineer's discretion: • Limit all phases of construction to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, as required by Monterey County ordinance; • Shield especially loud pieces of stationary construction equipment when working in close proximity to residential areas; • Locate portable generators, air compressors, etc., away from sensitive noise receptors; • Limit grouping major pieces of equipment operating in one area to the greatest extent feasible; and • Use newer equipment that is quieter and ensure that all equipment items have the manufacturers' recommended noise abatement measures, such as mufflers, engine covers, and engine vibration isolators intact and operational. Internal combustion engines used for any purpose on or related to the job would be equipped with a muffler or baffle of a type recommended by the manufacturer.	The County resident engineer and the construction contractor	Prior to and during construction		
BIOLOGICAL RESOURCES					

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	To prevent any incidental impacts to natural communities immediately adjacent to the cut-and-fill area, installation and maintenance of environmentally sensitive area construction fencing around the willow riparian woodland and coastal scrub habitat would be installed prior to the commencement of construction activities. The environmentally sensitive area construction fencing would be maintained throughout the project and would be removed upon completion of construction.	The County resident engineer and construction contractor	Prior to construction		
	• A qualified biologist will conduct preconstruction surveys for California red-legged frogs not more than 2 weeks before the scheduled start of construction. If California red-legged frogs, tadpoles, or eggs are found, all work would cease until the qualified biologist contacts the United States Fish and Wildlife Service (Service) to determine if formal Section 7 consultation is required. If consultation is required; • Ground disturbance would not begin until written approval to proceed is received from the Service. • Only the qualified biologist would participate in activities associated with the capture, handling, and monitoring of California red-legged frog during preconstruction surveys and ongoing monitoring throughout construction of the project. • The qualified biologist would be present at the work site until all California red-legged frogs have been removed, workers have been instructed, and disturbance of habitat has been completed. • Exclusionary environmentally sensitive area construction fencing would be installed to exclude frogs from entering the work site. • Before any activities begin, the qualified biologist would conduct a training session for all construction personnel. At a minimum, the training would include a description of the	Construction contractor	Prior to construction		

Environmental Commitments Record/Mitigation Monitoring and Reporting Program for the State Route 1/Rio Road to Carmel Valley Road Operational Improvement Project

No.	Avoidance, Minimization, and/or Mitigation Measures	Responsible Party	Timing/Phase	Action Taken to Comply with Avoidance, Minimization, and/or Mitigation Measures	Date
	California red-legged frog and its habitat, the specific measures that are being implemented by the project to conserve the frog, and the boundaries within which the project may be accomplished. • During construction, monitoring for red-legged frogs will be provided. Construction equipment will not be staged, stored, or maintained in the open barren area between the two willow patches or near the riparian habitat. Areas adjacent to riparian habitat will not be used for project-related activities. • During project activities, all trash that may attract predators must be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris must be removed from work areas.				
	• Bare soil will be landscaped with California Department of Transportation-approved seed mix from locally adopted species to preclude the invasion of noxious weeds. The use of site-specific materials adapted to local conditions increases the likelihood that revegetation will be successful and maintains the genetic integrity of the local ecosystem.	Construction contractor	During construction		

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Appendix E Public Comments and Responses

This appendix contains the comments received during the public circulation and comment period from August 1, 2011 to August 30, 2011. A second public meeting was held on Tuesday January 11, 2012, however, no further comments from the public were received during that time. A Caltrans response follows each comment presented.

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

August 30, 2011

Jason Wilkinson
California Department of Transportation, District 5
50 Higuera Street
San Luis Obispo, CA 93401

Subject: State Route 1/Rio Road to Carmel Valley Road Operation Improvement Project
SCH#: 2011071090

Dear Jason Wilkinson:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on August 29, 2011, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Comment #1:

Scott Dick (Received via email)

From: Scott Dick <e-mail address withheld>
To: matt_c_fowler@dot.ca.gov
Sent: 08/17/2011 01:59 PM
Subject: Roundabouts for G16 and Highway 1

Hi Matt,

I left a voicemail for you about perhaps putting a roundabout in at the intersections that may have to be re-engineered during an upcoming project in Monterey County.

