Big Gulch Permanent Restoration Project

State Route 1 in Mendocino County
01-MEN-1- PM 2.34/2.53
EA 01-49771/01-0002-0262

Initial Study
with Proposed Negative Declaration

Prepared by the
State of California Department of Transportation

October 2013

General Information About This Document

What's in this document?

The California Department of Transportation (Department) has prepared this Initial Study, which examines the potential environmental impacts of the proposed project located in Mendocino County, California. The document describes the proposed project, the existing environment that could be affected by the project, potential impacts from the project, and the proposed avoidance, minimization, and/or mitigation measures.

What should you do?

- Please read this Initial Study. Additional copies of this document as well as the technical studies are available for review at the Caltrans District 3 Office of Environmental Management, 703 B Street, Marysville, CA 95901 and the Mendocino County Library, 499 Laurel Street, Fort Bragg, CA 95437.
- We welcome your comments. If you have any concerns regarding the proposed project, please send your written comments to the Department via U.S. mail or email to the following address/email:

  Adele Pommerenck, Senior Environmental Planner
  Environmental Management Branch, M-2
  California Department of Transportation
  703 B Street
  Marysville, CA 95901

- Submit comments via email to: **adele.pommerenck@dot.ca.gov**
- Submit comments by the deadline: November 5, 2013

What happens next?

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

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Adele Pommerenck, Senior Environmental Planner, 703 B Street, Marysville, CA 95901; (530) 741-4215 Voice, or use the California Relay Service TTY number, 1-800-735-2929.

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Big Gulch Permanent Restoration Project
State Route 1 in Mendocino County
01-MEN-1- PM 2.34/2.53
EA: 01-49771/EFIS: 01-0002-0262

INITIAL STUDY with Proposed Negative Declaration

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

THE STATE OF CALIFORNIA
Department of Transportation

10/1/2013
Date of Approval

John D. Webb, Chief
North Region Environmental Services
California Department of Transportation

State of California
Department of Transportation

01-MEN-1- PM 2.34 to 2.53
EA: 01- 49771/01-0002-0262

Proposed Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) proposes to repair storm damage along State Route (SR) 1 between postmiles 2.34 to 2.53 in Mendocino County. The project proposes to construct a soldier pile retaining wall and install metal beam guardrail; reconstruct the roadway; and improve drainage along SR 1. Right of way acquisition would not be required and all work would occur within the existing right of way.

Determination

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

- The proposed project would have minimal or no impact on agricultural resources, air quality, cultural resources, geology and soils, hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic patterns, and utility and service systems.
- Potential impacts to water quality would be reduced through the implementation of avoidance and minimization measures.
- Potential impacts to waters of the U. S. and waters of the State would be offset by restoring the site to pre-project conditions.
- Potential impacts to the California red-legged frog would be reduced through the implementation of avoidance and minimization measures.

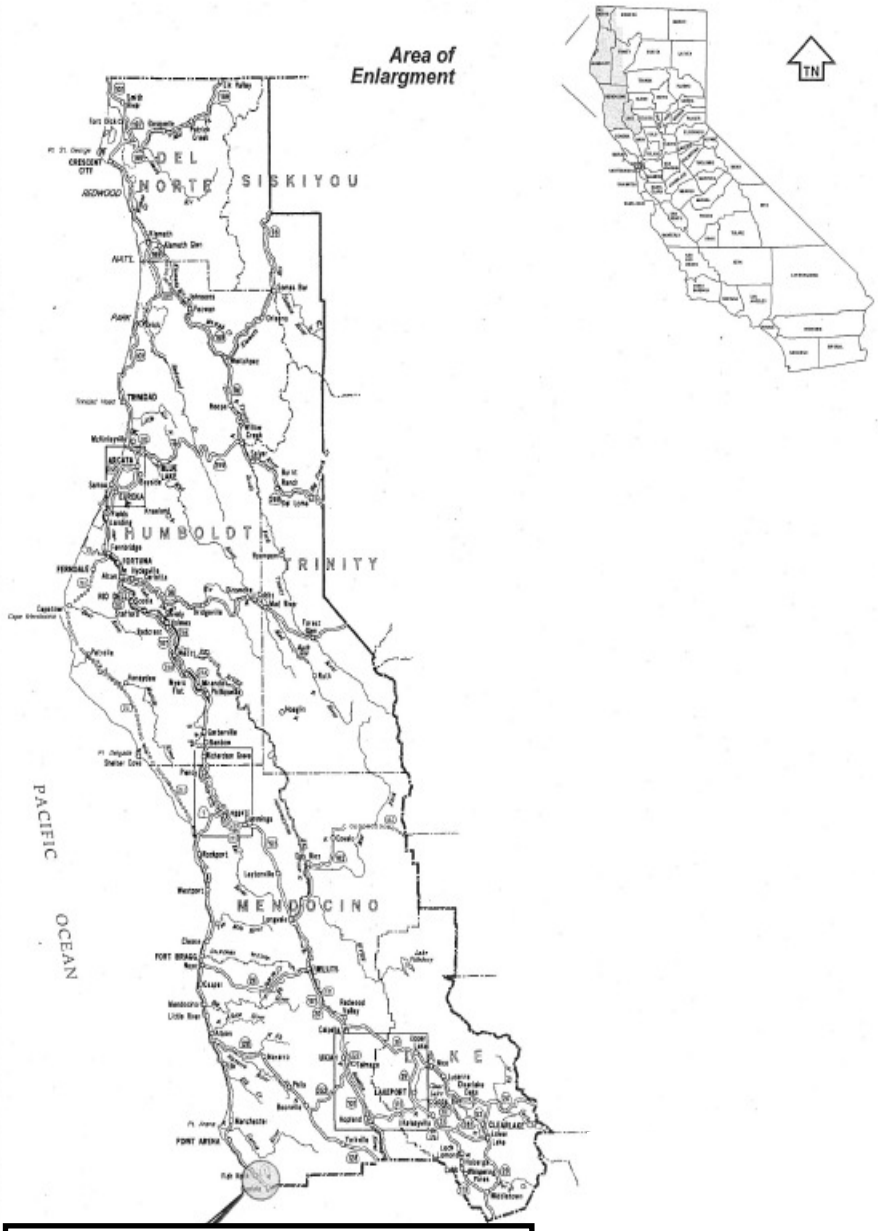
_____ _____

John D. Webb, Chief
North Region Environmental Services

Date

Project Location Map

Project Vicinity Map



Project Vicinity
State of California Department of Transportation
Big Gulch Permanent Restoration Project
Mendocino County
Post Mile 2.34/2.53

Initial Study

Project Title

Big Gulch Permanent Restoration Project

Lead Agency Name and Address

State of California
Department of Transportation
703 B Street
Marysville, CA 95901

Contact Person

Adele Pommerenck, Senior Environmental Planner
Environmental Management Branch, M-2

Project Location

The project is located in Mendocino County on State Route (SR) 1 approximately one mile north of Gualala.

Project Sponsor's Name and Address

State of California
Department of Transportation
John Webb, Chief
North Region Office of Environmental Services
703 B Street
Marysville, CA 95901

Purpose and Need

The purpose of the project is to restore the roadway to pre-storm conditions and prevent future eroding of the hillside slope that causes the road to slide.

Project Description

Caltrans proposes to repair storm damage along SR 1 between postmiles (PM) 2.34 to 2.53 in Mendocino County, one mile north of Gualala. The project proposes to construct a soldier pile retaining wall and install a metal beam guardrail (MBGR); reconstruct the roadway; and improve drainage along the highway. The construction staging area will occur along the west side of the highway, extending 100 feet (ft) north of the proposed retaining wall. No right of way acquisition is required and all work will occur within the existing right of way.

