

Chapter 3 California Environmental Quality Act (CEQA) Evaluation

3.1 Determining Significance under CEQA

The proposed project is a joint project by Caltrans and the FHWA and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both CEQA and NEPA. FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 United States Code (USC) 327. Caltrans is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an environmental impact statement (EIS), or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of mandatory findings of significance, which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this environmental document. Discussion of all impacts, avoidance, minimization, and/or compensation measures is under the appropriate topic headings in Chapter 2. This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the project indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself.

The words “significant” and “significance” used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

I. Aesthetics	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III. Air Quality	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
When 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"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
IV. Biological Resources				
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
V. Cultural Resources				
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VI. Geology and Soils	Potentially Significant Impact	Less-than- Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

VII. Greenhouse Gas Emissions	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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?				
<p><i>An assessment of the greenhouse gas emissions and climate change is included in the body of environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.</i></p>				

VIII. Hazards and Hazardous Materials	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VIII. Hazards and Hazardous Materials		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
h.	Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

IX. Hydrology and Water Quality		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
a.	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in 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"/>
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 onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding onsite or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i.	Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j.	Contribute to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

X. Land Use and Planning	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XI. Mineral Resources	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XII. Noise	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in 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"/>

		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XII. Noise					
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and 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"/>
f.	Be located in the vicinity of a private airstrip and 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"/>

		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIII. Population and Housing					
Would the project:					
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XIV. Public Services					
Would the project:					
a.	Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a 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 following public services:				
	Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XV. Recreation				
Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. 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 checked="" type="checkbox"/>	<input type="checkbox"/>

	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
XVI. Transportation/Traffic				
Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

XVII. Utilities and Service Systems	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

XVIII. Mandatory Findings of Significance	Potentially Significant Impact	Less-than-Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.2.1 Discussion of Significance of Impacts

3.2.1.1 Less-than-Significant Effects of the Proposed Project

Air Quality

Expose sensitive receptors to substantial pollutant concentrations?

As described in Section 2.13, all three build alternatives would result in the temporary release in construction-related air pollution emissions and dust. Construction activities are subject to requirements found in the *Standard Specifications for Construction of Local Streets and Roads* (California Department of Transportation 2010). Implementation of Caltrans' Standard Specifications and measures to control dust during construction would help to minimize air quality impacts from construction activities. Refer to Section 2.13 for additional discussion of potential impacts on air quality.

Biological Resources

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?

As described in Sections 2.19 and 2.20, the movement of fish species present in Antelope Creek, Miners Ravine and Secret Ravine could be affected during work activities occurring in or near stream channels. Most adults and juveniles would be expected to move upstream or downstream of the immediate project area in response to disturbance. Displacement could reduce spawning success by causing adults to abandon redds or be delayed in reaching upstream spawning areas, and affect survival of young by increasing the exposure of juveniles to predators and possibly increasing competition with other juveniles, especially if suitable rearing habitat is limited or not readily available. Although juveniles are capable of actively moving away from disturbances, some juveniles may seek cover in active work areas, where they may be injured or killed by exposure to harmful levels of suspended sediment or other factors. Fry and small juveniles are at highest risk because of their tendency to hide in the substrate and reluctance to move away from protective nearshore habitat.

Short-term noise disturbance caused by construction vehicles and equipment, including drilling rigs and vibratory pile drivers, could occur during construction. The likely effects on adults, fry and juveniles would be avoidance of habitat adjacent to the construction area. Effects, however, are not expected to rise to a level that result in injury to or direct mortality of adults, fry or juveniles.

Cultural Resources

Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

There is one built resource within the project area that is considered to be a historical resource for the purposes of CEQA, a 300-foot, double-tracked segment of the First Transcontinental Railroad located directly under the SR 65/East Roseville Viaduct. Under any build alternative, impacts on the First Transcontinental Railroad segment would be less than significant. The build alternatives would not result in the demolition, destruction, relocation, or alteration of the historical resource or its immediate surroundings, and the character-defining features would remain intact. All three build alternatives would widen the existing SR 65/East Roseville Viaduct in the northbound and southbound directions and construct additional columns, introducing new visual elements to setting. However, these changes would not cause a substantial adverse change in the historical significance of this resource. Refer to Section 2.7 for additional discussion of potential impacts on cultural resources.

Greenhouse Gas Emissions

Refer to Section 3.3, “Climate Change,” below.

Hazards and Hazardous Materials

Would the project 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?

Humans and the environment could be exposed to hazardous conditions from the accidental release of hazardous materials during construction activities. Construction would involve the use of heavy equipment, involving small quantities of hazardous materials (e.g., petroleum and other chemicals used to operate and maintain construction equipment) that may result in hazardous conditions in the project area. Measures to help protect workers such as site assessment, soil testing, safe handling practices, proper disposal methods, and lead compliance training will also help keep the public safe from inadvertent exposure to hazards and hazardous wastes. These hazards are applicable to any of the build alternatives. Implementation of the avoidance and minimization measures described in Section 2.12, would reduce potential impacts regarding human or environmental contact with hazards and hazardous wastes.

Would the project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Antelope Creek Elementary School is located within 0.25 mile of the project area at 6185 Springview Drive in Rocklin, northeast of the project between Galleria Boulevard and Taylor Road. As noted above, there is the potential for accidental release of hazardous materials during construction-related activities. Implementation of the avoidance and minimization measures described in Section 2.12, as well as compliance with federal and state laws for handling and

disposal of hazardous wastes, would reduce these impacts. This impact would be less than significant.

Would the project 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?