I'm seeking guidance from you, my local County Supervisor and the Director of Monterey County Public Works on how best to proceed. I'd be happy to send you a presentation that I did at last month's Carmel Valley Traffic Improvement Committee meeting. Or I could create a new presentation that specifically addresses this project.

Please let me know what you think about this.

Thanks,

Scott Dick
President
Carmel-Carmel Valley Coalition
831-659-9139 home
831-238-0532 cell

Response to comment #1:

The feasibility of constructing roundabouts at the Rio Road/State Route 1 intersection and the Carmel Valley Road/ State Route 1 intersection was analyzed (refer to the State Route 1 Truck Climbing Lane and Intersection Operational Improvements Roundabout Feasibility Analysis Technical Memorandum included in this appendix).

The currently planned project, which includes a truck climbing lane in the northbound direction of State Route 1 between Rio Road and Carmel Valley Road (County Road G16) and additional turn lanes at the Rio Road intersection, was based on peak-hour traffic volumes forecast for 20 years after construction of the project (2035), and has been shown to provide acceptable traffic operations.

The same design-year peak-hour traffic volumes were used to model the operation of various sizes and arrangements of potential roundabouts at both intersections in the project area. It was found that roundabouts with an 80-foot inside diameter and 115-

foot outside diameter one-lane circulating ring would have insufficient capacity to handle peak-hour traffic volumes. The smallest roundabouts that would provide acceptable traffic operations under peak-hour traffic volumes were as follows:

At Rio Road, the roundabout would have a two-lane circulating ring with a 120-foot inner diameter and a 170-foot outer diameter. All approaches and departures from the roundabout would have two lanes in each direction. Yield-controlled "slip" right-turn lanes that bypass the circulating ring would be required from State Route 1 to Rio Road in both directions.

At Carmel Valley Road, the roundabout would have a two-lane circulating ring with a 120-foot inner diameter and a 170-foot outer diameter. State Route 1 approaches and departures from the roundabout would have two lanes in each direction. The departure from the roundabout to Carmel Valley Road would also have two lanes. The movement from westbound Carmel Valley Road to northbound State Route 1 would completely bypass the roundabout in a separate single-lane "free" right-turn lane that joined a new auxiliary lane (third northbound lane) on State Route 1. That auxiliary lane would end about 1,200 feet north of the roundabout.

The roundabout at Rio Road as described above would require substantially more area and road construction than the planned truck climbing lane and intersection improvements. Also, substantial right of way acquisition, including the removal of at least six residences west of State Route 1, would be needed to provide sufficient space for the large roundabout that would be required. The existing bicycle trail approaching its crossing of Rio Road just east of State Route 1 would need to be relocated, and it would far more difficult for pedestrians and bicycles to make crossings, since there would be no signal to stop traffic. Therefore, the cost and environmental impacts of a roundabout would be significantly greater than the planned conventional intersection improvements.

The roundabout at Carmel Valley Road as described above would require substantially more area and road construction than the planned truck climbing lane and intersection improvements. In order to provide appropriate deflection angles for traffic entering the roundabout, State Route 1 would need to be realigned to the east, which would impact the vegetated slope and reduce the space between the bike trail and the highway south of Carmel Valley Road. The auxiliary lane on State Route 1 north of the roundabout would reduce the space between the highway traffic and the residences to the east of State Route 1 north of Carmel Valley Road, potentially

causing noise impacts. Therefore, the cost and environmental impacts of a roundabout would be significantly greater than the planned conventional intersection improvements.

The cost of constructing the project based on the concept of incorporating roundabouts would be approximately 10 times the cost of constructing the project as currently planned to achieve a similar level of service. Thus, the roundabout concept is considered to be infeasible at these intersection locations.

Comment #2:

Franklin J. Lunding (Received via email)

From: [redacted]
Sent: Wednesday, August 31, 2011 4:22 PM
To: Adlawan, Arturo A. x4823
Cc: matt_c_fowler@dot.ca.gov
Subject: Roundabouts for G16 and Highway 1

Dear Mr. Adlawan:

As a resident of the Carmel Planning Area near Quail Lodge and as the former Chairman of the City of Irvine California Transportation Committee, I write to express my desire that the county, beginning with the design phase of the climbing lane of Highway 1 from Rio Road to G16, investigate installing a roundabout at the Highway 1 and G16 intersection as well as other intersections along G16. It is my belief (after some investigation) that roundabouts would not only be less expensive but also would provide a smoother and safer intersection.

