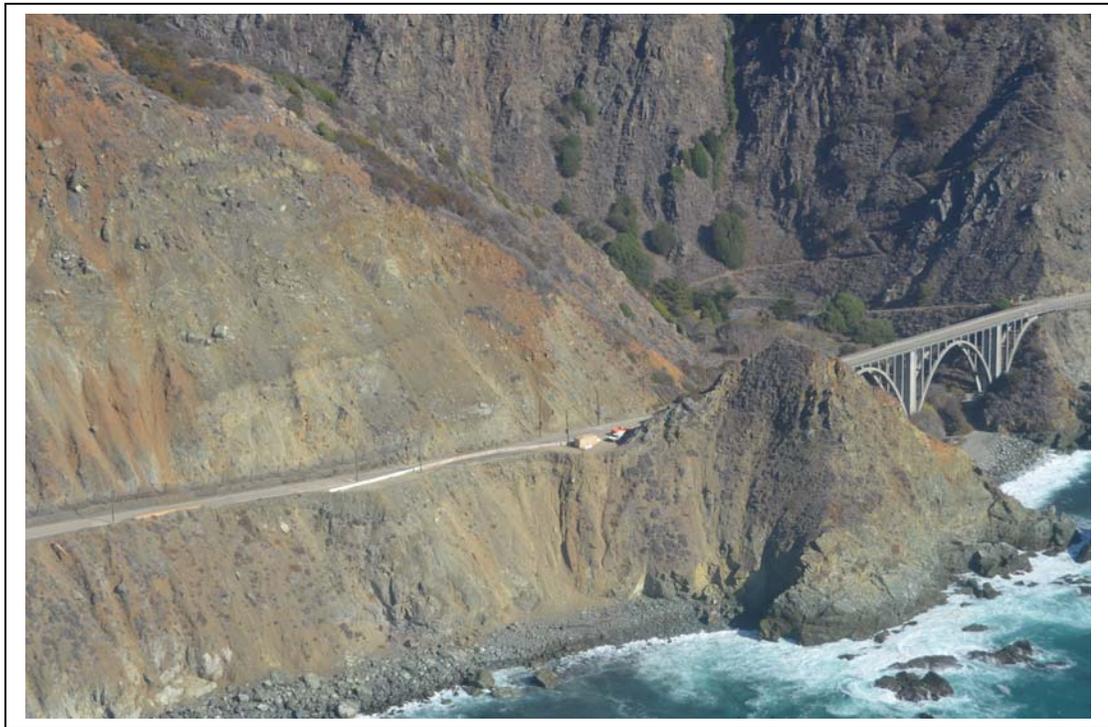


# **Cow Cliffs Viaduct Permanent Restoration**

On Highway 1 north of  
Big Creek Bridge in Monterey County  
05-MON-1-28.0/28.6  
05-1F8900 / 05 1400 0072  
SCH: 2014051004

## **Initial Study with Negative Declaration**



Prepared by the  
State of California Department of Transportation

**May 2014**



Printing this document: To save paper, this document has been set up for two-sided printing (to print the front and back of a page). Blank pages occur where needed throughout the document to maintain proper layout of the sections.

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please contact: Caltrans, Attn: Matt Fowler, 50 Higuera, San Luis Obispo, CA 93401; 805-542-4603 voice, or use the California Relay Service TTY dial 711.

## Negative Declaration

Pursuant to: Division 13, Public Resources Code

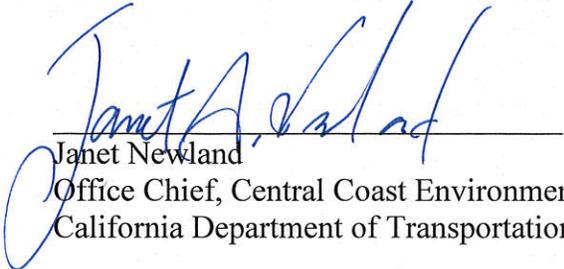
### **Project Description**

On Highway 1 in Monterey County, the California Department of Transportation (Caltrans) proposes to permanently stabilize the highway at this location by constructing a 175-foot-long viaduct that would span the compromised portion of the embankment. The structure would widen the road to provide 12-foot lanes and 4-foot outside shoulders. A railing on the west side would protect vehicles and bicycles from leaving the new structure. All work would be conducted within Caltrans' existing easement.

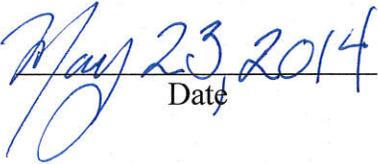
### **Determination**

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

- The project would have no adverse effect on land use, growth, farmlands/timberlands, any local community, utilities/emergency services, traffic, transportation/pedestrian or bicycle facilities, hydrology, the floodplain, water quality, wetlands, storm water runoff, paleontology, cultural resources, air quality, or "other waters".
- The project would not create any significant impacts due to noise, vibration, hazardous waste or materials, geology, soils, topography, or invasive species; the proposed project would not be particularly vulnerable to seismic activity.
- The project would have no significant impact on biological resources.

  
\_\_\_\_\_  
Janet Newland

Office Chief, Central Coast Environmental Management  
California Department of Transportation

  
\_\_\_\_\_  
Date



# Section 1 Project Information

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## ***Project Title***

Cow Cliffs Viaduct Permanent Restoration

## ***Lead Agency Name and Address***

California Department of Transportation (Caltrans), District 5  
50 Higuera  
San Luis Obispo, CA 93401

## ***Contact Person***

Matt Fowler, Senior Environmental Planner  
Matt.Fowler@dot.ca.gov  
805-542-4603

## ***Project Location***

On Highway 1 in Monterey County, immediately north of Big Creek Bridge.