Two-way traffic would be maintained during construction. Temporary lane closures using a reverse traffic control operation will be required to place k-rail and occasionally perform other construction activities.

Roadway

Between PM 2.34 and 2.53, the excavation and reconstruction would occur on the failing roadway. Work would include removing the existing failed asphalt concrete road surface and underlying aggregate base, re-compacting existing soils, and rebuilding the new section of road. From PM 2.41 to 2.44, the traveled-way will be widened from 11.5 ft to 12 ft wide. Currently, the shoulders vary and measure from 11 ft (at the slide area) to having no shoulder. From PM 2.37 to 2.46, the shoulders on both sides of the road will be widened to 4 ft. Beyond these PMs, the shoulders widths would gradually taper back down to match the existing roadway.

Retaining Wall & Guardrail

Between PM 2.41 and 2.44, the proposed installation of a cantilevered soldier pile retaining wall would occur below the roadway. The wall would be 150 ft long and 10 ft deep. The piles for the wall would have a total length of 25 ft; the piles would be 15 ft below ground and backfilled with concrete, while 10 ft would be visible from the roadway. As viewed from the roadway, the wall would not be visible to the traveling public. As viewed from the ocean side, approximately 3.5 ft of the wall would be exposed; the remaining 6.5 ft would be constructed below ground. The only structure visible from the roadway would be the newly constructed MBGR. The new MBGR would be constructed in front of the wall, extending 275 ft along the highway.

Culvert

Between PM 2.41 and 2.44 on the east side of the roadway, a 30 inch (in) cross culvert would be relocated approximately 18.3 ft south of its current location. The culvert will cross under the roadway to the west with an attached downdrain extending down the cliff, diverting water to the rocks and cliff.

Background

At this location on SR 1, the roadway resides on a coastal bluff plateau, immediately above the ocean. The bluff is approximately 80 ft tall and erosion is constant at the toe of the slope from concentrated water flow from a cross-culvert. A 45 ft long section of the roadway shoulder is slipping into the ocean (bottom right and left photos), although only 10 ft of a corresponding section of the traveled way was experiencing settlement (bottom right photo).

In May 2009, Caltrans Maintenance staff attempted to stabilize the site by installing a 28 in temporary culvert (top right photo) and by covering the slide area with plastic to control the water flow. A study of the site was initiated with a follow-up recommendation to restore the area.

In October 2009, the traveled-way slide movement accelerated, which resulted in the bluff dropping an additional nine inches. The additional failure caused a significant increase in the size of the failing traveled way (bottom right photo), which resulted in the need for this project.

Permits and Approvals Needed

The following environmental permits are required for this project:

- Section 404 permit from the U. S. Army Corps of Engineers (USACE)
- Section 401 Water Quality Certification from the North Coast Regional Water Quality Control Board (NCRWQCB)
- Section 1602 Stream and Lakebed Alteration Agreement from the California Department of Fish and Wildlife (CDFW)
- Concurrence with a Not Likely to Adversely Affect Determination from the U. S. Fish and Wildlife Service (USFWS) under Section 7 of the Federal Endangered Species Act
- Local Coastal Development Permit (LCDP) from the Mendocino County Planning Department

These permits and approvals may contain restrictions, work windows, and other avoidance and minimization measures that would be incorporated into the project.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one "Less than Significant Impact"

- [X] Aesthetics
- [ ] Agricultural Resources
- [ ] Air Quality
- [X] Biological Resources
- [ ] Cultural Resources
- [ ] Geology/Soils
- [ ] Hazards and Hazardous Materials
- [X] Hydrology/Water Quality
- [ ] Land Use/Planning
- [ ] Mineral Resources
- [ ] Noise
- [ ] Population/Housing
- [ ] Public Services
- [ ] Recreation
- [ ] Transportation/Traffic
- [ ] Utilities/Service Systems
- [ ] Mandatory Findings of Significance

Impacts Checklist

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project indicate no impacts. A “No Impact” answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is contained within the body of this environmental document.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
I. AESTHETICS — Would the project:				
a) Have a substantial adverse effect ond a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?			X	
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?				X

"Less than significant" determinations in this section are based on the Visual Impact Assessment, May 2013.

II. AGRICULTURE 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. 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?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

"No impact" determinations in this section are based on the project scope and location.

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?				X
b) Violate any air quality standard or contribute				

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
substantially to an existing or projected air quality violation?				X
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)?				X
d) Expose sensitive receptors to substantial pollutant concentrations?				X
e) Create objectionable odors affecting a substantial number of people?				X

"No impact" determinations in this section are based on the Air Quality Analysis, February 2013.

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 Wildlife or U.S. Fish and Wildlife Service?			X	
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				X
c) Have a substantial adverse effect on 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?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

The determinations in this section are based on the Natural Environmental Study (NES), July 2013.

V. CULTURAL RESOURCES — Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?				X
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?				X
d) Disturb any human remains, including those interred outside of formal cemeteries?				X

"No impact" determinations in this section are based on the Historic Property Survey Report (HPSR), July 2012.

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:				X
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?				X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?				X
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.				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

"No impact" determinations in this section are based on the project scope and location.

VII. 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?				X
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?				X
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site that is included on a list of				

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				X
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?				X
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
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?				X

"No impact" determinations in this section are based on the Hazardous Waste Initial Site Assessment, February 2013.

VIII. HYDROLOGY AND WATER QUALITY —
Would the project:

a) Violate any water quality standards or waste discharge requirements?				X
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 that would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or offsite?			X	

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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 that would result in flooding on- or offsite?				X
e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?				X
f) Otherwise substantially degrade water quality?				X
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?				X
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?				X
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?				X
j) Result in inundation by a seiche, tsunami, or mudflow?				X

"Less than significant impact" determinations in this section are based on the Water Quality Analysis, August 2013.

"No Impact" determinations in this section are based on the Floodplain Evaluation Report Summary (FERS), February 2013.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
IX. LAND USE AND PLANNING — Would the project:				
a) Physically divide an established community?				X
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?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

"No impact" determinations in this section are based on the project scope and location, and review of the Mendocino County General Plan Coastal Element/Gualala Town Plan.

X. 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?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?				X

"No impact" determinations in this section are based on the project scope and location.

XI. 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?				X
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?				X
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?				X
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?				X

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	X
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?	☐	☐	☐	X

"No impact" determinations in this section are based on the Noise Analysis, February 2013.

XII. 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)?	☐	☐	☐	X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	X

"No impact" determinations in this section are based on the project scope and location.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact

XIII. PUBLIC SERVICES —

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?				X
Police protection?				X
Schools?				X
Parks?				X
Other public facilities?				X

No impact" determinations in this section are based on the project scope and location.

Two-way traffic would be maintained during construction. Temporary lane closures using a reverse traffic control operation would be required to place k-rail and occasionally perform other construction activities. Therefore, there would be no affect to emergency services.

XIV. 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?				X
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?				X

"No impact" determinations in this section are based on the project scope and location.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
XV. TRANSPORTATION/TRAFFIC — Would the project:				
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?				X
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?				X
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?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Result in inadequate parking capacity?				X
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?				X

"No impact" determinations in this section are based on the project scope and location.