As described in Section 2.12, three sites with potentially hazardous material conditions were identified within or immediately adjacent to the project area: Alta Sierra Body Shop and Venture Out Recreational Vehicles, and Roseville Golfand-Sunsplash. Disturbance of these areas could expose humans and the environment to contaminated soil during construction activities under all build alternatives. The Venture Out Recreational Vehicles site is not proposed for acquisition but is immediately adjacent to the project area. A release of gasoline in the past at this site would require soil testing for contaminants. Implementation of the measures to conduct a site assessment and perform soil testing would reduce this impact. This impact would be less than significant.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction of the project could result in some temporary disruptions to traffic flow, where temporary lane shifts or closures are required. During roadway construction, emergency vehicles may need to stop temporarily or slow in order to ensure that they can safely pass through the study area. The Transportation Management Center will be notified of all lane restrictions which might impact emergency response. Caltrans will notify all emergency services prior to construction so they can plan alternative routes, if necessary. A TMP would be prepared to minimize disruptions to traffic and to emergency services during construction. Measures included in the TMP are described in Section 2.4. Implementation of these measures would ensure that the project would not interfere with any emergency response or evacuation plans. This impact would be less than significant.

Hydrology and Water Quality

Would the project violate any water quality standards or waste discharge requirements?

Construction of the build alternatives would result in surface disturbance of approximately 147 acres (Alternatives 1) or 151 acres (Alternative 2) or 156 acres (Alternative 3). Construction-related activities have the potential to violate water quality standards or waste discharge requirements if sediment- or contaminant-laden runoff from disturbed work areas enters storm drains or other pathways leading to receiving waters, or if fuel or other construction chemicals are accidentally spilled or leaked into the water. These temporary construction-related impacts would be reduced to less-than-significant levels through compliance with Caltrans' NPDES permit and implementation of the SWPPP and BMPs.

Additionally, increased impervious surface area under the build alternatives would increase the runoff and sediment-laden stormwater and change the erosion and accretion patterns in the project area. Impervious area added by Alternatives 1, 2, and 3 would be approximately 30 acres,

28 acres, and 26 acres, respectively. Increased traffic loads could also increase pollutants in stormwater. Implementation of permanent design pollution prevention BMPs would reduce these impacts.

Would the project 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 onsite or offsite?

The build alternatives involve improvements over Miners Ravine and Antelope Creek but would not alter the course of these waterways. New onsite drainage systems would be installed and designed to maintain the existing drainage patterns. Measures described in Section 2.9 would protect water quality from erosion and siltation impacts. This impact would be less than significant.

Would the project 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 onsite or offsite?

As described in Section 2.8 and above, the amount of impervious surface area would increase under the build alternatives increasing stormwater runoff. However, the rate and volume of stormwater runoff to downstream drainages and the potential to result in flooding in surrounding areas or onsite are considered minor because of the size of the watersheds and elevation of the waterways below surrounding neighborhoods. This impact would be less than significant.

Would the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

See the Section 2.9, “Water Quality” regarding the potential impacts associated with increased impervious surface. New onsite drainage systems would be installed and designed to maintain the existing drainage patterns. Several existing culverts would require lengthening, and existing systems would be evaluated to determine compliance with current design standards. Therefore, the proposed project would maintain or improve upon existing drainage conditions. Measures described above and in Section 2.9 would protect water quality from polluted runoff. This impact would be less than significant.

Would the project place within a 100-year flood hazard area structures that would impede or redirect floodflows?

Hydraulic modeling was conducted to determine whether fill and encroachment upon the Miners Ravine floodplain and longitudinal encroachments on the Secret Ravine and Miners Ravine base floodplains/floodways would cause a significant increase in water surface elevations. The modeling found minor increases (less than 0.1 foot) could occur for each build alternative. This impact would be less than significant. See Section 2.8 for additional information regarding impacts on hydrology.

Land Use and Planning

Would the project physically divide an established community?

Alternative 3

SR 65 and I-80 currently divide portions of the cities of Roseville and Rocklin as described in Section 2.1. Alternative 3 would also eliminate the Taylor Road interchange, reducing access to businesses on Taylor Road in Roseville and Pacific Street in Rocklin, as well as access options for local residents using Taylor Road to reach residential areas. The elimination of the Taylor Road interchange under Alternative 3 would be a new barrier within the project area affecting community cohesion, but the effect would be minor and less than significant.

Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

All build alternatives would require acquisition of several acres of Open Space Preserve in the Olympus Pointe Preserve. Alternative 2 would require the most acreage (6.64 acres) and Alternative 1 would require the least (4.43 acres), while Alternative 3 would require 5.86 acres. Any property acquisitions that are located in the preserve would require an amendment to the OSPOMP and changes to the Biological Opinion (reinitiation of Section 7 consultation). See Section 2.1 for additional discussion. This impact would be less than significant.

Noise

Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?

Whether an increase in future noise level would result in a significant adverse effect for purposes of CEQA is determined based on the setting and magnitude of the noise increase, by comparing the existing noise level to the predicted noise level with construction of the project. The conclusions of the *Noise Study Report* (ICF International 2014) indicate that traffic noise levels for existing conditions range from 47 to 77 dBA Leq(h). Under design year build conditions for the build alternatives, predicted traffic noise levels range from 49 to 79 dBA Leq(h). An increase of up to 2 dBA is predicted at 23 of the 163 receiver locations modeled in the analysis. All other modeled receiver locations would have either a 1 dBA increase (121 locations), no increase (43 locations) or a decrease in noise levels (4 locations). This impact is considered less than significant.

Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

As stated above, the conclusions of the *Noise Study Report* indicate that traffic noise levels for build alternatives are predicted to increase by only 2 dBA or less. This impact is considered less than significant.

Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Construction of any of the build alternatives would result in temporary and periodic increases in noise levels in the project vicinity. Because Caltrans standard procedures include implementation of measures to minimize the temporary noise effects from construction, this impact would be less than significant.

Population and Housing

Would the project induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

The potential for the project to cause growth-related impacts in the surrounding communities is described in Section 2.2. The project would not introduce a new transportation facility to the area or provide new access to undeveloped areas. Although the project would accommodate planned growth by adding capacity to existing facilities, growth in the cities of Roseville and Rocklin would not be attributable to, or otherwise influenced by, the project. Further the project is unlikely to substantially encourage unplanned development in the project area, or to shift or hasten planned growth along the SR 65 and I-80 corridors. Growth-related impacts of the project related to growth pressure would be less than significant.

Recreation

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?

Under Alternatives 2 and 3, the grade profile of the Miners Ravine Trail would need to be lowered by approximately 6 inches under the Eureka Road/Atlantic Street eastbound off-ramp to maintain vertical clearance requirements. A temporary construction zone would be required around this area affecting approximately 0.35 mile of the trail. The profile correction would affect approximately 200 feet of the trail. A detour would maintain access to the trail around the temporary construction zone. Once the trail profile correction is completed, the trail would be repaved and reopen for use. Measures would be implemented providing advance notice of the closures and signs would be posted depicting the detour for trail users.

Under all build alternatives, widening the East Roseville Viaduct and SR 65 mainline would require a temporary construction zone be established on both sides of Antelope Creek Trail for access to the viaduct/SR 65 and installation of new columns. Placement of one column would require realignment of the section of trail underneath the viaduct. The new realigned section of trail would be constructed first and, when completed, trail users would be shifted to the new trail section. Following the shift, the old trail section would be permanently closed to accommodate the viaduct column.

Section 2.1 and Appendix A both provide additional descriptions of the impacts on the trails and measures to minimize impacts on trail users. These impacts would be temporary during the construction period and less than significant.

Transportation Traffic

Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

As discussed above under *Recreation*, under Alternatives 2 and 3 the grade profile of the Miners Ravine Trail would need to be lowered by approximately 6 inches under the Eureka Road/Atlantic Street eastbound off-ramp to maintain vertical clearance requirements. A temporary construction zone would be required around this area affecting approximately 0.35 mile of the trail. Under all build alternatives, widening the East Roseville Viaduct and SR 65 mainline would require a temporary construction zone be established on both sides of Antelope Creek Trail for access to the viaduct/SR 65 and installation of new columns. Measures would be implemented providing advance notice of closures and signs would be posted depicting the detour for trail users.

These impacts would be temporary during the construction period and would not result in a conflict with adopted policies or programs regarding bicycle facilities. The safety of the facilities would not be affected. This impact is considered less than significant. Section 2.1 and Appendix A both provide additional descriptions of the impacts on the trails and measures to minimize impacts on trail users.

Result in inadequate emergency access?

During construction, short-term lane closures would be necessary throughout the project corridor, potentially increasing the response times for emergency service providers under all build alternatives. As described in Section 2.4, Caltrans requires TMPs for all major construction activities that are expected to affect traffic on the state highway system. Emergency service providers would be notified as early as possible in order to plan for lane closures and other delays related to construction activity. Emergency and law enforcement providers would be notified in advance of any road closures.

Under Alternative 3, the Taylor Road interchange would be closed affecting police and fire response times as well as mutual aid from Placer County and the nearby cities of Roseville and Citrus Heights. Advanced notification of any closures would help to ensure that the local emergency service providers could make proper arrangements, in the event that the Taylor Road interchange is eliminated.

Implementation of a TMP would reduce this impact to a less-than-significant level.

Utilities and Service Systems

Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As discussed in Section 2.8, *Hydrology*, all build alternatives would increase the amount of impervious surface area, increasing the amount of stormwater runoff. New onsite drainage systems would be constructed as part of the project and designed to maintain the existing drainage patterns. Minimal impacts are expected on the Miners Ravine, Secret Ravine, and Antelope Creek watersheds. Implementation of the SWPPP and associated BMPs would reduce the potentials for impacts on the watersheds. The existing SPMUD storm drains that run along I-80 mainline in both the eastbound and westbound directions near the Taylor Road overcrossing and the existing southbound SR 65 to westbound I-80 connector, may be affected. The increase in stormwater runoff would not require expansion of existing stormwater drainage facilities or require new facilities to be constructed outside the project footprint. This impact would be less than significant.

For additional discussion, see the hydrology, water quality, wetlands and other waters, and utilities sections in Chapter 2.

3.2.1.2 Significant Environmental Effects of the Proposed Project

Biological Resources

Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

As discussed in Section 2.20, direct and indirect impacts from the build alternatives could occur to three federally listed species (VELB, vernal pool fairy shrimp, and Central valley steelhead) and two state-listed species (Swainson's hawk and tricolored blackbird). Avoidance, minimization, and mitigation measures to reduce effects to these special-status species are identified in Section 2.20. In addition, as part of consultation under Section 7 of the FESA, a BA will be prepared to address project impacts on VELB and vernal pool fairy shrimp. These measures would reduce or mitigate project impacts to less-than-significant levels.

Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Each of the build alternatives would result in permanent and temporary impacts on vegetation communities that would qualify as natural communities of special concern, including, non-wetland riparian forest and oak woodland. Native trees are present within these community types and would also be affected. Implementation of the avoidance and minimization measures and the

mitigation measures described in Section 2.16 would provide compensation for the loss of natural communities and reduce impacts to less-than-significant levels.

Each of the build alternatives would also result in permanent and temporary impacts on SRA cover. Compensation for the temporary and permanent loss of non-wetland riparian forest (including SRA Cover) would reduce this effect to a less-than-significant level.

Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?

As discussed in Section 2.17, each of the build alternatives would result in permanent and temporary effects on wetlands and waters of the United States and State, including riparian forest/scrub wetland, emergent wetland, seasonal wetland, vernal pool, perennial stream, intermittent stream, and ephemeral drainage. The measures described in Section 2.7 would reduce the impact to a less-than-significant level and compensate for the loss of wetlands.

Refer to Sections 2.16, 2.17, 2.18, 2.19, and 2.20 for additional discussion of potential impacts on biological resources.

Cultural Resources

Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

One archaeological resource was determined to be located within the APE. As a result of the XPI (see Section 2.7 “Cultural Resources” for a discussion of the XPI testing methods used), it appears that site P-31-1443 is likely eligible for listing on the NRHP and is therefore likely a significant archaeological resource as defined by Section 15064.5 of the CEQA Guidelines. The site will be subjected to Phase II testing and evaluation in order to verify its eligibility. For the purposes of this document, eligibility of P-31-1443 will be assumed.

As part of the proposed widening of the East Roseville Viaduct, a component of all three build alternatives, four piles will be installed within or directly adjacent to the known boundaries of site P-31-1443. Project engineers have indicated that installing the piles outside of the site boundaries to avoid impacting the site is not a viable option. Because of this, avoidance of significant impacts to portions of the site within the APE is not possible and appropriate mitigation measures must be implemented to reduce impacts to less-than-significant levels.

It is also possible that previously unknown archaeological resources could be uncovered during ground-disturbing construction activities for any of the build alternatives. This impact would be considered a significant impact to previously unknown cultural resources. Implementation of the mitigation measure to avoid cultural resources and notification procedures would reduce the potential for significant impacts to less-than-significant levels. Refer to Section 2.7 for additional discussion of potential effects on cultural resources.

Would the project disturb any human remains, including those interred outside of formal cemeteries?

No burial sites or human remains were identified within or adjacent to the APE. Implementation of the mitigation measure to avoid cultural resources and notification procedures would reduce this potential impact to a less-than-significant level.

Refer to Section 2.7 for additional discussion of potential effects on cultural resources.

Geology and Soils

Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

As discussed in Section 2.11, the geologic units that underlie the project site have a high sensitivity for paleontological resources; and therefore, fossils could be present. Earth-disturbing activities (i.e., excavation and grading) during construction of the build alternatives could damage fossils present in the project area. Substantial damage to or destruction of significant paleontological resources as defined by the Society of Vertebrate Paleontology would be a significant impact. Implementation of measures to educate construction personnel to recognize fossil materials, stop work if fossil remains are encountered, and follow resource stewardship measures would reduce this impact to a less-than-significant level.

Transportation/Traffic

Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Section 2.5.2.3 describes the acceptable traffic operating conditions by jurisdiction within the project area. Tables 2.5-10 through 2.5-21 compare the freeway and intersection traffic operations under the No Build Alternative to the three build alternatives in both construction year (2020) and design year (2040) conditions.

As shown in Section 2.5, all alternatives for the proposed project would result in some worsening of freeway and intersection operations, including operations at specific locations and segments that would be below the acceptable traffic operating conditions of the local jurisdictions (shown by grey shaded cells in the tables in Section 2.5). Alternative 3 has the fewest freeway impacts but the most intersection impacts. Conversely, Alternative 1 has the most freeway impacts but the fewest intersection impacts. Alternative 2 has the fewest total impacts (freeway and intersection impacts combined). These impacts would be reduced to less-than-significant levels with the implementation of the improvements listed in Section 2.5.4.

3.2.1.3 Unavoidable Significant Environmental Effects

Aesthetics

Substantially degrade the existing visual character or quality of the site and its surroundings?

Although the project would improve an existing highway interchange, all build alternatives would result in permanent changes on the existing visual character and quality of the visual assessment units. Impacts would primarily result from the prominence of the I-80/SR 65 connectors, widened viaduct, and removal of vegetation. The adverse impacts vary by unit as described in Section 2.6 and implementation of the mitigation measures in the section would reduce impacts at varying degrees depending on the existing views. However, some impacts would be significant and unavoidable even with mitigation.

Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?

Nighttime views of and from the project would be affected as a result of the use of bright lights during evening or nighttime construction activities and the relocation of existing lights and/or addition of new lights. Daytime glare would increase as a result of more pavement and introduction of vertical surfaces. With implementation of the mitigation measures described in Section 2.6, these impacts would be less than significant for four of the visual assessment units: I-80 Corridor, SR 65, Open Space, and Commercial/Institutional.

Adverse impacts to the Residential Visual Assessment Unit from light and glare would be similar to those for the other units. However, adverse impacts would be greater on the residences within this unit including the Hearthstone and Placer West apartment complexes that are in close proximity to the viaduct. Because of their close proximity, they could experience high-intensity nighttime lighting associated with construction activities from higher elevations and increased shading during different times of day.