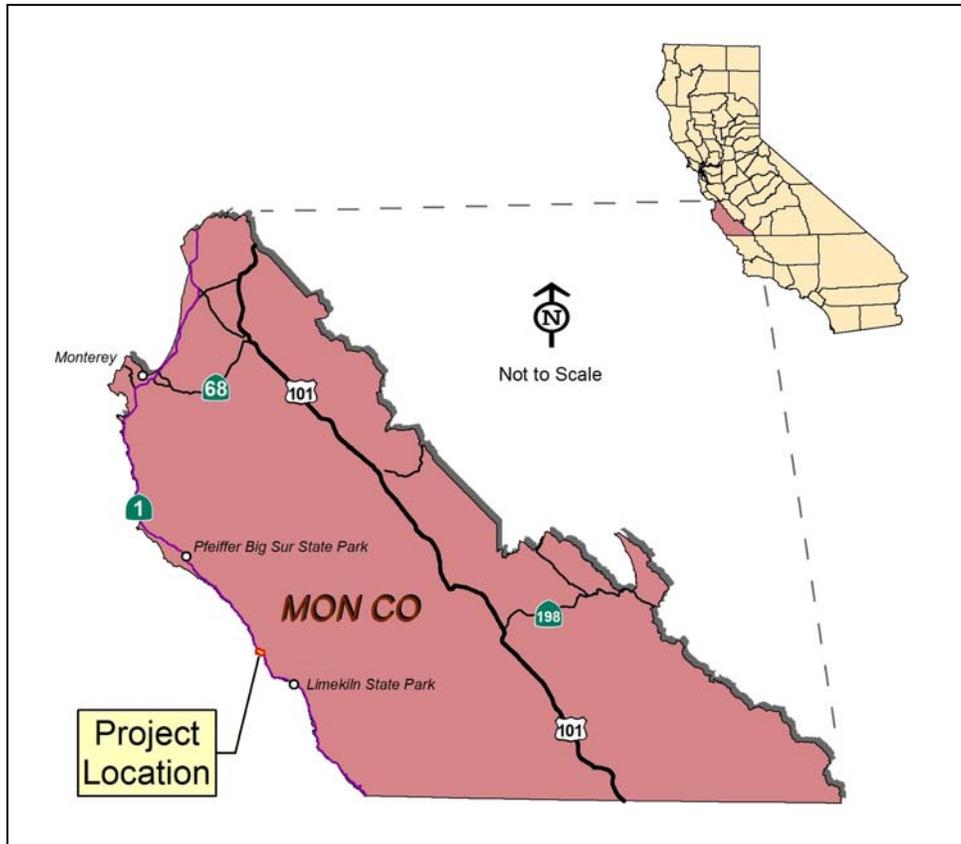
## ***Project Manager***

Ken Dostalek  
Ken.Dostalek@dot.ca.gov  
805-549-3133

## ***Surrounding Land Uses and Setting***

The project site is located on the western slopes of the Santa Lucia mountain range. The highway is a little over 100 feet above a rocky beach at this location, and there are steep slopes both above and below the roadway. Although nearby hills can be quite lush, the project vicinity is rocky and sparsely vegetated, due to the extensive erosion. The existing vegetation consists of patches of ruderal and coastal scrub.

Highway 1 at this location is a 2-lane conventional highway, with 11-foot lanes and 0- to 2-foot outside shoulders. As a result of the recent slip out, guardrail and temporary railing protect vehicles along the west edge of the roadway. Big Creek and Big Creek Bridge are just south of the work area. The project location is in an active landslide area consisting of a steep slope of loose, unconsolidated material. A rock net on the inland slope, installed in 2002 (and currently being extended), helps protect this portion of the highway from falling rocks and detritus.



**Figure 1 Project Vicinity Map**

The project site is within the portion of Highway 1 that traverses the Landels-Hill Big Creek Reserve. The land on either side of the highway within the project limits is owned by the University of California, which operates the reserve. The highway lies on a permanent easement that extends 40 feet on each side of the highway center line. The reserve is used for University research on native plants and animals, archaeological artifacts, and other local resources. The researcher laboratory and library is located just off the highway to the east, in the Big Creek canyon. Nearby Big Creek Cove is the principal access to the Big Creek State Marine Reserve and Conservation Area.

### ***Description of Project***

The project was initiated in December 2013 to address extreme erosion on the hillside below the highway. The erosion is continuous, requiring repeated repairs, and is now substantial enough to threaten the highway and public safety. The large turnout that once existed has eroded into two small turnouts. The embankment supporting the highway has severely eroded and is starting to undercut the highway roadbed, and the road surface is showing signs of distress. As a result, Caltrans has closed the



**Figure 2 Project Location Map**

southbound lane and moved all traffic to the northbound lane via continuous reversing one-way traffic control. A temporary signal and concrete railing were installed to guide travelers through the project area until the highway can be repaired.

To permanently stabilize the highway at this location, a 175-foot-long viaduct would be constructed to span the compromised portion of the embankment under Highway 1 within the project limits. The structure would feature 12-foot lanes and 4-foot outside shoulders. A railing on the west side would protect vehicles and bicycles from leaving the new structure. A phone line buried along the northbound shoulder would be relocated so it is not in conflict with the project. All work would be conducted within Caltrans' existing easement. Construction is expected to take roughly one year to complete.



**Figure 3 Project location, February 2014**

### ***General Plan Description and Zoning***

The project is located within the Monterey County's Big Sur Coast Land Use Plan in an area designated as Forest and Upland Habitat. The area is zoned as RC-D(CZ) (Resource Conservation [Coastal Zone] with combining district Design Control.) The Landels-Hill Big Creek Reserve and the Big Creek State Marine Reserve are considered Environmentally Sensitive Habitats per the local Land Use Plan. The project is also in the coastal zone.

***Other Public Agencies Whose Approvals Are Required***

Because the project area is within the coastal zone, a coastal development permit would be acquired from the California Coastal Commission.

If approved, the project would be submitted to the California Transportation Commission for programming and funding allocation. The current project cost is \$3 million; it is programmed in the State Highway Operation and Protection Program, commonly referred to as the SHOPP, for the 2014/15 fiscal year.

## Section 2 Environmental Factors Potentially Affected

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The environmental factors checked below could cause an effect or would be potentially affected by this project.

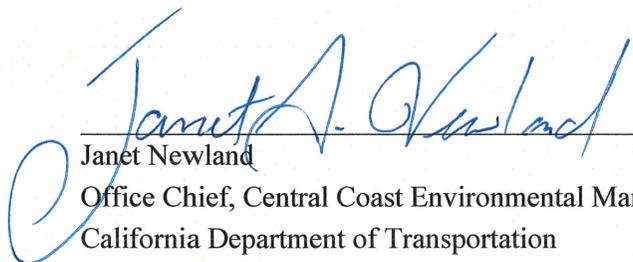
- Aesthetics
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology/Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
-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

## Section 3 Determination

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On the basis of this determination:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

  
\_\_\_\_\_  
Janet Newland  
Office Chief, Central Coast Environmental Management  
California Department of Transportation

4-17-2014  
Date

## Section 4     Impacts Checklist

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The impacts checklist starting on the next page identifies physical, biological, social, and economic factors that might be affected by the project. Direct and indirect impacts are addressed in checklist items I through XVII. Mandatory Findings of Significance are discussed in item XVIII. The California Environmental Quality Act impact levels include “potentially significant impact,” “less than significant impact with mitigation,” “less than significant impact,” and “no impact.”

A brief explanation of each California Environmental Quality Act checklist determination follows each checklist item. Lengthy explanations, if needed, are provided after the checklist.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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**I. AESTHETICS** — Would the project:

- a) Have a substantial adverse effect on a scenic vista?