Two-way traffic would be maintained during construction. Temporary lane closures using a reverse traffic control operation will be required to place k-rail and occasionally perform other construction activities. Therefore, no affects to emergency services would result from the project.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
XVI. UTILITY AND SERVICE SYSTEMS — Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
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?				X
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?				X
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

"No impact" determinations in this section are based on the project scope and location.

	Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
XVII. 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, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	X
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	X
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	X

Biological Resources

Wetlands and Waters

Regulatory Setting

Several federal and state laws and regulations protect wetlands and other waters.

Federal

At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredge and fill material into waters of the U.S. Waters of the U.S. include navigable waters, interstate waters, wetlands, territorial seas and other waters that may be used in interstate or foreign commerce.

To classify wetlands for the purposes of the CWA, a three-parameter approach is used to include the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). Under normal circumstances, all three parameters must be present for a designation as a wetland that would be under jurisdiction, pursuant to the CWA.

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

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

The USACE issues two types of 404 permits: General and Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest.

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

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

State

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

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

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

Affected Environment

Along the western portion of the project area, the land terraces approximately 175 ft from the paved roadway to coastal bluffs. A small cove is located directly adjacent to the slide area.

Located east of the ESL on an adjacent hill slope (outside of the Caltrans right of way), a perennial stream exists from a low-flow stream originating from a seep. No distinct channelization occurs until after the waters surface beneath the fence line near the culvert located at PM 2.43. The water enters a culvert approximately 20 ft from the fence line and outlets on the west side of the highway where it discharges along the northern bluff face of a small cove, entering the Pacific Ocean approximately 50 ft below. A roadside drainage borders the eastern portion of the roadway and contains both waters of the U.S. and waters of the State.

A delineation of waters of the U.S. and the waters State was conducted for this project as follows. Three water bodies were identified in the project area:

1) wetland (three-parameter),

2) perennial stream/drainage, and

3) wetland (one-parameter).

For jurisdictional purposes, the three-parameter wetland and the perennial stream/drainage fall under both waters of the U.S. and waters of the State. The one-parameter wetland only falls under waters of the State. The one-parameter wetland is located outside the area of impact.

Impacts

Waters of the U. S. & Waters of the State

The project would temporarily impact a total of 0.0169 acres of two water bodies that fall under both waters of the U.S. and waters of the State as listed in the following table:

Impacts
Waters of the U.S. and Waters of the State

WATERS OF THE U.S. & WATERS OF THE STATE – TOTAL IMPACTS	Area (acres)
Wetlands	
Wetlands (three-parameter)	0.016
Other Waters	
(perennial stream/drainage)	0.0009
Total Impacts	**0.0169**

There will be no impact to the one parameter wetland.

Permanent impacts to these waters of the U. S. and waters of the State would be calculated after the wetland delineation is verified by the USACE and NCRWQCB.

Wetland (3-Parameter)

Perennial Stream/Drainage

Avoidance, Minimization, and/or Mitigation Measures

To restore jurisdictional waters of the U. S. and waters of the State to pre-project conditions, implementation of the following measures would occur before, during, and after construction as described below:

Work Windows for In-Stream Activities

Within the environmental study limits (ESL), no work would be performed within streams and drainages until flows are at their seasonal low or have ceased and the streambed is dry. It is predicted that in most years, the seasonal low-flow or dry period of these drainages occurs between June 15th and October 15th; however, work within these drainages will be subject to stream conditions and permit restrictions.

- All waters and wetlands within Caltrans right of way adjacent to the construction zone that will not be filled as a result of the project will be designated as environmental sensitive areas (ESAs) and shall be fenced and signed to assure no inadvertent damage to these resources.

- Disruption of the wetlands, streambeds, and adjacent riparian corridors will be minimized, and vegetation removal shall be limited to the absolute minimum amount required for construction.

- Depending on seasonal flows, de-watering of the streambed or culvert course and/or a temporary stream diversion may be necessary. If de-watering of the site is deemed necessary, a temporary sediment-settling basin will be constructed downstream of the activity.

- Permit conditions would include any further avoidance and minimization measures.

Revegetation of Disturbed Habitats

- Prior to vegetation removal, the area will be surveyed by a qualified biologist for a complete accounting of species and their quantities present within the construction limits.

- Upon completion of project construction, streambanks will be permanently stabilized with a hydroseed mixture of native species.

- Only native seed material must be used: seed, hay and straw used in erosion control applications shall be certified weed-free or weed-seed free.

Environmentally Sensitive Areas

- Sensitive natural resource features occurring outside of the expected construction impact area will be avoided or minimized by designating these features on project plans and in project specifications.

- ESA information would be shown on contract plans and discussed in the project contract. ESA provisions may include, but are not limited to, the use of temporary orange fencing to delineate the proposed limit of work in areas adjacent to sensitive resources, or to delineate and exclude sensitive resources from potential construction impacts.

- Contractor encroachment into ESAs will be restricted (including the staging/operation of heavy equipment or casting of excavation materials).

- ESA provisions shall be implemented as a first order of work and remain in place until all construction activities are complete.

Threatened and Endangered Species

Regulatory Setting

The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. 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 (FHWA), are required to consult with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA 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 may include a Biological Opinion with an Incidental Take statement, a Letter of Concurrence and/or documentation of a no effect finding. For this project, a Letter of Concurrence is anticipated for the California red-legged frog discussed below.

The USFWS and CDFW 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 FESA and/or the California Endangered Species Act (CESA).

Behren's Silverspot Butterfly

Affected Environment

Behren's silverspot butterfly (*Speyeria zerene behrensii*) is listed as a federal endangered species. Behren's silverspot butterfly is a rare, endemic, and coastal species. The range of the Behren's silverspot butterfly in Mendocino County is currently considered to be within one mile of marine waters from Laguna Point in MacKerricher State Park north of Fort Bragg to south of the Sonoma County border. Behren's silverspot butterflies use the genus *Viola* (especially *Viola adunca*) for both food and larval-hosting purposes.

Focused surveys were conducted by the Caltrans project biologist for the presence of the larval host plant *Viola adunca* during the blooming season, spring 2013. Surveys were conducted according to USFWS protocols. No *Viola* plants were found within the project site.

Impacts

None.

Avoidance, Minimization, and/or Mitigation Measures

None.

California red-legged frog

Affected Environment

The California red-legged frog (*Rana draytonii*) is listed as a federal threatened species and a state species of special concern. According to the USFWS' Draft Recovery Plan for the California red-legged frog, this frog utilizes a wide variety of habitats within its lifecycle, including aquatic and upland. Breeding sites for the frog may include marshes, springs, natural ponds, or artificial features such as a stock pond. California red-legged frog eggs are usually attached to emergent vegetation such as cattails or rushes.

Habitat for the California red-legged frog is potentially located within the project area. The project location is within the area described in the guidance issued by the USFWS Arcata office on June 12, 2009, extending regulatory protections to all red-legged frogs that occur in the Point Arena, Garcia, and Gualala hydrographic units (*Extension of Regulatory Protection to the Federally-Listed California Red-Legged Frog (Rana draytonii) in Mendocino County, California*).

Impacts

With implementation of the avoidance and minimization measures, the project "may affect but is not likely to adversely affect" (determination from USFWS) the California red-legged frog and its habitat during construction of the proposed project. The project would not result in a permanent loss of habitat; therefore, no mitigation is required, but avoidance and/or minimization measures would be incorporated.