The reconfigured East Roseville Viaduct structure comes within 20 feet of the Hearthstone and Placer West apartment complexes and may increase shading of these complexes during different times of day, which varies seasonally. This effect may be perceived as a negative visual change, and no mitigation is available to reduce shading impacts. These impacts would be significant and unavoidable even with mitigation. See Section 2.6 for a detailed discussion of these impacts.

3.3 Climate Change

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

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World

Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (1, 1, 1, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions 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)¹.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued cooperatively.²

3.3.1 Regulatory Setting

3.3.1.1 State

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

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

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

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further

¹ http://climatechange.transportation.org/ghg_mitigation/

² http://www.fhwa.dot.gov/environment/climate_change/mitigation/

mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

Executive Order S-20-06 (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 (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 ten percent by the year 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: 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 ARB 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.

3.3.1.2 Federal

Although climate change and GHG reduction are a concern at the federal level; currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the United States Environmental Protection Agency (U.S. EPA) nor the FHWA has issued explicit guidance or methods to conduct project-level GHG analysis.³ FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change; these strategies

³ To date, no national standards have been established regarding mobile source GHGs, nor has U.S. EPA established any ambient standards, criteria or thresholds for GHGs resulting from mobile sources.

include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

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

Executive Order 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

U.S. EPA’s authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court’s ruling, U.S. EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court’s interpretation of the existing Act and EPA’s assessment of the scientific evidence that form the basis for EPA’s regulatory actions. U.S. EPA in conjunction with National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.⁴

The U.S. EPA and the NHTSA are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016).

On August 28, 2012, U.S. EPA and NHTSA issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017 through 2025 passenger vehicles. Over the lifetime of the model year 2017–2025 standards this program is projected to save approximately four billion barrels of oil and two billion metric tons of GHG emissions.

The complementary U.S. EPA and NHTSA standards that make up the Heavy-Duty National Program apply to combination tractors (semi trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut GHG emissions and domestic oil use significantly. This program responds to President Barack Obama’s 2010 request to jointly establish GHG emissions and fuel efficiency standards

⁴ <http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq>

for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO₂ emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014 to 2018 heavy duty vehicles.

Project Analysis

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

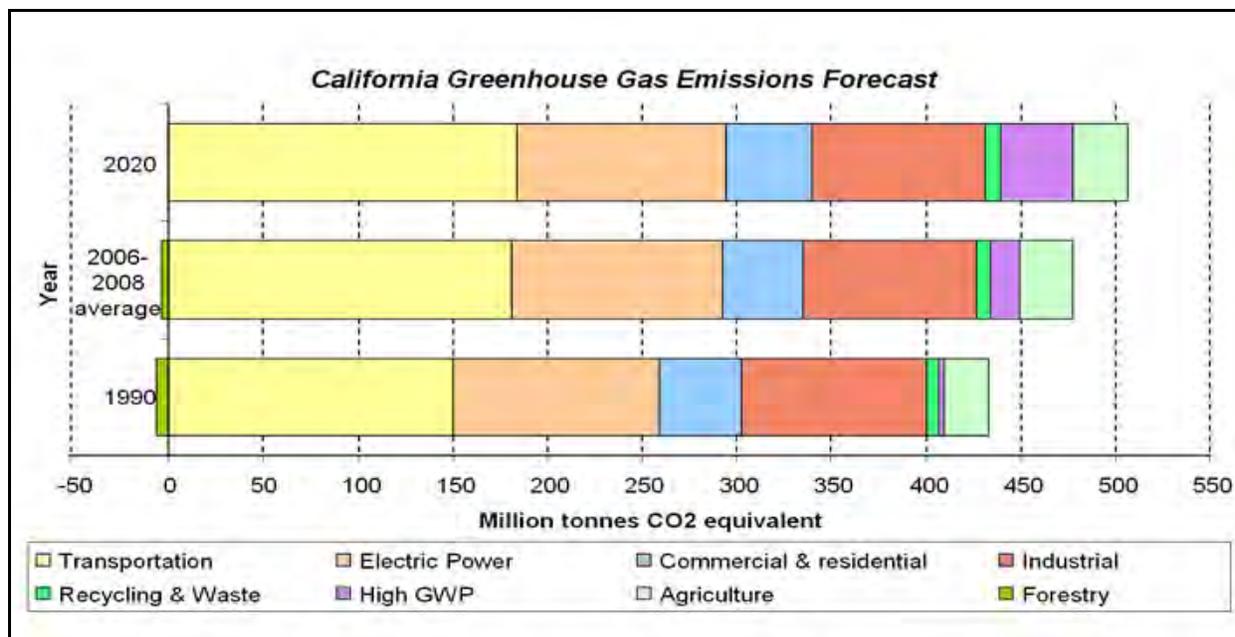
The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California, which is indicated in Figure 3-1 (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Caltrans and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.⁶

⁵ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

⁶ Caltrans Climate Action Program is located at the following web address:

http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf.



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

Figure 3-1 California Greenhouse Gas Forecast

One of the main strategies in Caltrans’ Climate Action Program to reduce GHG emissions is to make California’s transportation system more efficient. The highest levels of carbon dioxide (CO₂) from mobile sources such as automobiles, occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 3-2 below). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO₂, may be reduced.