*Explanation:* The project would remove the existing traffic-control equipment (concrete barrier, traffic signal, signs) that is in place, which would improve the scenic view. The final project would not affect the ocean view; the structure would be a subordinate element within the larger viewshed. (Source: Scenic Resource Evaluation and Visual Analysis, April 2014.)

- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

*Explanation:* No individual scenic resources as defined by CEQA would be affected by construction of the project. There are no historic buildings within the project limits. (Source: Scenic Resource Evaluation and Visual Analysis, April 2014; Screened Undertaking memorandum, February 2014.)

- c) Degrade the existing visual character or quality of the site and its surroundings?

*Explanation:* Any time a new structure is constructed on this highway, there is a change in character—sometimes minor, sometimes more substantial. This project's features would be consistent with viewers' expectations along this section of the travel corridor and the change in character would be minimal. See *Additional Explanations for Questions in the Impacts Checklist* for more information. (Source: Scenic Resource Evaluation and Visual Analysis, April 2014.)

- d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

*Explanation:* There could be an increase in glare due to the additional metal components of the viaduct, such as metal bridge railing. All project features would be treated to reduce reflectivity by coloring, staining and rough-textured finishing. Glare is expected to be minimal. (Source: Scenic Resource Evaluation and Visual Analysis, April 2014.)

**II. AGRICULTURE AND FOREST RESOURCES** —

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

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* There is no farmland in the project area. (Source: Monterey County land use designations.)

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* There is no zoning for agriculture or Williamson Act properties in the project area. (Source: Monterey County land use designations.)

c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* There would be no conflict with the current zone nor would the project require rezoning. (Source: project description.)

d) Result in the loss of forest land or conversion of forest land to non-forest use?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* All work would occur within the existing highway easement. (Source: project plans.)

e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* There would be no land conversion required. There is no farmland in the project area. (Source: project plans; Monterey County land use designations.)

**III. AIR QUALITY** — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* Because this is a safety project, no review was conducted for its compatibility with air quality plans. However, due to the small area of disturbed ground that would be generated by the project, it is not expected to be in conflict with any applicable air quality plan. The project would have no permanent adverse impacts to air quality; removing the temporary signal and restoring the highway to its normal capacity would reduce pollutants currently generated by idling vehicles. During construction, the contractor would have to comply with emissions thresholds and follow Caltrans standard practices that pertain to air quality control. (Source: personal communication with Ken Romero, Senior Transportation Engineer, April 2014.)

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

*Explanation:* See response to (a) above. Compliance with Caltrans standard practices would prevent violations of air quality standards. There are no existing violations at this location. (Source: personal communication with Ken Romero, Senior Transportation Engineer, April 2014.)

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)?

*Explanation:* Although Monterey County is in non-attainment for ozone and PM<sub>10</sub> (dust), all air quality impacts will occur from construction activities and will be temporary. Attainment thresholds are assessed by region. Caltrans' standard specifications would ensure that construction emissions would be negligible and not be a prominent contributor to threshold calculations. (Source: personal communication with Ken Romero, Senior Transportation Engineer, April 2014.)

d) Expose sensitive receptors to substantial pollutant concentrations?

*Explanation:* The project would generate air pollutants during construction. The exhaust from construction equipment contains hydrocarbons, oxides of nitrogen, carbon monoxide, suspended particulate matter (fine dust), and odors. The largest percentage of pollutants would be windblown dust generated during excavation, grading, hauling, and various other activities. The impacts of these activities would vary each day as construction progressed. Dust and odors generated during construction are not expected to reach permanent inhabitants; those affected would be the travelling public as they drive or cycle through the construction area.

The contractor would have to comply with emissions thresholds and follow Caltrans standard practices that pertain to air quality control. These conditions should effectively reduce and control emissions impacts during construction. (Source: personal communication with Ken Romero, Senior Transportation Engineer, April 2014.)

e) Create objectionable odors affecting a substantial number of people?

*Explanation:* See response to (d) above. Construction equipment would generate odors that could be detected by nearby residents and travelers on the highway. (Source: personal communication with Ken Romero, Senior Transportation Engineer, April 2014.)

**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

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

*Explanation:* The project would impact habitat for Smith’s blue butterfly (federally endangered). Further discussion follows this checklist under *Additional Explanations for Questions in the Impacts Checklist*. (Source: Natural Environment Study, March 2014.)

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?

*Explanation:* There is no riparian habitat present within the project's area of impact. Most of the vicinity is bare rock, with some patches of coastal scrub and ruderal communities. None of these is considered sensitive. (Source: Natural Environment Study, March 2014.)

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?

*Explanation:* There are no federally jurisdictional wetlands in the project area. (Source: Natural Environment Study, March 2014.)

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?

*Explanation:* See response to question (a) above.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

*Explanation:* The proposed project does not appear to conflict with any local policies or ordinances. The project would be subject to a Coastal Development Permit administered by the California Coastal Commission. As part of the permitting process, the Commission would review the project for compliance. (Source: Big Sur Coast Land Use Plan, amended January 1996.)

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?

*Explanation:* There are no conservation plans applicable to this location. See response to question (e) above.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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**V. CULTURAL RESOURCES** — Would the project:

- a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

*Explanation:* No historic properties are present within the project Area of Potential Effects. Big Creek Bridge is eligible for the National Register of Historic Places, but will not be affected by the project. (Screened Undertaking memo, February 3, 2014; Caltrans' Structures Maintenance and Investigations bridge list for historical significance, January 2014.)

- b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?     Archaeological resources are considered “historical resources” and are covered under question V(a).

- c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

*Explanation:* There is no probability of encountering sensitive paleontological resources with this project. (Memorandum on paleontology findings, January 30, 2014.)

- d) Disturb any human remains, including those interred outside of formal cemeteries?

*Explanation:* Human remains fall under the category of historic properties. Based on a field visit, review of design plans, and a review of cultural resources on file, the project has no potential to affect historic properties. (Screened Undertaking memo, February 3, 2014.)

**VI. GEOLOGY AND SOILS** — Would the project:

- a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

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

*Explanation:* The site is not located within the Earthquake Fault Hazard Zone in California. The potential for surface fault rupture hazard is considered low. (Source: personal communication with Dan Appelbaum, Caltrans Geotechnical engineer, March 6, 2014.)

- ii) Strong seismic ground shaking?

*Explanation:* The project site is potentially subject to strong ground motions from earthquakes. The viaduct would be designed to withstand ground movement in accordance with Caltrans policy and all applicable building codes. (Source: personal communication with Dan Appelbaum, Caltrans Geotechnical engineer, March 6, 2014.)