Avoidance, Minimization, and/or Mitigation Measures

Pursuant to Section 7 of the FESA, a habitat assessment would be conducted and Caltrans would enter into informal Section 7 consultation with the USFWS. With implementation of the avoidance and minimization measures, the project "may affect but is not likely to adversely affect" the California red-legged from and its habitat during construction of the proposed project. In addition, Caltrans will comply with any new or modified mitigation or avoidance measures developed during the Section 7 consultation process with the USFWS.

If suitable habitat were discovered within the project action area, the following avoidance measures would be incorporated into the project in order to protect the California red-legged frog and its habitat during construction:

- A qualified biologist would conduct Worker Environmental Awareness Training for the construction workers prior to the start of construction activities. The awareness training would include a brief review of the biology of the California red-legged frog and guidelines that must be followed by all construction personnel to avoid "take" of

California red-legged frogs and minimize potential effects to all sensitive biological resources during the construction period. The qualified biologist would appoint a biological monitor (such as the crew foreman) who would be responsible for ensuring that all crewmembers comply with the guidelines. Worker Environmental Awareness Training would be conducted for new personnel before they join construction activities. The qualified biologist will notify the Caltrans Construction Resident Engineer (RE) who will address any work stoppage, and the USFWS would be contacted if a California red-legged frog at any life stage is encountered.

- A qualified biologist would be on-site to monitor initial ground disturbing construction activities. The biologist's duties would include surveying the project area for the life stages of California red-legged frog immediately prior to ground disturbing activities.

- If a California red-legged frog is encountered during any project activities, construction activities would cease in the area and the USFWS would be notified to determine how to proceed.

- Water pumps would be screened with wire mesh screens no larger than 0.2 inches to prevent California red-legged frog larvae, juveniles, and adults from entering the pump system.

- All food-related trash would be disposed of in closed containers and removed from the project area at least twice per week during the construction period.

- The contractor would implement a toxic materials control and spill response plan. Equipment refueling would only occur at staging areas where fuel would not enter the floodplain.

- All vegetation removal activities would be performed with the use of hand tools only (including chainsaws).

- The number of access routes, numbers and sizes of staging areas, and the total area of the activity would be limited to the minimum necessary to achieve the project goal. Routes and boundaries would be clearly demarcated.

SPECIAL STATUS PLANT SPECIES

Affected Environment

Forty-one plant species of concern were identified as potentially occurring in the project area, including one non-special-status plant (*Viola adunca*), a known food source of the federal endangered Behren's silverspot butterfly (*Speyeria zerene behrensii*). No observations occurred for all 41 of the plant species within the project area.

Impacts

Impacts to plant species are not anticipated; however, the Caltrans Best Management Practices (BMPs) would be implemented as follows.

Avoidance, Minimization, and/or Mitigation Measures

Noxious Weed Prevention

- Locate and use weed-free project staging areas. Avoid or minimize all types of travel through weed-infested areas, or restrict to those periods when spread of seed or propagules is least likely.

- Remove mud, dirt, and plant parts from project equipment before moving equipment into a project area. Revegetate disturbed soil in a manner that optimizes plant establishment for that specific site.

- Revegetation may include topsoil replacement, planting, seeding, fertilization, liming, and weed-free mulching as necessary.

- Only native seed material shall be used: seed, hay and straw used in erosion control applications shall be certified weed-free or weed-seed free.

ANIMAL SPECIES

Regulatory

Many state and federal laws regulate impacts to wildlife. The USFWS, NOAA Fisheries Service, and CDFW are responsible for implementing these state and federal laws. Federal laws and regulations pertaining to wildlife include the National Environmental Policy Act, the Migratory Bird Treaty Act (MBTA), and the Fish and Wildlife Coordination Act.

State laws and regulations pertaining to wildlife include the California Environmental Quality Act, Sections 1600 – 1603 of the Fish and Game Code, and Sections 4150 and 4152 of the Fish and Game Code.

The Marine Mammal Protection Act protects marine mammals from harassment or "take" under this Act and is administered by NOAA Fisheries Service.

Migratory Birds

Affected Environment

During surveys, no nests were observed but migratory birds could try to nest in vegetation or on structures such as the culvert within the project area. The project area consists of wooded, grassland, and structural habitat that provides potential breeding and foraging habitat for a number of bird species protected under the MBTA.

Impacts

The proposed project may result in the temporary disturbance and/or permanent loss of breeding and foraging habitat for a number of bird species. The below measures would reduce impacts to bird species.

Avoidance, Minimization, and/or Mitigation Measures

Restrict Timing of Vegetation Removal

If feasible, removal of vegetation shall be conducted in the fall and winter (between September 1 and February 14) after fledging and before the initiation of breeding activities.

Pre-Construction Nesting Bird Surveys

- If vegetation removal during migratory non-nesting season is determined unfeasible, then pre-construction bird nest surveys shall be conducted in spring to determine the location of nest sites within the proposed storm damage repair project areas.

- If active bird nests are found, Caltrans shall consult with USFWS regarding appropriate action to comply with the MBTA, and with CDFW to comply with provisions of the Fish and Game Code of California.

- If a lapse in project related work of fifteen (15) days or longer occurs, another survey and, if required, consultation with USFWS and CDFW will be required before the work can be reinitiated.

Environmental Sensitive Areas

Minimize removal of native vegetation by locating staging areas and access routes in previously disturbed areas and establishing ESAs.

Steller Sea Lion

Affected Environment

Within the project area, a small cove is located where the new downdrain to the culvert discharges at PM 2.43. This cove may contain potential resting habitat for the Steller sea lion.

Impacts

Due to the lack of recent sightings in the area, historical occurrences and of any known breeding populations in the area, impacts to sea lions or associated habitat are not anticipated.
If sightings occur, implementation of avoidance and minimization measures during construction would avoid impacts and protect the sea lion and habitat.

Avoidance, Minimization, and/or Mitigation Measures

In accordance with the Marine Mammal Protection Act and in order to avoid potential temporary harassment of marine mammals, Caltrans would implement appropriate avoidance and minimizations measures for all marine mammals within the project area.

Marine Mammals Protection Act: Incidental Harassment

The proposed project may result in the temporary disturbance of marine mammals protected under this Act. The following measures are recommended to reduce project impacts and incidental harassment to protected marine mammal species:

- Exposure to high sound pressure levels has the potential to result in harassment of marine mammals. NOAA Fisheries Service has determined the in-air threshold for Level B[1] behavioral harassment is 90 decibles (dB) root mean square (RMS) for harbor seals and 100 dB RMS for all other pinnipeds (non-harbor seals). No in-air sound threshold has been established for Level A injury harassment.

- If a marine mammal is present within the project area during noise generation activities, those activites that exceed the decible thresholds stated above must cease until the marine mammal has voluntarily left the project area.

- If marine mammals are present within the project area for a prolonged period, Caltrans must consult with the USFWS regarding the appropriate action to comply with this Act and with the CDFW to comply with provisions of the Fish and Game Code.

[1] *Level A refers to dB levels that can cause "injury". Level B thresholds refer to dB levels that may cause "behavioral" harassment. RMS refers to the "root mean square" or a measurement of common sound waveforms.*

Regulatory

National Pollution Discharge Elimination System Program

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of National Pollution Discharge Elimination System (NPDES) permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water." The State Water Resources Control Board (SWRCB) has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans rights of way, properties, facilities, and activities in the state.

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 which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit.

Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB.

For all projects subject to this permit, applicants are required to develop a Storm Water Pollution Prevention Plan (SWPPP). For projects with DSA less than one acre, a Water Pollution Control Plan (WPCP) is necessary in accordance with Caltrans' 2010 Standard Specifications.