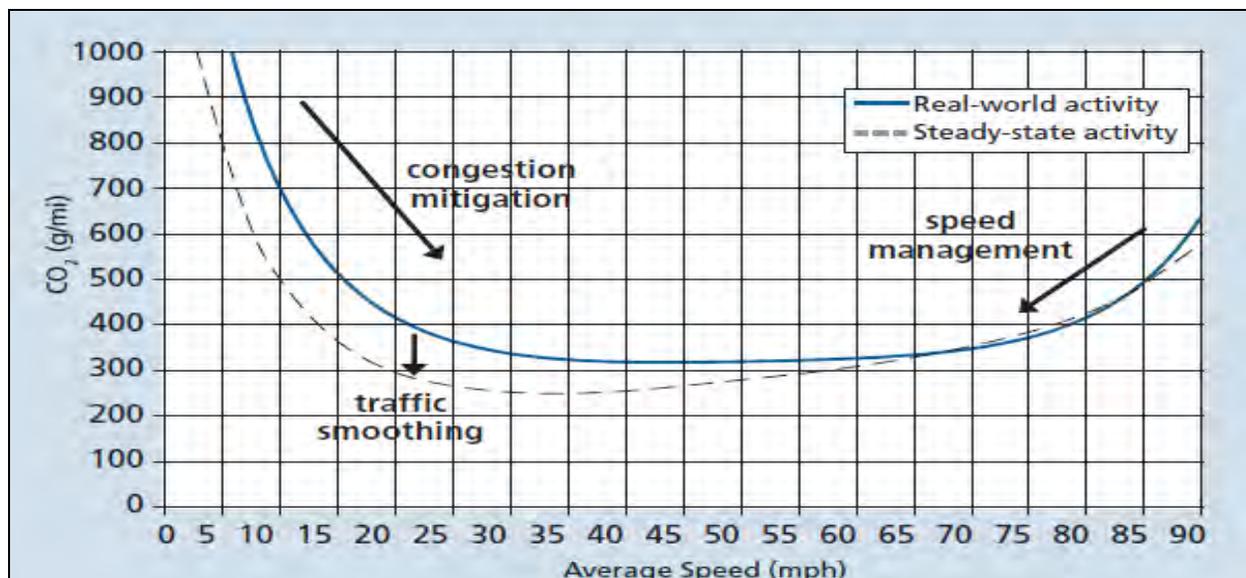


Figure 3-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO₂ Emission⁷

Potential for Generation of Greenhouse Gas Contaminant Emissions

The project would result in widened roads, overcrossings, and ramps, as well as intersection improvements and the removal of existing ramp connections that would reduce vehicle delay and address existing capacity constraints. These transportation improvements would induce more vehicle travel to the project area, resulting in increased VMT compared to no build conditions. Caltrans' CT-EMFAC (Caltrans Emission Factor) model was used to estimate CO₂ emissions for existing (2012), construction year (2020), and design year (2040 conditions) and evaluate potential emissions increases among the project alternatives. Table 3-1 summarizes the modeled emissions by scenario, as well as a comparison of build emissions to no build and existing conditions. Emissions are presented with and without state mandates to reduce GHG emissions from onroad vehicles and transportation fuels.⁸

⁷ Traffic Congestion and Greenhouse Gases: Matthew Barth and Kanok Boriboonsomsin (TR News 268 May-June 2010) <<http://onlinepubs.trb.org/onlinepubs/trnews/trnews268.pdf>>

⁸ Actions undertaken by the state will contribute to project-level GHG reductions. The state mandate analysis assumes implementation of Pavley and the Low Carbon Fuel Standard (LCFS). Pavley will improve the efficiency of automobiles and light duty trucks, whereas LCFS will reduce the carbon intensity of diesel and gasoline transportation fuels.

Table 3-1. Estimated Greenhouse Gas Emissions from Operation of I-80/SR 65 Interchange Improvements Project (metric tons per year)

Alternative	Annual VMT	Emissions without Pavley and LCFS ^c			Emissions with Pavley and LCFS		
		CO ₂	Other ^a	CO ₂ e	CO ₂	Other ^a	CO ₂ e
2012 Baseline	1,785,077,999	825,982	9,912	835,893	793,615	9,523	803,139
2012 + Alternative 1 ^b	1,801,826,648	830,993	9,972	840,965	798,433	9,581	808,014
2012 + Alternative 2 ^b	1,797,503,028	828,610	9,943	838,554	796,141	9,554	805,695
2012 + Alternative 3 ^b	1,800,451,487	829,201	9,950	839,152	796,713	9,561	806,273
2020 No Build	2,042,824,245	920,519	11,046	931,565	687,066	8,245	695,310
2020 Alternative 1	2,047,609,574	921,917	11,063	932,980	688,112	8,257	696,369
2020 Alternative 2	2,046,374,254	921,268	11,055	932,324	687,626	8,252	695,877
2020 Alternative 3	2,047,216,670	921,407	11,057	932,464	687,733	8,253	695,986
2040 No Build	2,687,189,861	1,247,683	14,972	1,262,655	863,380	10,361	873,740
2040 Alternative 1	2,703,938,510	1,252,760	15,033	1,267,793	866,911	10,403	877,314
2040 Alternative 2	2,699,614,890	1,250,381	15,005	1,265,386	865,245	10,383	875,628
2040 Alternative 3	2,702,563,349	1,250,936	15,011	1,265,947	865,659	10,388	876,047
Comparison to Existing							
Alternative 1	16,748,649	5,011	60	5,071	4,818	58	4,876
Alternative 2	12,425,029	2,629	32	2,660	2,526	30	2,556
Alternative 3	15,373,488	3,219	39	3,258	3,098	37	3,135
Comparison to No Build							
2020 Alternative 1	4,785,328	1,398	17	1,415	1,046	13	1,059
2020 Alternative 2	3,550,008	750	9	759	560	7	567
2020 Alternative 3	4,392,425	889	11	899	668	8	676
2040 Alternative 1	16,748,649	5,077	61	5,138	3,531	42	3,574
2040 Alternative 2	12,425,029	2,698	32	2,731	1,866	22	1,888
2040 Alternative 3	15,373,488	3,253	39	3,292	2,280	27	2,307

^a Includes methane (CH₄), nitrous oxide (N₂O), and other trace GHGs emissions emitted by typical passenger vehicles (U.S. Environmental Protection Agency 2013c, 2013d).