By copy of this email, I am notifying Matt Fowler of Caltrans of my hope that the County and the State will consider roundabouts in the planning of the intersection of Highway 1 and G16 as well as the intersection of Rio Road and Highway 1.

Thank you for your consideration of this request.

Franklin J. Lunding

Response to comment #2:

Refer to Response #1 provided above.

Comment #3:

Helga and James Fellay (Received via email)

From: <e-mail address withheld>
To: matt_c_fowler@dot.ca.gov
Sent: 09/02/2011 08:27 AM
Subject: Rio Road and Carmel Valley Road

Dear Mr. Fowler:

We are writing in support of the proposed addition of a climbing lane from Rio Road to Carmel Valley Road in Carmel. It is such an obvious solution to part of the traffic congestion that we are amazed it has not been built before. Another possibility to ease traffic gridlock there would be a roundabout, if there is enough space there to construct one. It would ease traffic flow between the Valley Road and Highway One in all directions.

Sincerely,

Helga and James Fellay
15 Paso Hondo
Carmel Valley, CA 93924
831 659 5116

Response #3:

We appreciate your support of the climbing lane on from Rio Road to Carmel Valley Road. The Department did analyze roundabouts with the project vicinity, however, they were found to be infeasible. Please refer to Response to Comment #1 above for more details on the Roundabout Feasibility Study.

Appendix F Roundabout Feasibility Analysis

Technical Memorandum

WOOD RODGERS
DEVELOPING INNOVATIVE DESIGN SOLUTIONS

	Project Development Team
To:	*Caltrans District 5* – David Rasmussen, Project Manager; Jason Wilkinson, Environmental Generalist *Monterey County Department of Public Works* – Arturo Adlawan, Project Manager
Cc:	*Wood Rodgers, Inc.* – Ali Hemmati, Project Manager
From:	*Wood Rodgers, Inc.* – Keith Hallsten, PE, Project Engineer; Ravi Narayanan, P.E., T.E.; Amar Chaukar
Date:	02/21/2012
File:	J:\Jobs\8091-MontereyCounty\005-PR_SR1_Climb_Lane\Docs\400 Design Support\420 Environmental\IS_MND\Response to Comments\8091.005-SR1-RoundaboutFeasibility_20120221.doc
Project #:	WR #: 8091.005
RE:	SR 1 Truck Climbing Lane and Intersection Operational Improvements **Roundabout Feasibility Analysis**

INTRODUCTION & BACKGROUND

Monterey County is sponsoring a project to improve the operation of State Route 1 near Carmel, between Rio Road and Carmel Valley Road (County Road G16). A *Project Study Report* was prepared under the sponsorship of the Transportation Agency for Monterey County to determine feasible alternatives for the project and was approved by Caltrans in March, 2005. A Traffic Operations Analysis (TOA) memorandum (Wood Rodgers, dated 4/22/2004) was prepared in support of the *Project Study Report* (PSR), which evaluated the signalized SR 1 intersections with Rio Road and Carmel Valley Road under then-existing (2003-04) as well as projected year 2030 traffic conditions.

Monterey County is now completing the *Project Report* to define the project features to be constructed and the *Environmental Document* (in this case an Initial Study/Mitigated Negative Declaration, or IS/MND) in order to clear the project under the requirements of the California Environmental Quality Act. During the public circulation of the draft environmental document, three comments were received from local residents (Scott Dick, Franklin Lunding, and Helga & James Fellay) suggesting that roundabouts, rather than the planned truck climbing lane and improved signalized intersections at Rio Road and Carmel Valley Road (G16), may provide better traffic operations. This memorandum has been prepared to report the operational and design feasibility of modern roundabouts at the SR 1/Carmel Valley Road and SR 1/Rio Road study intersections.