Section 401 Permitting

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

Affected Environment

The project is located in the Garcia River basin. The average annual precipitation is approximately 45 inches. The major water body in the proximity of the project is the Pacific Ocean. Although the project is located within the Garcia River watershed, all storm water within the project limits either sheet flows off the highway and infiltrates, sheet flows to an existing drainage ditch east to the highway and infiltrates, or sheet flows to the existing drainage ditch and discharges to the Pacific Ocean.

The existing culvert conveys storm water and groundwater to the Pacific Ocean. Above-ground indicators (vegetation) suggest groundwater is close to the surface and seeps into the existing drainage ditch.

Impacts

Water quality impacts are minimal as most of the DSA would be on and near the roadway. A WPCP or a SWPPP, depending on the total DSA, will be prepared and would identify construction site BMPs that will reduce/eliminate any potential water quality impacts. For groundwater, no impacts are anticipated from the project.

Avoidance, Minimization, and/or Mitigation Measures

In order to protect water quality as a result of construction activities and/or operations related to this project, the following measures would reduce impacts.

- A WPCP or a SWPPP will be prepared by the contractor for approval by the Resident Engineer. The WPCP or SWPPP will identify construction site BMPs to minimize erosion and discharge of sediment. The WPCP or SWPPP must contain measures to address soil stabilization, re-vegetation of riparian areas around intermittent streams, sediment control, tracking control and wind erosion control practices. In addition, at a minimum, the project plans must include non-storm water controls, waste management and material pollution controls.

- Work within jurisdictional waters would occur during the dry season where either low flow and/or dry conditions exist.

Coastal Zone

Regulatory Setting

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

California has developed a coastal zone management plan and has enacted its own law, the California Coastal Act of 1976, to protect the coastline. The policies established by the California Coastal Act are similar to those for the CZMA: they include the protection and expansion of public access and recreation; the protection, enhancement, and restoration of ESAs; 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.

Just as the federal CZMA delegates power to coastal states to develop their own coastal management plans, the California Coastal Act delegates power to local governments to enact their own local coastal programs (LCPs). LCPs determine the short-and long-term use of coastal resources in their jurisdiction consistent with the California Coastal Act goals. A federal consistency determination may also be required.

Chapter 20.496 of Mendocino County's Coastal Zoning Code includes policies that apply to Environmentally Sensitive Habitat Area (ESHAs). Buffer areas are described and defined in section 20.496.020 as an area that shall be established adjacent to all ESHAs. The purpose of a buffer area shall be to provide for a sufficient area to protect the ESHA from degradation resulting from future developments. The width of the buffer area shall be a minimum of 100 ft, unless an applicant can demonstrate, after consultation and agreement with the CDFW and Mendocino County Planning Department, that a full 100 ft buffer is not necessary to protect the resources of that particular habitat area and the adjacent upland transitional habitat function of the buffer from possible significant disruption caused by the proposed development. The buffer area shall be measured from the outside edge of the ESHA and shall not be less than 50 ft in width. This section describes a variety of standards for determining the allowable width of the buffer area, including standards for the development permitted within the buffer area. Mendocino County Code Section 20.496.025(7) further specifies development that is allowed in wetlands, including incidental public service purposes.

Coastal Zone - Land Use

Affected Environment

The project is located approximately one mile north of Gualala (see map below) and within the coastal zone. See the map labeled "Coastal Zone Area in Mendocino County" that depicts the coastal zone boundary, according to the *Mendocino County General Plan Coastal Element - Gualala Town Plan.* Mendocino County has a LCP as described in the Regulatory section above; therefore, a Local Coastal Development Permit (LCDP) obtained through the County would be required for this project due to the project location being within their jurisdiction.

Land Use - Existing and Future

Within the **project area**, existing land use designations include rural with remote residential areas. See the map labeled "Land Use & Coastal Zone Boundary", taken from the *Mendocino County General Plan Coastal Element - Gualala Town Plan*.

Within the **project vicinity**, existing land use designations include open space, rural, forestland, public land, rangeland, highway use, vacant use, industrial and remote residential, and residential (in Gualala).

In Gualala, existing land use designations include suburban residential, rural residential, remote residential, forestland, and open space. See the map labeled "Land Use & Coastal Zone Boundary".

According to the *County of Mendocino Coastal Element Section 4.14 - Gualala Town Plan Chapter 4 - Land Use Classifications*, future land use goals in Gualala include preservation and enhancement of the rural, coastal character of the town, to better integrate future development with the natural surroundings, to protect and restore coastal views, and to improve public access to the coast.

Impacts

The project would not change or affect existing or future land use or goals because the project would not acquire new right of way; alter existing or future land use; or change SR 1 characteristics.
The project may minimally affect the natural surroundings and coastal views.

Avoidance, Minimization, and/or Mitigation Measures

The project would incorporate design features that would blend into the natural surroundings. These elements would include appropriate color of the exposed downdrain, exposed wall, and guardrail to blend into the cliff and surrounding environment, preserving the coastal view and natural surroundings. In addition, Caltrans intends to coordinate with Mendocino County to obtain a LCDP, which would include conditions to avoid impacts to the coastal zone resources.

Land Use – Coastal Access

According to the Gualala Town Plan, "*coastal access to pedestrian and bicycle trail which links Gualala and Anchor Bay and connects to coastal access trails shall be developed within Highway 1 and Old Coast Highway rights of way and easements acquired for public access.*" The Gualala Town Plan also identifies goals to preserve coastal access along SR1.