^b Evaluates the net project impact on VMT under existing conditions. For this analysis, net VMT under the project was derived using design year (2040) conditions and added to VMT under existing conditions. The analysis was undertaken to support the project-level CEQA document.

^c LCFS = low carbon fuel standard

Implementation of the build alternatives would increase GHG emissions compared to the existing conditions and the No Build Alternative in 2020 and 2040. This increase is due to improved traffic operations under the project, which in turn increases demand and associated VMT on the transportation network. As discussed in Impact AQ-5, future year peak period traffic volumes are forecasted to exceed available capacity in many locations on I-80 and SR 65 under the No Build Alternative. The build alternatives would expand capacity in these locations, which reduces travel times and induces more vehicle travel. Accordingly, since delay would be reduced under the build alternatives, VMT and resultant GHG emissions would increase.

Currently, there are no federal or state standards set for CO₂ emissions, therefore the estimated emissions shown in Table are only useful for a comparison between alternatives. The numbers are not necessarily an accurate reflection of what the true CO₂ emissions would be because CO₂ emissions are dependent on other factors that are not part of the model, such as the fuel mix⁹, rate of acceleration, and the aerodynamics and efficiency of the vehicles. Refer to Appendix D of the *Air Quality Study Report* (ICF International 2014) for a summary of limitations and uncertainties associated with the emissions modeling. The *Air Quality Study Report* is available on the project website at <http://8065interchange.org/>

The SACOG's MTP/SCS 2035, adopted in 2012, projects a 6.6% decrease in total per capita VMT by the year 2035 from 2008 levels due to three main factors (Sacramento Area Council of Governments 2012a):

- Improvements in Accessibility (i.e., the number of activities which can be reached within a given travel time) — Because the growth that occurs between 2008 and 2035 is more compact, the number of activities within a reasonable travel time increases by 31.3%. This change means that most residents will be able to find jobs, schools, shopping, and other activities closer to their place of residence, and their vehicle trips will be shorter.
- Improvements in Mix of Land Uses — Most areas within the region improve to some degree in the balance of complementary land uses. This allows for a higher share of wants and needs to be met closer to a place of residence, which in turn allows for shortening of vehicle trips and creates more opportunities for non-motorized travel.
- Improvements in Transit Service and Walkability — Shifts in mode of travel from private vehicle (e.g., driving alone and carpooling) to non-auto modes (i.e., transit, bicycling and walking) are another key factor.

The MPT/SCS 2035 indicates reduction in congested travel is driven by two basic factors for 2035 (SACOG 2014):

- Roadway capacity investments include a significant number of projects that resolve or improve major existing bottlenecks, including several new projects for bottleneck locations not addressed in prior plans.
- On several major congested travel corridors, new transit options are provided in the MTP/SCS. Overall transit mode share increases, and commute transit share increases dramatically—the MTP/SCS forecasts show transit mode share increasing by 5 percentage points, from about 3 percent in 2008 to over 8% in 2035. There is a strong relationship between the work travel mode share, and the level of congested VMT experienced during the peak period. For each incremental percentage point in work travel transit share, congested VMT decreases by 5%, based on modeling by SACOG staff.

The EIR for SACOG's MTP/SCS 2035 also indicates the MTP/SCS would result in GHG improvements within SACOG's geographic boundaries. Table 3-2 below summarizes changes in GHG emissions in 2020 and 2035 associated with SACOG's MTP/SCS 2035, relative to 2008

⁹ CT-EMFAC model emission rates are only for direct engine-out CO₂ emissions not full fuel cycle; fuel cycle emission rates can vary dramatically depending on the amount of additives like ethanol and the source of the fuel components.

conditions (Sacramento Area Council of Governments 2012a). While SACOG’s MTP/SCS 2035 Final EIR indicated the MTP/SCS would reduce GHG emissions from new development and transportation projects in the rural residential communities, the EIR concluded impacts related to climate change would be significant and unavoidable. This is because SACOG cannot require that agencies and jurisdictions adopt the mitigation measures identified in the MTP/SCS 2035 that would potentially reduce impacts to a less-than-significant level. (Sacramento Area Council of Governments 2012b)

Table 3-2. Proposed MTP/SCS Plan Area GHG Calculations for 2020 and 2035 (MMtCO₂e)

2020 Estimates	Activity	Scoping Plan Reductions	2020 Emissions
Transportation	VMT/capita	-1.902	8.77
Residential Electricity Production	Percent of all units in single family	-0.860	2.58
Non-Residential Electricity Production	Relative percent of base emissions	-0.860	0.76
Residential Energy Use	Percent of all units in single family	-0.125	1.58
Non-Residential Energy Use	Relative percent of base emissions	-0.125	0.67
Industrial	Square feet per employee	0	1.96
Agriculture & Forestry	Millions of acres of Ag production	0	1.02
2035 Estimates	Activity	Scoping Plan Reductions	2035 Emissions
Transportation	VMT/capita	-1.838	8.48
Residential Electricity Production	Percent of all units in single family	0	2.06
Non-Residential Electricity Production	Relative percent of base emissions	0	1.00
Residential Energy Use	Percent of all units in single family	0	1.39
Non-Residential Energy Use	Relative percent of base emissions	0	0.67
Industrial	New industrial employees	0	1.96
Agriculture & Forestry	Millions of acres of Ag Production	0	0.99