DESIGN YEAR TRAFFIC OPERATIONS

This evaluation focuses on a conservative assessment of operational feasibility of roundabouts using long-range (20+ years in the future) traffic forecasts only. *Figure 3* from the 2004 TOA memorandum (attached in the Appendix) shows projected "year 2030" traffic volume forecasts used in this evaluation. The traffic counts within the study area have remained unchanged (or decreased) between 2004 and the present day. Future-year traffic volumes are generally developed by applying a growth factor to existing traffic volumes, so the same forecast volumes could now be considered to be an appropriate forecast for year 2035. Therefore, this evaluation regards the "year 2030" traffic forecasts shown in the 2004 TOA as reasonable long-range (20-year future) "Design Year" forecasts for the purposes of this feasibility evaluation. The same forecast traffic volumes were used for evaluation of the proposed truck climbing lane and signalized intersection improvements.

Design Year intersection operations were quantified utilizing Level of Service (LOS) thresholds presented in *Table 1* (on page 3) of the 2004 TOA memorandum. A combination of roundabout

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www.woodrodgers.com

analysis software tools (including *RODEL* and *SIDRA*) was used to investigate the operational feasibility of the roundabout concept at SR 1/Carmel Valley Road and SR 1/Rio Road intersections. The following conceptual scenarios were tested for operations:

- A single-lane modern roundabout (115-foot inscribed diameter) was first tested under Design Year traffic volumes at both intersections and found to be operationally deficient (peak hour LOS "F" conditions). Thus, unacceptable delays would be anticipated.
- A typical two-lane modern roundabout (170-foot inscribed diameter) was then tested at the Rio Road intersection. Since the roundabout is intended to be an alternative to the construction of the truck climbing lane, a single northbound lane was included in the model. This concept was found to be operationally deficient (weekend afternoon peak hour LOS "F" conditions). Thus, unacceptable delays would be anticipated.
- A second northbound through lane and slip right-turn lanes from SR-1 to Rio Road in both directions were then added to the model of the two-lane roundabout at Rio Road. This arrangement was found to provide acceptable operations.
- A typical two-lane modern roundabout (170-foot inscribed diameter) was then tested at the Carmel Valley Road intersection. The westbound right-turning traffic approaching on Carmel Valley Road was modeled as entering the roundabout circulation. This concept was found to be operationally deficient (weekend afternoon peak hour LOS "F" conditions). Thus, unacceptable delays would be anticipated.
- The model of the two-lane roundabout at the SR 1/Carmel Valley Road intersection was then modified so that the westbound right-turning traffic on Carmel Valley Road was excluded from roundabout influence (i.e. a "free" right-turn). This arrangement was found to provide acceptable operations.

The conceptual layouts of the roundabout concepts tested from a traffic operational analysis standpoint are illustrated in **Appendix Exhibit A**. Design-Year intersection operations for the critical weekday PM and weekend afternoon peak hour scenarios with the conceptual roundabout control at the study intersections are summarized in Table 1 as follows:

Table 1. Design Year Roundabout Traffic Operations

#	Study Intersection	Model Geometric Scenario	Weekday PM Peak Hour				Weekend Afternoon Peak Hour			
			RODEL		SIDRA 5.1		RODEL		SIDRA 5.1	
			Delay (S/V)	LOS	Delay (S/V)	LOS	Delay (S/V)	LOS	Delay (S/V)	LOS
1	SR 1/Rio Rd	Single-lane Roundabout	244.4	F	44.6	D	547.5	F	134.5	F
		Two-lane Roundabout (one northbound through lane)	8.5	A	19.8	B	81.3	F	73.2	E
		Two-lane Roundabout (with two northbound through lanes and slip right-turn lanes from SR-1 to Rio Rd)	6.7	A	14.1	B	9.0	A	17.1	B
2	SR 1 / Carmel Valley Rd	Single-lane Roundabout	820.1	F	176.7	F	1015.7	F	149.1	F
		Two-lane Roundabout (westbound right-turn included in roundabout)	21.6	C	52.8	D	14.9	B	84.9	F
		Two-lane Roundabout (westbound right turn as "free" movement)	25.9	C	27.1	C	16.5	B	44.6	D

Notes: 1. "Average" control delays (in seconds/vehicle (S/V)) are indicated for roundabout controlled intersections.

As shown in Table 1, the two roundabout analysis methods generally produce comparable results, with some exceptions. SIDRA is considered to better model multi-lane roundabouts, while RODEL better models many aspects of single-lane roundabouts.