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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iii) Seismic-related ground failure, including liquefaction?

*Explanation:* The potential for soil liquefaction due to strong ground shaking is considered low due to the shallow depth of bedrock. (Source: personal communication with Dan Appelbaum, Caltrans Geotechnical engineer, March 6, 2014.)

iv) Landslides?

*Explanation:* The project was initiated to address a gradual loss of roadway embankment due to erosion and slope failures. The proposed viaduct will be designed to span the unstable slope area, protecting the road from future damage. (Source: personal communication with Dan Appelbaum, Caltrans Geotechnical engineer, March 6, 2014.)

b) Result in substantial soil erosion or the loss of topsoil?

*Explanation:* The soil makeup, coupled with steep slopes and wave action, has resulted in a continual process of natural erosion of the hillside both above and below the highway. The project has been designed to minimize disturbance on the ground and to resist the affects of future erosion. (Source: project design; memorandum on embankment stability, October 2013.)

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?

*Explanation:* See explanations above for questions (a) iii and iv and question (b). Geologic maps indicate that the project site is underlain by landslide deposits and Franciscan Complex. Field investigations reveal that the roadway in the project area was constructed on a man-made fill. The fill is unstable due to ocean wave action at the toe of the slope, and erosion from precipitation runoff and subsurface water. The project would stabilize the roadway by moving it onto a structure that would span the unstable section of the fill. (Source: personal communication with Dan Appelbaum, Caltrans Geotechnical engineer, March 6, 2014.)

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.

*Explanation:* Soil at the project site is primarily fill and landslide debris overlying metamorphic bedrock. The fill and landslide debris consist of boulders, cobbles, and gravel in a clayey sand matrix. The material is not expansive. (Source: personal communication with Dan Appelbaum, Caltrans Geotechnical engineer, March 6, 2014.)

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?

*Explanation:* This question is not applicable to the project as there are no septic tanks or wastewater disposal systems included in the project.

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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**VII. GREENHOUSE GAS EMISSIONS:** Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in Appendix A of the environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and CEQA significance, it is too speculative to make a significance determination on the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in Appendix A of the environmental document.

**VIII. HAZARDS AND HAZARDOUS MATERIALS —**  
Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

*Explanation:* There are no nearby hazardous waste sites or businesses commonly associated with hazardous waste generation. (Source: Initial Site Assessment, January 2014.)

- 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?

*Explanation:* The use or transport of hazardous materials is not included with this project, therefore an accident is unlikely to occur. (Source: project description; Initial Site Assessment January 2014.)

- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

*Explanation:* There are no schools, proposed or existing, within one quarter mile of the project. (Source: Monterey County map.)

- d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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*Explanation:* The location is not on any list of hazardous material sites. (Source: Initial Site Assessment January 2014.)

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?

*Explanation:* The location is not within an airport land use plan or within two miles of an airport. (Source: Monterey County map.)

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?

*Explanation:* The location is not within the vicinity of a private airstrip. (Source: Monterey County map.)

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

*Explanation:* At least one lane of traffic would be open during most of the construction period and there would be temporary full closures of up to 10 hours. Access for emergency vehicles either will be provided or a contingency plan will be implemented for alternative services from either side of the project. (Source: personal communication with Neil Weller and Hernan Perez, Caltrans Division of Engineering Services, March 2014 and Dan Miller, Caltrans Construction Senior Engineer, April 2014.)

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?

*Explanation:* There is no component of the project that would increase the fire risk. For construction, the contractor must provide a fire plan and jobsite fire protection. (Source: project description; Caltrans policy.)

**IX. HYDROLOGY AND WATER QUALITY —**

Would the project:

a) Violate any water quality standards or waste discharge requirements?

*Explanation:* There are no waterways within the project limits. Discharge would consist of normal highway runoff. There are no changes anticipated in the discharge system. In addition, the contractor would be required to prepare a Water Pollution Control Plan prior to construction and abide by Caltrans Standard Specifications related to water quality during construction. (Source: project design; water study memorandum, February 2014.)

b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such

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

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* There would be no water usage on the project. (Source: project plans.)

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The only established drainage pattern in the area handles highway runoff. This system would not be altered. (Source: project design; field survey)

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 off-site?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* See response to question (c) above.

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would result in an increase in impermeable surface area of approximately 6800 square feet. The increase in flow would be minimal and the existing stormwater drainage system is considered adequate. (Source: Storm Water Data Report.)

f) Otherwise substantially degrade water quality?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* See response to question (a) above.

g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* Housing construction or relocation is not included in the project. (Source: project description.)

h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project is not located within a 100-year flood hazard area. (Source: FEMA map.)

i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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flooded as a result of the failure of a levee or dam?

*Explanation:* The project area is on a steep slope ranging in elevation from 107 feet to 140 feet above sea level, and there are no flooding sources nearby. (Source: project plans.)

j) Result in inundation by a seiche, tsunami, or mudflow?

*Explanation:* There would be no change to the highway elevation. There would be no increase in the existing risk of inundation, however the highway would be better able to survive the disaster. (Source: project plans.)

**X. LAND USE AND PLANNING** — Would the project:

a) Physically divide an established community?

*Explanation:* There would be no change in the spatial relationship of the highway to residences or businesses. (Source: project description)

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?

*Explanation:* The project would require a coastal development permit from the California Coastal Commission prior to construction. As part of the permitting process, the Commission would consult with Monterey County regarding compliance with local plans. As a permit condition, the Commission might require additional measures and/or refinement of some aspects of the project, such as aesthetic treatment, which would be incorporated. Further discussion follows this checklist under *Additional Explanations for Questions in the Impacts Checklist*.

**XI. MINERAL RESOURCES** — Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

*Explanation:* The project would not result in substantial quantities of excavated haul-off. (Source: project plans.)

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?

*Explanation:* There are no known mineral resource recovery sites in the project area. (Source: project plans.)

**XII. NOISE** — Would the project result in:

a) Exposure of persons to or generation of noise levels

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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*Explanation:* The contractor would be required to abide by the local noise ordinance to the extent practicable. Further discussion follows this checklist under *Additional Explanations for Questions in the Impacts Checklist*. Because the project is subject to a coastal development permit, Caltrans would be subject to all standards in the Monterey County Big Sur Coast Land Use Plan.

b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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*Explanation:* Though the project would involve earth-moving and subsurface activities, these are not expected to cause excessive disturbance. Further discussion follows this checklist under *Additional Explanations for Questions in the Impacts Checklist*.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would not add any permanent noise source. (Source: project description)

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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*Explanation:* During construction, there is the potential to temporarily disturb nearby residents through an increase in ambient and periodic noise levels that could be substantial at times. Further discussion follows this checklist under *Additional Explanations for Questions in the Impacts Checklist*.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project is not located within an airport land use plan or within two miles of an airport. (Source: Monterey County GIS data; Google Earth)

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project area is not within the vicinity of a private airstrip. (Source: Google Earth)

**XIII. POPULATION AND HOUSING** — Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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extension of roads or other infrastructure)?