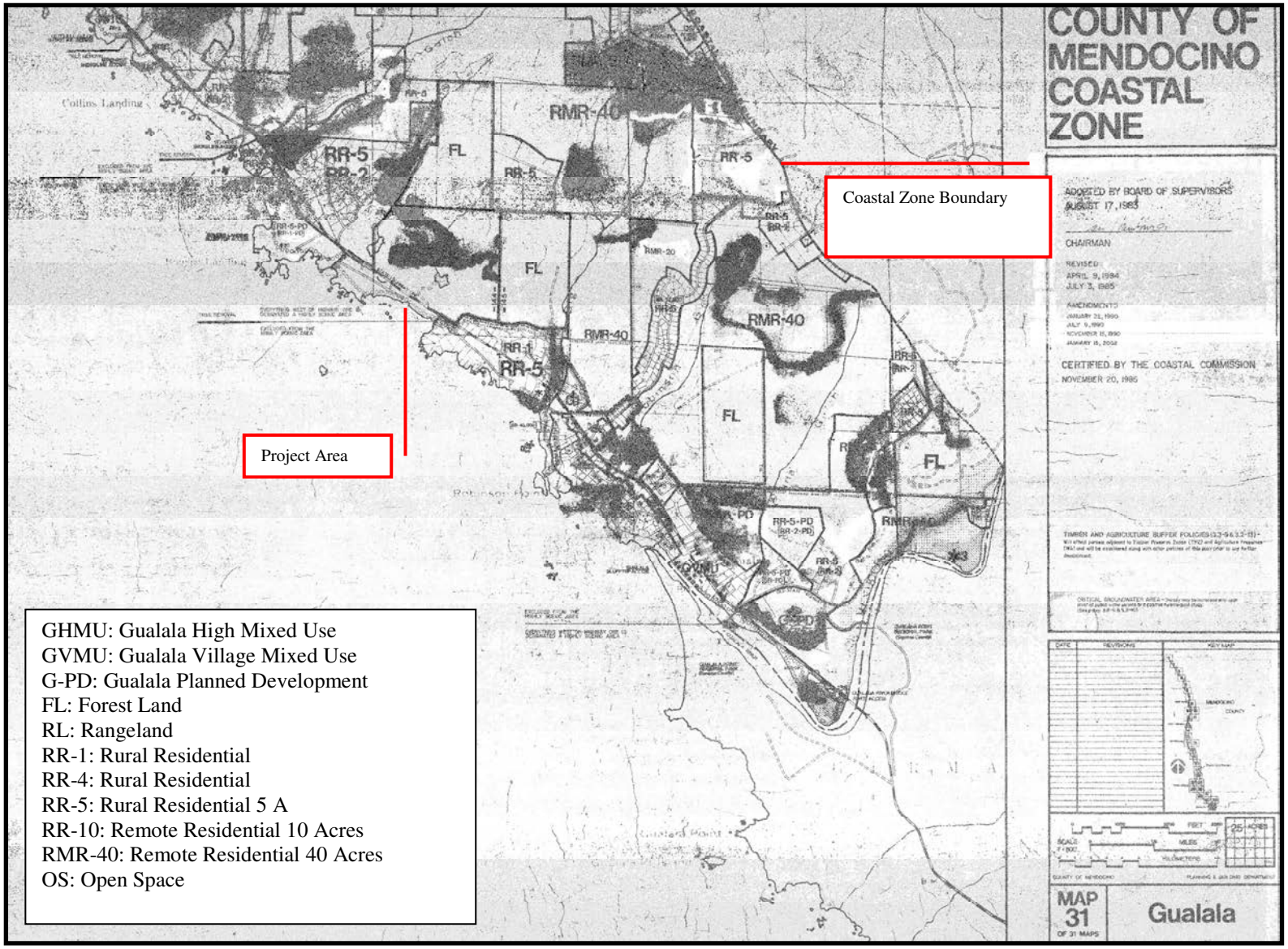
Impacts

At the project site, no designated coastal access exists (see map as labeled "Coastal Access Locations near Project Area"). Furthermore, no improvement or expansion to coastal access for pedestrian and bicycle trails is possible due to the steepness and cliff at the project site.

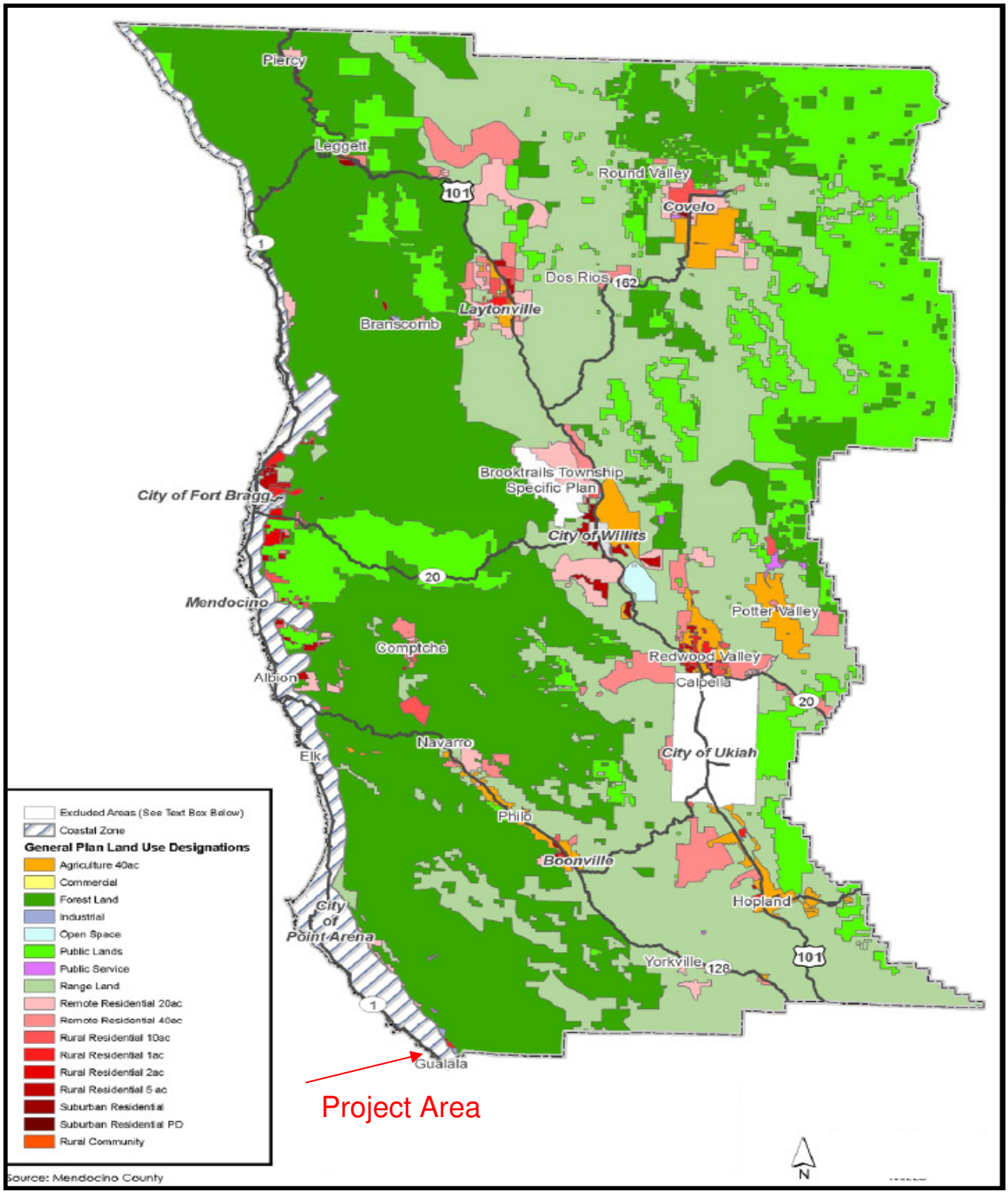
Avoidance, Minimization, and/or Mitigation Measures

None required.