Based on this evaluation, the SR 1/Rio Road intersection is projected to operate unacceptably with either a single-lane roundabout or with a two-lane roundabout with a single northbound through lane on SR 1 carried through the roundabout. However, with a two-lane roundabout configuration with 170-foot minimum inscribed diameter and two northbound through lanes on SR 1 carried through the roundabout, plus "slip" right-turn lanes that bypass the roundabout, the study intersection is projected to operate acceptably in peak hours in the design year.

The SR 1/Carmel Valley Road intersection is also projected to operate unacceptably with either a single-lane roundabout, or with a two-lane roundabout that carries westbound right-turn traffic. However, this intersection is projected to operate acceptably in peak hours in the design year with a two-lane roundabout with a 150-foot inscribed diameter and westbound right turn designed as a "free" movement excluded from roundabout influence.

DESIGN AND COST CONSIDERATIONS

At each intersection, the concept for each roundabout that was found to provide acceptable traffic operations has been drawn to scale on an aerial photograph of the project area to illustrate the general appearance, right of way impacts, and indicate some environmental resources that may be impacted.

Exhibit B shows the layout of a two-lane roundabout with yield-controlled "slip" right-turn movements at the SR 1/Rio Road intersection. As shown, the 2-lane roundabout would require the roadways approaching and departing to be widened to provide two approaching lanes from each direction and two departing lanes in each direction. This would require substantially more area and road construction than the planned truck climbing lane and intersection improvements. Also, substantial right of way acquisition, including at least six residences, would be needed to provide sufficient space for the large roundabout that would be required at this location. The bicycle trail approaching its crossing of Rio Road just east of SR-1 would need to be relocated, and it would likely be far more difficult for pedestrians and bicycles to make crossings, since there would be no signal to stop traffic. Therefore, the cost and environmental impacts of a roundabout would be significantly greater than the planned conventional intersection improvements.

Exhibit C shows the layout of a two-lane roundabout at the SR 1/Carmel Valley Road intersection with "free" right turn movement from westbound Carmel Valley Road to northbound SR 1. Again, the 2-lane roundabout would require the roadways approaching and departing to be widened to provide two approaching lanes from each direction and two departing lanes in each direction. In order to provide appropriate deflection angles for traffic entering the roundabout, State Route 1 would need to be realigned to the east, which would impact the vegetated slope and reduce the space between the bike trail and the highway south of Carmel Valley Road. Since a significant volume of traffic from Carmel Valley Road would merge onto SR 1 at fairly high speeds, it would be necessary to add an auxiliary lane which would merge into the existing highway lanes some distance north of the roundabout. This would reduce the space between the highway traffic and the residences to the east of SR-1 north of Carmel Valley Road, potentially causing noise impacts. The roundabout concept would require substantially more area and road construction than the planned truck climbing lane and intersection improvements. Therefore, the cost and environmental impacts of a roundabout would be significantly greater than the planned conventional intersection improvements.

FINDINGS

In summary, it is Wood Rodgers' conclusion that roundabouts at the Rio Road/SR-1 and Carmel Valley Road/SR-1 intersections would require substantial road realignment and widening beyond that planned for the truck climbing lane, and would be significantly more expensive to construct than the planned truck-climbing lane and conventional signalized intersection improvements. The impacts to pedestrian and bicycle movements at the Rio Road intersection would be significant. The environmental impacts of the project would also be more significant with roundabouts than the planned project. Therefore, the required minimum operational configuration (i.e., a two-lane roundabout with additional right-turn treatments) is not considered to be a feasible design alternative at either intersection.