*Explanation:* The project has no growth-inducing components. (Source: project description)

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

*Explanation:* The project would not remove any housing. (Source: project description; project plans)

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

*Explanation:* The project would not displace any people. (Source: project description; project plans)

**XIV. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*Explanation:* During construction, there could be delays for emergency response vehicles due to temporary road closures. The final project could improve response times for emergency vehicles and school busses because its purpose is to permanently repair a portion of the highway that has required frequent maintenance efforts and has currently failed. Both maintenance efforts and highway failure can impede traffic flow. The project would reduce the likelihood of either. (Source: project description)

**XV. RECREATION —**

a) Would the project increase the use of existing

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would have no impact on recreational facilities. (Source: project description)

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?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would have no impact on recreational facilities. (Source: project description)

**XVI. 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)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would not add capacity to the highway or increase traffic. (Source: project description)

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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*Explanation:* The highway is currently limited to one lane, with two-way traffic controlled by a temporary signal. The project would correct this situation and re-open the highway to two full lanes. During construction, there would be temporary road closures of 8 to 10 hours. These closures would be timed to have the least impact on traffic, likely occurring at night, and would be advertised in the media in advance. (Source: project description; personal communication with Neil Weller and Hernan Perez, Caltrans Division of Engineering Services, March 2014.)

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would have no effect on air traffic. (Source: project description)

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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*Explanation:* The project would improve road safety by stabilizing this section and providing wider shoulders. All standard safety design features would be included. (Source: project description; project plans)

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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e) Result in inadequate emergency access?

*Explanation:* Emergency response vehicles could be delayed during construction, but a contingency plan would be prepared prior to road closure in cooperation with the affected agencies. (Source: personal communication with Dan Miller, Caltrans Construction Senior Engineer, April 2014.)

f) Result in inadequate parking capacity?

*Explanation:* There is no parking need within the project limits. (Source: project mapping; field review)

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

*Explanation:* The project includes widening the roadway shoulders to 4 feet, which would accommodate cyclists and pedestrians. (Source: project plans)

**XVII. UTILITY AND SERVICE SYSTEMS** — Would the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

*Explanation:* There is no wastewater treatment included in the project. (Source: project description)

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?

*Explanation:* There would be no requirement for water or additional source of wastewater as a result of the project. (Source: project description)

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?

*Explanation:* The existing stormwater drains would be modified to service the new roadway and viaduct. All work would be within the area of disturbance for the project; there would be no additional environmental impacts as a result of the modifications. (Source: project mapping)

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

*Explanation:* There is no water service required for the project. (Source: project description)

e) Result in a determination by the wastewater treatment provider that serves or may serve the project

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments?

*Explanation:* There would be no wastewater treatment provider required for the project. (Source: project description)

f) Be served by a landfill with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?

*Explanation:* The majority of material from the project would either be reused on site (dirt) or taken to a recycling facility (old asphalt concrete, metal). Anticipated trash haul off from the project would be in the vicinity of 10-20 cubic yards. (Source: personal communication with D. Miller, Senior Transportation Engineer, Caltrans Construction, February 2014.)

g) Comply with federal, state, and local statutes and regulations related to solid waste?

*Explanation:* The contractor would be required to abide by all laws and regulations, as well as all Caltrans standard specifications pertaining to hazardous waste. (Source: personal communication with District Hazardous Waste Coordinator, February 2014.)

**XVIII. MANDATORY FINDINGS OF SIGNIFICANCE —**

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, 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?

*Explanation:* The project would reduce the habitat for Smith’s blue butterfly, a federally endangered species, by disturbing an area of its natural habitat. Further discussion follows this checklist under *Additional Explanations for Questions in the Impacts Checklist*, Biological Resources.

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)?

*Explanation:* Due to the rural area and steep, unstable terrain, coupled with Big Sur Coast Land Use Plan policies that limit development, there is little development or construction within a wide area around the project location. There are no known nearby projects. Therefore, there are no cumulative impacts anticipated. (Source: Google Earth; Big Sur Coast Land Use Plan.)

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
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c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

*Explanation:* The final project would have no adverse effects on humans. Construction activities have the potential to cause nuisance effects from noise, dust, and traffic delays. None of these are expected to be substantial nor significant. Further discussion can be found under the checklist questions for these topics. (Source: environmental technical documents prepared for this project; environmental analysis of project conducted by Caltrans staff throughout 2014.)

## **Additional Explanations for Questions in the Impacts Checklist**

### ***Aesthetics*** (checklist item I, question c)

*Source: Scenic Resource Evaluation and Visual Analysis, April 2014.*

#### ***Affected Environment***

Highway 1 through the project limits is classified as an All-American Road in the National Scenic Byway system (their highest ranking), and is a Designated State Scenic Highway, the first to be so designated in California. Though views are often obliterated by dense fog, on clear days drivers have mid-ground and horizon-line views of the ocean. Drivers in the southbound direction also have intermittent panoramic views of the coastline, but the cliffs are too steep to provide views of the beach.

Although the coastline in this area is visually dynamic, with dramatic cliffs above and below the highway, overall visual quality within the project limits is only moderately high. The steep slopes are sparsely vegetated; above the highway the steel ring rock net cantilevers out from the slope irregularly and detracts from the view. The traffic signal system and temporary concrete safety rail currently in place for the alternating single lane is bulky and unnatural, and lowers visual quality.

#### ***Environmental Consequences***

The project would not adversely affect any Designated Scenic Resource as defined by California Environmental Quality Act guidelines or by Caltrans policy. Widening the highway for the length of the viaduct and the pavement conforms would not have a large effect on the scale or character of Highway 1. The most visible element of the project would be the tubular steel railing, since the viaduct itself would not be visible from a motorist's perspective. The viaduct would be visible from the small, informal turnouts at each end, but would not be visible from any private or formal public areas. Distant views to the project area are blocked by intervening topography.

#### ***Avoidance and Minimization Measures***

The viaduct would include an open railing, Type ST-70, to optimize ocean views. Type ST-70 is made of horizontal tubular steel rails with concrete anchor blocks on each end. It is the only open-rail safety barrier that meets all of the highway safety standards, and has been approved by the California Coastal Commission for use on Highway 1. An example of the ST-70 is shown in Figure 4, as used on the Highway 1 Rocky Creek viaduct, about 32 miles north of the Cow Cliffs location. The steel railing would be treated to darken and dull the galvanized finish, giving it a rustic

brown color and reducing its prominence in the overall viewshed. The same treatment would be applied to all of the project's galvanized steel safety devices. The concrete anchor blocks would receive architectural treatment and a date stamp, similar to that shown in the example.