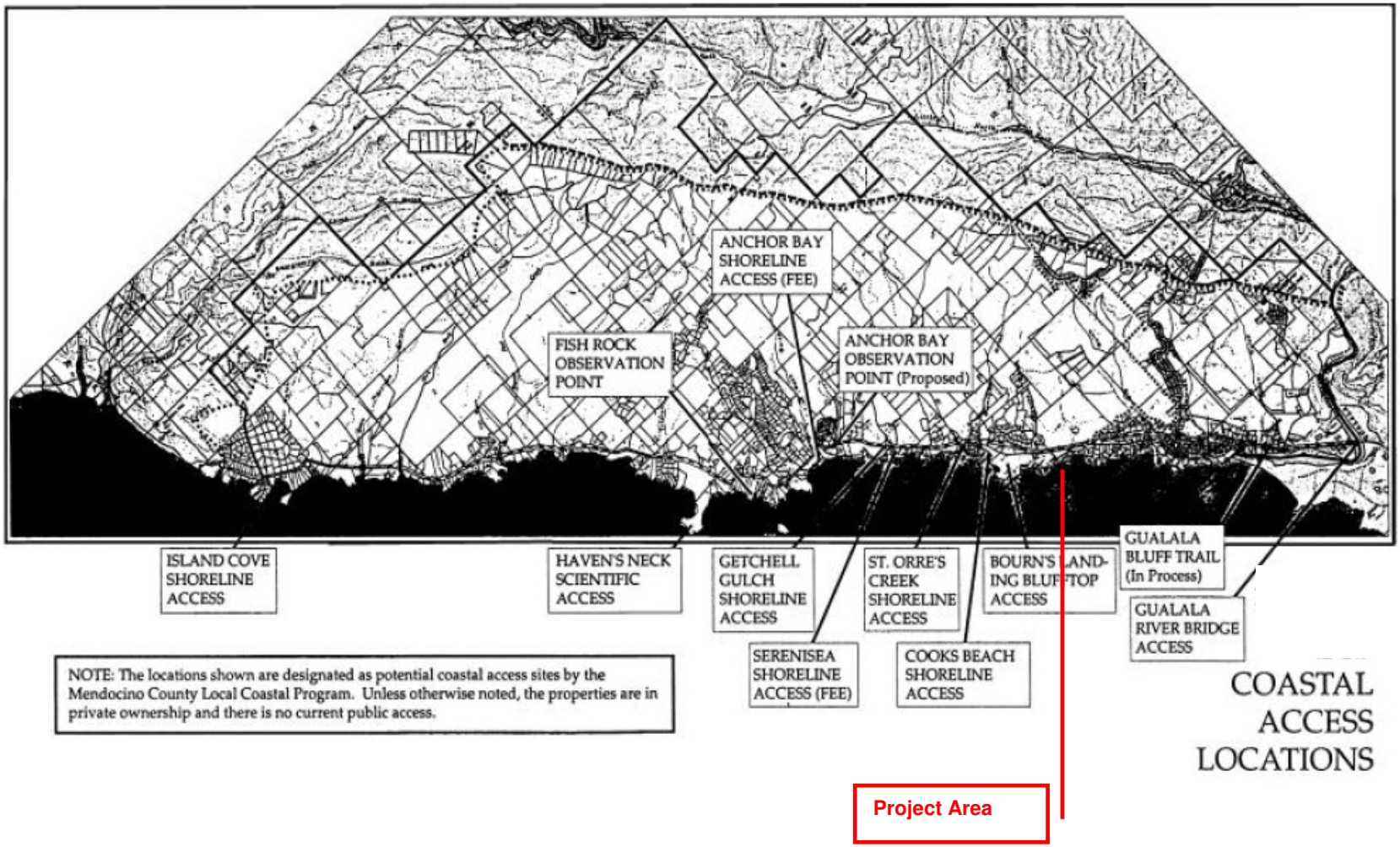
Land Use & Coastal Zone Boundary



Coastal Zone Area in Mendocino County



Coastal Access Locations
Near Project Area



Coastal Zone - Project Consistency with County, State, & Local Programs

The project is consistent with following applicable goals, policies, and laws as they pertain to the coastal zone.

Policy	Project	No-Build Alternative
Consistency - Mendocino County Coastal Element		
Policy 3.8-2. Transportation Utilities and Public Services Caltrans shall be requested and urged as a high priority of public interest and Coastal Act purpose to accelerate highway improvement projects along Highway 1 and those maintained highway intersections within the Coastal Zone of Mendocino County.	**Consistent:** The project would repair or restore the highway/roadway for the public interest, which is consistent with this policy of improving Highway 1.	**Not Consistent:** The No-build alternative would not restore the roadway for the traveling public and would be inconsistent with highway improvement goals.
Consistency - Mendocino County Coastal Element Gualala Town Plan		
Policy 3.8-5. Protection of Environmental Resources The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.	**Consistent:** Minimal impacts to waters of the U.S. and waters of the State are unavoidable; however, these resources would be restored and/or replaced onsite to include no net loss. Measures to control erosion and sedimentation during construction would minimize potential impacts to water quality. All applicable permits identified in the "Permits" section of this Initial Study would be implemented during construction. Therefore, the proposed project is consistent with the policy.	**Not Consistent:** Not Applicable (N/A)
Consistency - Mendocino County Coastal Element Gualala Town Plan		
Policy 3.7-6. Coastal Access and Trails Based on an inventory of existing and potential trail alignments, a network of trails shall be designated which connects commercial areas, neighborhoods, visitor accommodations, areas of scenic beauty, and recreational facilities. Priority for trail alignments shall be along public and private road rights-of-way and trails that are currently in use. Access easements shall be acquired from property owners on a voluntary basis (i.e., gifts, open space and conservation easements) as conditions associated with development (i.e. deed restrictions, offers to dedicate), or by direct property acquisition. Trails shall be developed and maintained by the County, State Parks, Caltrans, a non-profit land trust, or some other public agency or private association.	**Consistent:** The project will not affect use of trails since none exist at the project area; therefore, the project is consistent with this policy.	**Not Consistent:** N/A

Policy	Project	No-Build Alternative
Consistency – Mendocino County Local Coastal program		
Chapter 20.496, Costal Zoning The coastal zoning code includes polices that apply to ESAs. Buffer areas are described and defined in Section 20.496.020 as an area that shall be established adjacent to all ESHs. The purpose of a buffer area is to provide for a sufficient area to protect the environmentally sensitive habitat from significant degradation resulting from future development and to ensure biological integrity. According to Section 20.40.496, highway activities can be designate.	**Consistent** An ESHA buffer would be prepared for the proposed project as part of the Mendocino County LCDP application. Therefore, the proposed project is consistent with this section.	**Not consistent** N/A
Consistency – CA Coastal Act		
Section 30232, Oil and Hazardous Substance Spills Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development of transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.	**Consistent:** Avoidance and minimization measures would be incorporated into the project during construction to minimize the risk of impacts from hazardous substances. The Department's Best Management Practices would be implemented to address hazardous substances.	**Not consistent:** N/A
Section 30240, Environmentally Sensitive Habitat Areas a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas. b) Development of areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts, which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.	**Consistent:** The proposed project would avoid environmentally sensitive habitat where practicable and enhance or replace lost habitat to ensure no net loss. Permits conditions would identify conditions to reduce impacts to ESHA.	**Not consistent:** N/A
Mendocino County General Plan		
Policy DE-137. Develop and improve a roadway system that facilitates orderly development and serves the multiple needs of existing and future development.	**Consistent:** The proposed project would improve the roadway system with the rehabilitation of the culvert and roadway, and improve safety by adding a guardrail. Therefore, the proposed project is consistent with this policy.	**Not consistent** No project would not be consistent because the roadway could be compromised without rehabilitation.

Visual /Aesthetics

Regulatory Setting

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

Affected Environment

State Route 1 is one of the most highly scenic roadways in the state. Mendocino County has created strict regulations on where and how development can occur along the coast. Sec. 20.504.010 of the Visual Resource and Special Treatment Areas section of the Mendocino County Coastal Zoning Code states: "The purpose of this section is to insure that permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas and, where feasible, to restore and enhance visual quality in visually degraded areas."

This section of the SR is a candidate for scenic highway status in the California Scenic Highway System. SR 1 is part of the Pacific Coast Highway and popular with tourists. The Mendocino County Coast is highly scenic which attracts visitors from around the state and internationally. The project is within the Coastal Zone and considered a sensitive corridor regarding visual resource issues. Ocean and coastal views are available from the roadway along most of the length of the project.

Impacts

An assessment of the project site and proposed project plans indicate that the project would not result in significant impacts to the visual environment. The proposed project would not adversely affect any "Designated Scenic Resource" as defined by CEQA statutes or guidelines or by Caltrans policy.

Avoidance, Minimization, and/or Mitigation Measures

The retaining wall style and barrier design proposed are consistent with other retaining walls along the Mendocino Coast. Additional design and materials that can minimize visual impacts are as follows:

Drainage:
The down-drain would be black in color to minimize the visual effect of the element within its surroundings.