APPENDIX

List of Exhibits

Exhibit A – Conceptual Roundabout Model Alternatives for SR 1 intersections with Rio Road and Carmel Valley Road

Exhibit B – Roundabout Layout at the Rio Road/SR-1 Intersection

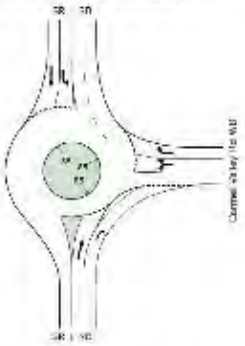
Exhibit C – Roundabout Layout at the Carmel Valley Road/SR-1 Intersection

Attachment

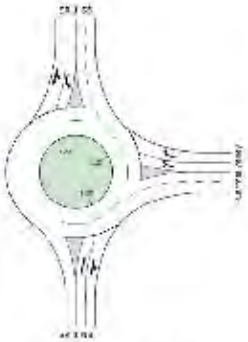
Year 2030 Projected Traffic Volumes (from Traffic Operations Memo of 04/22/2004)

APPENDIX EXHIBIT A
(Exhibits are Illustrative, Not Drawn to Scale)

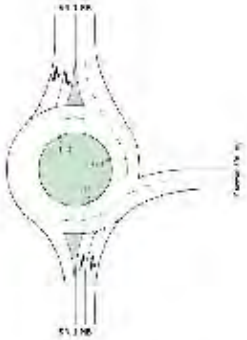
SR 1/Carmel Valley Road



Single Lane Roundabout

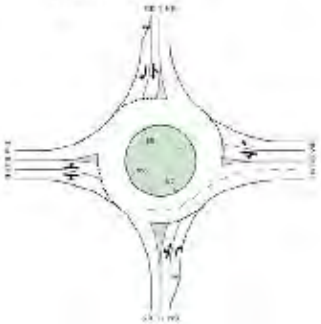


Double Lane Roundabout
(with WB Right Turn)

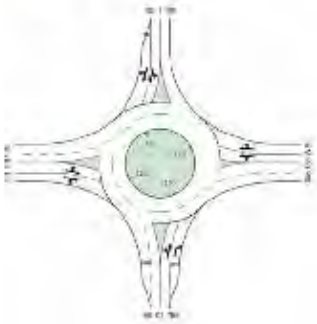


Double Lane Roundabout
(Free WB Right Turn)

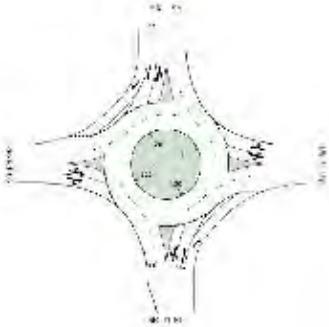
SR 1/Rio Road



Single Lane Roundabout



Double Lane Roundabout (1-NBT Lane)



Double Lane Roundabout
(2-NBT Lanes & Slip right turns)

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HIGHWAY 1
RIO RD
RIO RD
HIGHWAY 1
SCALE 1"=200'
WOOD RODGERS
DEVELOPING • INNOVATIVE • DESIGN • SOLUTIONS
3301 C St, Bldg. 100-B
Sacramento, CA 95816
Tel 916.341.7760
Fax 916.341.7767
PROJECT
STATE ROUTE 1 IMPROVEMENT
(RIO RD - CARMEL VALLEY RD)
APPENDIX EXHIBIT B
Rio Roundabout 11x17.dgn 2/8/2012 11:51:59 AM

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HIGHWAY 1
HIGHWAY 1
CARMEL VALLEY RD
SCALE 1"=200'
WOOD RODGERS
DEVELOPING • INNOVATIVE • DESIGN • SOLUTIONS
3301 C St., Bldg. 100-B
Sacramento, CA 95816
Tel 916.341.7760
Fax 916.341.7767
PROJECT
STATE ROUTE 1 IMPROVEMENT
(RIO RD - CARMEL VALLEY RD)
APPENDIX EXHIBIT C
Carmel Valley Roundabout 11x17.dgn 2/8/2012 11:55:15 AM