**Figure 4 Type ST-70 Bridge Rail on Rocky Creek Viaduct, Monterey**

***Biological Resources*** (checklist item IV, questions a and d)

Source: *Natural Environment Study, March 2014.*

***Affected Environment***

The existing natural habitat consists of coastal scrub and ruderal vegetation growing along steep, rocky slopes. The project is within the known range of the federally endangered Smith's blue butterfly. Individuals spend their entire lives in association with seacliff buckwheat (*Eriogonum parvifolium*), typically remaining within 200 feet of their host plant. Seacliff buckwheat commonly grows in recently disturbed locations, such as in landslide areas; the plant occurs within the project area in the ruderal communities and disturbed portions of coastal scrub. Clumps and individual plants were found both above and below the roadway.

Habitat for Hutchison's larkspur (*Delphinium hutchinsoniae*) is present at the project location. Hutchison's larkspur is classified as a 1B.2 plant (rare, threatened, or endangered elsewhere; fairly endangered in California) by the California Native Plant Society. A survey done in April 2014 did not find the plant present at the project site.

The American peregrine falcon (*Falco peregrinus anatum*) is listed by the California Department of Fish and Wildlife as a Fully Protected species. Their nest sites are generally located on steep cliff systems, but can also be found in stick nests made by other birds, such as red-tailed hawks, or upon man-made structures. No nesting sites were found in the project area, but an adult female was observed flying in the vicinity, indicating that she is using the area for foraging.

Remnants of a large stick nest were seen on Big Creek bridge in February of 2014, but the nest did not appear to be in use and the associated species is unknown.

### *Environmental Consequences*

The proposed project would temporarily impact less than one quarter of an acre of coastal scrub habitat and permanently impact about 1300 square feet. This would include the loss of an estimated 6 seacliff buckwheat plants, which could result in injury or death to various life stages of Smith's blue butterfly.

The project is not expected to affect the American peregrine falcon.

### *Avoidance and Minimization Measures*

Except as noted, conditions have been included in the project design to remediate potential impacts to biological resources that could result if the proposed project were built.

The following general avoidance and minimization measures would be implemented:

1. Avoidance and minimization of ground disturbance due to project-related actions will be achieved with the establishment of Environmentally Sensitive Areas. The Environmentally Sensitive Areas will ensure that unnecessary disturbance does not occur outside of the project limits. Environmentally Sensitive Area limits will be depicted on the final layout plans.
2. Five days prior to the beginning of work, the Resident Engineer shall meet with the Project Biologist in the field at the project site for the identification of select

locations where Environmentally Sensitive Area fence and flagging shall be incorporated.

3. All equipment staging and material storage, stockpile, disposal, and borrow sites must be inspected for potentially sensitive biological resources prior to use or equipment mobilization. If sites are selected other than those already designated on the approved project plans, the Resident Engineer shall contact the environmental planning Construction Liaison or Project Biologist no less than two weeks prior to use of equipment staging and material storage, stockpile, disposal, and borrow sites. If sensitive biological resources are found at such sites, then new locations shall be selected.
4. Temporary effects to water quality will be avoided by implementing the best management practices from Caltrans' National Pollution Discharge Elimination System permit. These standard best management practices will be employed to prevent direct or indirect impacts to the Pacific Ocean.
5. A Caltrans biologist or qualified representative will provide brief worker's training and/or informational material to be used in identifying California condors, protocols for responding to their presence within the construction site if they arrive, and notification procedures. In the unlikely event that California condor are observed within the construction area, all work shall cease within 250 feet of the animals until the animals leave the area on their own. The Resident Engineer shall notify the Caltrans Construction Liaison and/or the Caltrans biologist immediately.

The following avoidance and minimization measures would be implemented for Smith's blue butterfly in accordance with the U.S. Fish and Wildlife Service's Programmatic Biological Opinion:

6. Caltrans will ensure that all construction activities follow well-defined procedures to avoid effects to the Smith's blue butterfly.
7. Caltrans will prohibit mowing and broadcast spraying of herbicide in stands of buckwheat. Within areas that contain buckwheat, control of invasive weeds, which is beneficial to buckwheat, will be achieved by spot spraying herbicide and/or hand clearing.

8. Caltrans will ensure that only biologists approved by the U.S. Fish and Wildlife Service (Service) will participate in the capture, handling, and monitoring of the Smith's blue butterfly in all of its life stages and the handling of buckwheat plants.
9. Caltrans will ensure that ground disturbance for maintenance or project activities will not begin within stands of buckwheat until a Service-approved biologist is on site.
10. Service-approved biologists will verify that the proposed work activity within stands of buckwheat meets all criteria established by the Service.
11. For maintenance work or project activity within stands of buckwheat, a Service-approved biologist will survey the work site no more than 30 days before the onset of ground disturbance. If any life stage of the Smith's blue butterfly or its host plant, seacliff buckwheat, is found and is likely to be killed or injured by work activities, the approved biologist will be allowed sufficient time to relocate seacliff buckwheat plants, duff, and/or soil from the site before work activities begin. The seacliff buckwheat plants, duff, and/or soil will be hand removed and placed as close as possible to, but not on, living seacliff buckwheat plants. The Service-approved biologist will relocate the seacliff buckwheat plants, duff, and/or soil the shortest distance possible to a location that contains suitable habitat and will not be affected by activities associated with the proposed project. The Service-approved biologist will maintain detailed records of the number of seacliff buckwheat plants that are moved.
12. Before any maintenance or project activity work begins within stands of buckwheat, a Service-approved biologist will provide training to all field personnel. At a minimum, the training will include a description of the Smith's blue butterfly and its habitat, the specific measures that are being implemented to conserve the Smith's blue butterfly, and boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
13. A Service-approved biologist will be present at the work site for maintenance or project activity within stands of buckwheat until all Smith's blue butterflies and seacliff buckwheat plants that are at risk due to project activities have been removed, workers have been instructed, and disturbance to habitat has been completed. After this time, Caltrans will designate a person to monitor on-site

compliance with all minimization measures. The Service-approved biologist will ensure that this monitor receives the training outlined in measure 11 and in the identification of the Smith's blue butterfly and seacliff buckwheat. If the monitor or the Service-approved biologist recommends that work be stopped because the Smith's blue butterfly or seacliff buckwheat would be affected to a degree that exceeds the levels anticipated by Caltrans and the Service during review of the proposed action, they will notify the Resident Engineer immediately. The Resident Engineer will either resolve the situation by eliminating the unanticipated effect(s) immediately, or require that all actions causing these effects be halted. If work is stopped, the Service will be notified as soon as is reasonably possible.