Wall:
The steel I-Beams in the retaining wall would be painted to minimize the visual impacts. Backfilling the slope below the retaining wall will minimize how much of the structure will be visible from the Pacific Ocean and the use of timber soldier piles in the retaining wall provide a natural surface that blends into the landscape.

MBGR:
The use of MBGR in lieu of a concrete or steel barrier rail is the least visually intrusive method for providing a safety barrier above the proposed wall.

Vegetation:
Removal of non-native invasive plant species and reseeding or replanting with plants native to the Mendocino Coast would help restore the site to a more natural condition, making it more consistent with the indigenous aesthetic of the area.

Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. “Adaptation," refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)[2].

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles traveled (VMT), 3) transitioning to lower GHG emitting fuels, and 4) improving vehicle technologies. To be most effective all four strategies should be pursued collectively. The following Regulatory Setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

[2] http://climatechange.transportation.org/ghgmitigation/

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Executive Order (EO) S-3-05: (signed on June 1, 2005, by former Governor Arnold Schwarzenegger) the goal of this EO is to reduce California's GHG emissions to: 1) year 2000 levels by 2010, 2) year 1990 levels by the 2020, and 3) 80 percent below the year 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, Núñez and Pavley: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan, (which includes market mechanisms) and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."
Executive Order S-20-06: (signed on October 18, 2006 by former Governor Arnold Schwarzenegger) further directs state agencies to begin implementing AB 32, including the recommendations made by the California's Climate Action Team.
Executive Order S-01-07: (signed on January 18, 2007 by former Governor Arnold Schwarzenegger) set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least ten percent by the year 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007: required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Caltrans Director's Policy 30 (DP-30) Climate Change (approved June 22, 2012): is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. This policy contributes to Caltrans' stewardship goal to preserve and enhance California's resources and assets.

Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the FHWA has promulgated explicit guidance or methodology to conduct project-level GHG analysis. As stated on FHWA's climate change website (http://www.fhwa.dot.gov/hep/climate/index.htm), climate change considerations should be integrated throughout the transportation decision-making process– from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will facilitate decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project level decision-making. Climate change considerations can easily be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies set forth by FHWA to lessen climate change impacts do correlate with efforts that the state has undertaken and is undertaking to deal with transportation and climate change; the strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of vehicle hours travelled.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - *Federal Leadership in Environmental, Energy and Economic Performance*.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.
On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding greenhouse gases under section 202(a) of the Clean Air Act:

- **Endangerment Finding:** The Administrator found that the current and projected concentrations of the six key well-mixed greenhouse gases--carbon dioxide (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 found that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not themselves impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*, which was published on September 15, 2009[3].
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.
U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations. These steps were outlined by President Obama in a Presidential Memorandum on May 21, 2010.[4]

The final combined U.S. EPA and NHTSA standards that make up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile, (the equivalent to 35.5 miles per gallon [MPG] if the automobile industry were to

[3] http://www.epa.gov/oms/climate/regulations.htm#1-1
[4] http://epa.gov/otaq/climate/regulations.htm

meet this CO_2 level solely through fuel economy improvements. Together, these standards will cut GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016).

On November 16, 2011, U.S. EPA and NHTSA issued their joint proposal to extend this national program of coordinated greenhouse gas and fuel economy standards to model years 2017 through 2025 passenger vehicles.

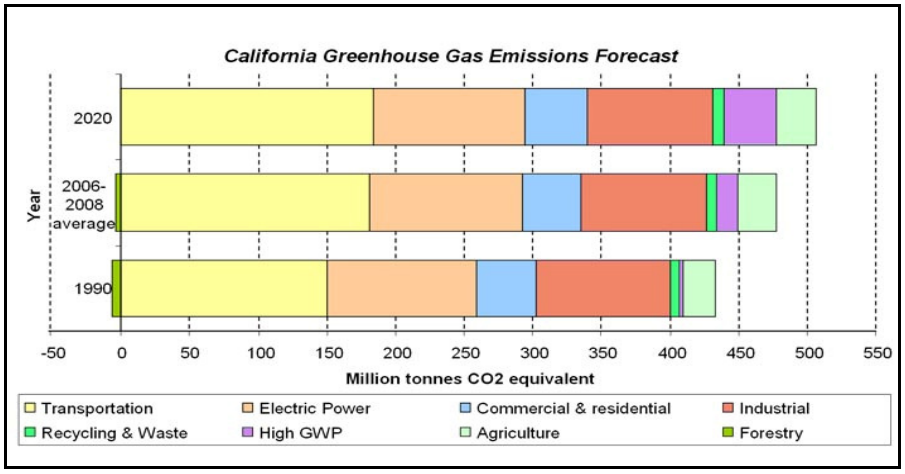
Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[5] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 contains the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 (see chart below) if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

[5] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA

CALIFORNIA GREENHOUSE GAS FORECAST



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.[6]

This project would rehabilitate the roadway and would not increase or change long-term traffic. Therefore, no increase in operational GHG emissions is anticipated to occur from this project. Construction emissions from traffic delays (not to exceed 10 minutes) due to temporary lane closures are unavoidable but are temporary.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

[6] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Caltrans Best Management Practices with be incorporated into the construction to reduce these emissions.

CEQA Conclusion

Greenhouse Gas Reduction Strategies

AB 32 Compliance

Caltrans continues to be actively involved on the Governor's Climate Action Team as ARB

Mobility Pyramid

works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Former Governor Arnold Schwarzenegger's Strategic Growth Plan calls for a $222 billion infrastructure improvement program to fortify the state's transportation system, education, housing, and waterways, including $100.7 billion in transportation funding during the next decade. The Strategic Growth Plan targets a significant decrease in traffic congestion below today's level and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that combined together are expected to reduce congestion. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in the figure above: The Mobility Pyramid.

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. The Department works closely with local jurisdictions on planning activities but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by

increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by U.S. EPA and ARB.

The "Climate Change" table summarizes the Departmental and statewide efforts that Caltrans is implementing in order to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Climate Change/CO_2 Reduction Strategies						
Strategy	**Program**	**Partnership**		**Method/Process**	Estimated CO_2 Savings (MMT)	
		Lead	**Agency**		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

The following measures will also be included in this project to reduce the GHG emissions and potential climate change impacts from the project:

The contractor must comply with all of the regulations, contract requirements, and Caltrans Best Management Practices regarding air quality restrictions and will be incorporated during construction. During construction, the contract must comply with the Local Air Pollution Control District rules and wait time during construction. While the traveling public is waiting during construction, idle time must not exceed 10 minutes.

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, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from 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.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the NOAA, released its interagency report on October 14, 2010 outlining recommendations to President Obama for how Federal Agency policies and programs can better prepare the U.S. to respond to the impacts of climate change. The Progress Report of the Interagency Climate Change Adaptation Task Force recommends that the federal government implement actions to expand and strengthen the nation's capacity to better understand, prepare for, and respond to climate change.

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, former Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

The California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009)[7], which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

[7] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF

The Resources Agency was also directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010[8] to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, Oregon and Washington 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.

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. 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.

Interim guidance has been released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines.

[8] Pre-publication copies of the report, *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*, were made available from the National Academies Press on June 22, 2012. For more information, please see http://www.nap.edu/catalog.php?record_id=13389.

Executive Order S-13-08 also 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.

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 effects, 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 to 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.

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 in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

Title VI Policy Statement

Caltrans, 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.

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Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

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