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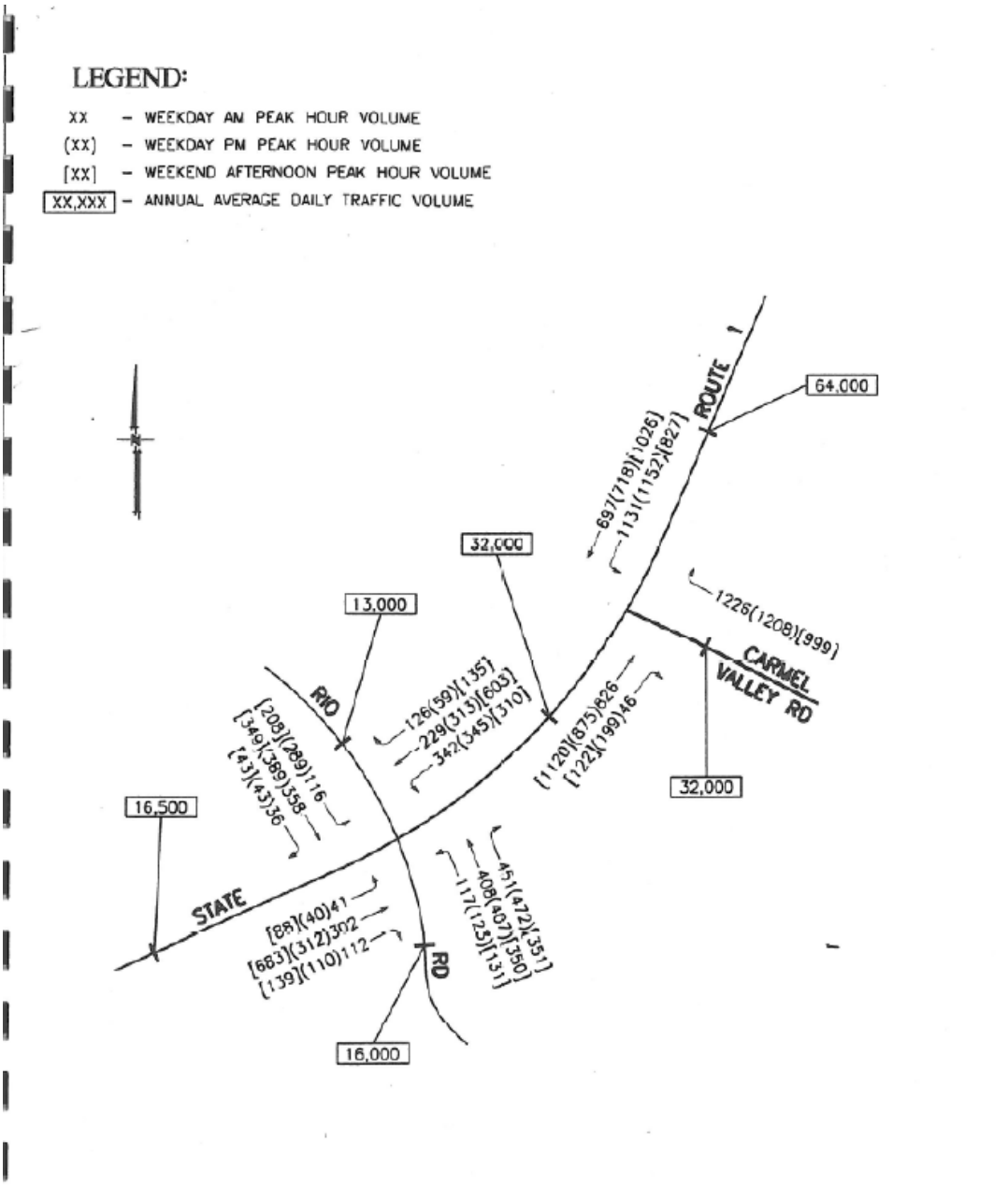

SR 1 IMPROVEMENTS - RIO ROAD TO CARMEL VALLEY RD PSR FIGURE 3

YEAR 2030 PROJECTED TRAFFIC VOLUMES

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Appendix G List of Technical Studies

Air Quality Analysis (April 2008)

Archaeological Survey Report (February 2008)

Hazardous Waste Initial Site Assessment (February 2008)

Historical Resources Compliance Report (February 2008)

Natural Environment Study (*Minimal Impact*) (October 2010)

Noise Impact Analysis (April 2008)

Paleontological Resources Study (July 2008)

Final Geotechnical Design and Materials Report (February 2009)

Storm Water Data Report (August, 2007)

Traffic Operations Technical Memorandum (April 2004)

Traffic Operations Analysis Addendum (August 2010)

Roundabout Feasibility Analysis Memo (February 2012)

Scenic Resources Evaluation (October 2010)

Water Quality Assessment Report (February 2008)

Summary of Floodplain Encroachment Report (November 2007)

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