14. Seacliff buckwheat seed or plants will be placed outside the vegetation control areas only. The spread of invasive weeds during revegetation efforts will be controlled according to the Vegetation Management Guidelines developed as part of the Big Sur Coast Highway Management Plan.
15. The number of access routes, size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Environmentally Sensitive Areas will be established to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize impact to Smith's blue butterfly and seacliff buckwheat.
16. If feasible, the contractor will avoid clearing and grubbing coastal scrub in the areas for temporary road access. Coastal scrub vegetation will be cut down to ground level, to allow for regrowth of natural vegetation and reduce the potential for invasive species.
17. Caltrans will ensure that best management practices are implemented according to the most current approved guidelines to control erosion and sedimentation during and after project implementation. Weed-free hay and straw bales would be used for erosion control measures when they become available.

The following avoidance and minimization measures would be implemented for nesting birds:

18. Vegetation removal shall be scheduled to occur between September 1 and February 14 (outside of the typical nesting season) if possible, to avoid potential impacts to nesting birds within the project area.
19. If construction activities are proposed to occur between February 15 and August 31 (the typical nesting season) within potential nesting habitat within the project area, a nesting bird survey shall be conducted by a qualified biologist at least two weeks prior to construction to determine presence/absence of nesting birds within the project area. Work activities shall be avoided within 100 feet of active bird nests until a qualified biologist has determined that young birds have fledged. Readily visible exclusion zones shall be established in areas where nests must be avoided. The U.S. Fish and Wildlife Service and California Department of Fish and Wildlife shall be contacted for additional guidance if nesting birds are observed within or near the boundaries of the project site. Active nests shall not be disturbed; eggs or juveniles covered by the Migratory Bird Treaty Act and/or the California Fish and Wildlife Code shall not be killed, injured, or harassed at any time.

**Noise** (*checklist items VII, questions a, b, and d*)

*Source: Monterey County Code of Ordinances; project plans; Google Earth.*

*Affected Environment*

The project vicinity is sparsely populated, which greatly reduces the number of noise receptors that could be bothered by construction noise. The only potential noise receptors are the employees and residents of the Landels-Hill Big Creek Reserve. The Reserve maintains a resident manager, as well as periodic visiting scientists who reside at the facility. There are no other known noise receptors in the area.

*Environmental Consequences*

A number of construction activities and equipment are likely to produce noise that could cause a disturbance, such as vehicles (including backup alarms), drills, pounding, and earth movement. Between the elevation change and lack of direct path between the construction location and the Reserve, construction noise is not expected to be a disturbance to the majority of the facility during either day or nighttime activities. Receptors within the structures in High Camp (south of the project and atop the nearest hill) could be more susceptible.

### *Avoidance and Minimization Measures*

The following measures would be included in the project to reduce impacts from construction noise:

- Manufacturer-recommended mufflers would be fitted to all equipment in use.
- To the extent practicable, Section 10.60.030 of the Monterey County Code of Ordinances (Health and Safety ) would be observed. This section states, “No person shall, within the unincorporated limits of the County of Monterey, operate any machine, mechanism, device, or contrivance which produces a noise level exceeding eighty-five (85) dbA measured fifty (50) feet therefrom.”
- The manager of the Landels-Hill Big Creek Reserve would be notified in advance of the construction schedule and provided the Resident Engineer's contact information for any issues that might arise during construction.

## Section 5 List of Preparers

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The following Caltrans staff were principally responsible for preparation of this Initial Study:

Appelbaum, Dan, Transportation Engineer (Geotechnical Design). B.S. Civil Engineering; 13 years experience in geotechnical engineering. Contribution: Preliminary Geotechnical Report.

Erwin, Joseph, P.E., Transportation Engineer. B.S. Civil Engineering; 8 years experience in civil engineering. Contribution: project design.

Huddleston, Paula, Associate Environmental Planner. B.A. Anthropology; 23 years experience in environmental impacts analysis. Contribution: environmental studies coordination and research; document processing.

Parker, Bryan, Landscape Architect, Registered. B.S. Landscape Architecture; 23 years experience in landscape architecture for transportation facilities. Contribution: Scenic Resource Evaluation and Visual Analysis report.

Walth, Jimmy, Associate Environmental Planner (Natural Sciences). M.S. Biological Science; 11 years experience in biological sciences. Contribution: Natural Environment Study.

Other project team members include:

Bonner, Larry, Senior Environmental Planner. B.S. Natural Resource Management; 16 years of experience in environmental analysis.

Dostalek, Ken, Project Manager. B.S. Civil Engineering; 8 years of experience in project management.

Fowler, Matt, Senior Environmental Planner. B.A. Geographic Analysis; 13 years of experience in environmental analysis.

Kiaha, Krista, Associate Environmental Planner (Cultural Resources). B.S. Anthropology; M.S. Anthropology; 17 years cultural resource management experience in California, Great Basin and Pacific Islands.

Levulett, Valerie A., Senior Environmental Planner. Ph.D. Anthropology; 42 years of experience in cultural resource studies.

Leyva, Isaac, Engineering Geologist. B.S. Geology; 24 years of experience in petroleum geology, environmental, and geotechnical engineering.

Tkach, James, Transportation Engineer. B.S. Soil Science; 24 years experience in hazardous waste management.

Wyatt, Steve, P.E., Senior Transportation Engineer. B.S. Civil Engineering; 26 years of experience in civil engineering.

## Section 6                      Public Involvement

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The official State agency comment period for the draft environmental document was May 1, 2014 to May 21, 2014, as set by the Governor's Office of Planning and Research. In preparation for the public comment period, Caltrans sent a news release with project information to a wide range of resources: local media including TV, radio, and newspapers; government officials; environmental groups; interested citizens; and others. In addition, the draft environmental document was direct-mailed to the local and headquarters representatives of the Landels-Hill Big Creek Preserve (the adjacent property.)

No comments were received during the comment period and there were no requests for a public hearing.

## Appendix A Climate Change

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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 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 by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to greenhouse gas emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of greenhouse gas generated by human activity including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF<sub>6</sub>), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of greenhouse gas 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 greenhouse gas emitting sources. The dominant greenhouse gas emitted is CO<sub>2</sub>, 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 greenhouse gas 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)<sup>1</sup>.

There are four primary strategies for reducing greenhouse gas emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing growth of vehicle miles traveled (VMT), 3) transitioning to lower greenhouse gas 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 greenhouse gas emissions from transportation sources.

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<sup>1</sup> [http://climatechange.transportation.org/ghg\\_mitigation/](http://climatechange.transportation.org/ghg_mitigation/)

## **Regulatory Setting**

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

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board to develop and implement regulations to reduce automobile and light truck greenhouse gas emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

Executive Order (EO) S-3-05 (June 1, 2005): the goal of this EO is to reduce California's greenhouse gas 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.

Assembly Bill 32, the Global Warming Solutions Act of 2006, Núñez and Pavley: this assembly bill sets the same overall greenhouse gas emissions reduction goals as outlined in EO S-3-05, while further mandating that the California Air Resources Board 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): this order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (signed on January 18, 2007): this order 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 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007: This bill 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.

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

Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: this bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

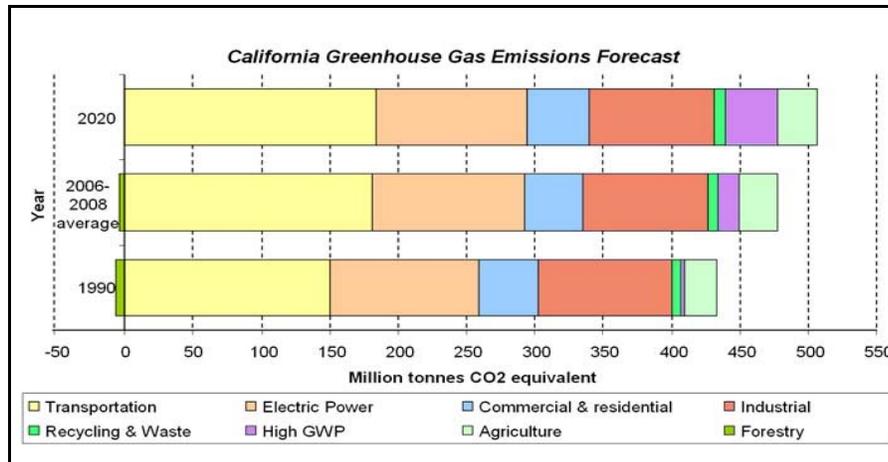
### ***Project Analysis***

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of greenhouse gas.<sup>2</sup> 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 greenhouse gas emissions. As part of its supporting documentation for the Draft Scoping Plan, the California Air Resources Board released the greenhouse gas inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the greenhouse gas inventory for 2006, 2007, and 2008.

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<sup>2</sup> This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze greenhouse gas 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 Guide*, April 2011) and the US Forest Service (*Climate Change Considerations in Project Level NEPA Analysis*, July 13, 2009).



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

**Figure 4 California Greenhouse Gas Forecast**

Caltrans and its parent agency, the California State Transportation Agency, have taken an active role in addressing greenhouse gas emission reduction and climate change. Recognizing that 98 percent of California’s greenhouse gas emissions are from the burning of fossil fuels and 40 percent of all human made greenhouse gas emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.<sup>3</sup>

The proposed project would not increase the capacity of the highway, as it would maintain the same number of lanes and capacity as the existing roadway. Because the project would not increase capacity nor vehicle hours travelled, no increases in operational greenhouse gas emissions are anticipated. During construction, temporary signals will be used to regulate traffic. While construction emissions of greenhouse gases are unavoidable, the project would provide an overall long term public benefit through improved safety and operation of the highway.

### **Construction Emissions**

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction greenhouse gas 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. During construction, temporary signals will be used to regulate traffic. Vehicles idling at these signals and the

<sup>3</sup> 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](http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf)

presence of construction equipment could cause a temporary increase in the local concentrations of greenhouse gas emissions, but traffic volumes on this route are not heavy and therefore this increase is not expected to be substantial. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

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

### ***California Environmental Quality Act Conclusion***

While construction would result in a slight increase in greenhouse gas emissions during construction, Caltrans expects that there would be no operational increase in GHG emissions associated with this proposed project. However, it is Caltrans' determination that in the absence of further regulatory or scientific information related to greenhouse gas emissions and California Environmental Quality Act significance, it is too speculative to make a determination on the project's direct impact and its contribution on the cumulative scale to climate change. Nonetheless, Caltrans is taking further measures to help reduce energy consumption and greenhouse gas emissions. These measures are outlined in the following section.

### ***Greenhouse Gas Reduction Strategies***

#### ***AB 32 Compliance***

Caltrans continues to be involved on the Governor's Climate Action Team as the California Air Resources Board works to implement Executive Orders S-3-05 and S-01-07 and help to 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 Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in greenhouse gas emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO<sub>2</sub> reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as depicted in Figure 5, the Mobility Pyramid.



**Figure 5 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. Caltrans works closely with local jurisdictions on planning activities but does not have local land use planning authority. Caltrans 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. Environmental Protection Agency and the California Air Resources Board.

Caltrans is also working towards enhancing the State’s transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California’s future, statewide, integrated, multimodal transportation system. The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible greenhouse gas emission reductions while meeting the State’s transportation needs.

Table 2 summarizes agency and statewide efforts that Caltrans is implementing in order to reduce greenhouse gas emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

**Table 2 Climate Change/Carbon Dioxide (CO<sub>2</sub>) Reduction Strategies**

Strategy	Program	Partnership		Method/Process	Estimated CO <sub>2</sub> Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	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, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.045 0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
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 0.36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

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

- According to Caltrans’s Standard Specifications, the contractor must comply with all of the local Air Pollution Control District’s rules, ordinances, and regulations regarding to air quality restrictions.

**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.

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, then-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. In addition to addressing projected 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)<sup>4</sup>, 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 Caltrans 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

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<sup>4</sup> <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report<sup>5</sup> to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- 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.

In 2010, interim guidance was 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. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study. All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 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 on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data. 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.

The proposed project is located within the Coastal Zone on a steep slope approximately 120 feet above current sea level, although the piers supporting the viaduct would go considerably deeper. The expected serviceable life span of a viaduct structure is approximately 75 years. Given the projected increase in sea level

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<sup>5</sup> *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at [http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389).

estimated by the National Research Council (*Sea Level Rise for the Coasts of California, Oregon, and Washington, June 2012*) of up to 65 inches<sup>6</sup> for the year 2100, the highway at this location is not expected to be inundated at this location. The project design team has considered the various elements of sea level rise impact, including the potential of increased rates of bluff/bank erosion that could occur in the future, and have determined that the project will not be impacted, nor will it induce an impact to the site.

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 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 being conducted 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.

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<sup>6</sup> This represents the high end of the range of projections identified in the NRC 2012 report. Note that after mid-century, projections of SLR become more uncertain; and will vary with future projections due to modeling uncertainties as well as uncertainties regarding future global greenhouse gas emissions.