MMtCO₂e = million metric tons carbon dioxide equivalent
 Source: Sacramento Area Council of Governments 2012b

3.3.1.3 Construction Emissions

Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. The SMAQMD’s RCEM (Version 7.1.5.1) was used to estimate CO₂ emissions from construction activities. The RCEM does not include emission factors for CH₄ or N₂O for off-road diesel equipment. Emissions of CH₄ and N₂O from diesel-powered equipment were determined by scaling the CO₂ emissions quantified by the ratio of CH₄/CO₂ (0.000057) and N₂O/CO₂ (0.000025) (Climate Registry 2014). Emissions of CH₄, N₂O, and other trace GHGs from gasoline-powered vehicles were determined by dividing the CO₂ emissions

quantified by Equation 22A-4 by 0.988 (U.S. Environmental Protection Agency 2013a and 2013b).

Table 3-3 summarizes estimated GHG emissions generated by on-site construction equipment over the 15-year construction period. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

Table 3-3. GHG Emissions from Construction of Alternatives 1 through 3 (metric tons per year)

Alternative	Diesel Equipment			Gasoline Vehicles		CO ₂ e
	CO ₂	CH ₄	N ₂ O	CO ₂	Other ^a	
Alternative 1	19,568	1.1	0.5	1,497	18	21,246
Alternative 2	21,656	1.2	0.6	1,253	15	23,105
Alternative 3	21,517	1.2	0.5	1,275	15	22,987

^a Includes CH₄, N₂O, and other trace GHGs emissions emitted by typical passenger vehicles (U.S. Environmental Protection Agency 2013c, 2013d).

3.3.1.4 CEQA Conclusion

As discussed above, both the 2040 build and no build scenarios show increases in CO₂ emissions over existing levels; all build alternatives for both 2020 and 2040 CO₂ emissions are also higher than the future no build emissions (Table 3-1). Nonetheless, there are also limitations with EMFAC/CT-EMFAC and with assessing what a given CO₂ emissions increase means for climate change (See Appendix D from the Air Quality Technical Report). Therefore, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a determination regarding significance of the project’s direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the following section.

3.3.2 Greenhouse Gas Reduction Strategies

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger’s Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The

Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 3-3: The Mobility Pyramid.



Figure 3-3: 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 also 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 participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

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 GHG 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 GHG emission reductions while meeting the State's transportation needs.

Table 3-4 summarizes departmental and statewide efforts that Caltrans is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Table 3-4. Climate Change/CO₂ Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	.0045	.0065 .045 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5 % limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	4.2 3.6
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Caltrans policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)¹⁰ provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

¹⁰ http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

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

1. Caltrans and the California Highway Patrol are working with regional agencies to implement Intelligent Transportation Systems (ITS) to help manage the efficiency of the existing highway system. ITS commonly consists of electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. In addition, SACOG provides ridesharing services and park-and-ride facilities to help manage the growth in demand for highway capacity. These include the Sacramento Region 511 website (<http://www.sacregion511.org>), which provides information for various programs, including a Commuter Club + Rideshare Database, Vanpool Incentive Program, and map of park and ride lots.
3. Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. The project proposes onsite restoration for all areas temporarily disturbed by construction. Onsite replanting of trees may occur in intersection and interchange slopes and along drainage channels, and soil-stabilizing seeding would occur in open areas disturbed by construction. Planted species will be similar to those removed from the project area and will include native species, such as valley oak, Fremont cottonwood, Oregon ash, black willow, red willow, and arroyo willow. These trees will help offset any potential CO₂ emissions increase.
4. According to Caltrans Standard Specifications, the contractor must comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions.

3.3.2.1 Adaptation Strategies

“Adaptation strategies” refer to how Caltrans and others can plan for the effects of climate change on the state’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011¹¹, outlining the federal government’s progress in expanding and strengthening the Nation’s capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical

¹¹ <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation 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)¹², which summarizes the best known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

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

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report¹³ 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.

¹² <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

¹³ *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.

- 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 the EO S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

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 needed 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.

3.4 Mitigation Measures for Significant Impacts under CEQA

Use Native Grass and Wildflower Species in Erosion Control Grassland Seed Mix

Construction contractors will be required to incorporate native grass and wildflower seed to standard seed mixes, which may be nonnative, for erosion control measures that will be applied to all exposed slopes. Wildflowers will provide seasonal interest to areas where trees and shrubs are removed and grasslands are disturbed. Only wildflower and grass species that are native will be incorporated into the seed mix, and under no circumstances will any invasive grass or wildflower plant species be used as any component in any erosion control measures. Species will be chosen that are indigenous to the area and for their appropriateness to the surrounding habitat. For example, upland grass and wildflower species will be chosen for drier, upland areas, and wetter species will be chosen for areas that will receive more moisture. If not appropriate to the surrounding habitat, wildflowers should not be included in the seed mix.

Implement Interchange and Slope Landscaping and Visual Buffers

Landscaping within interchange loops and on constructed earth slopes will improve the visual quality of the roadway corridor by improving corridor aesthetics and helping to reduce the apparent scale of new and reconfigured aerial connectors. Visual buffers also will be planted to replace or supplement existing visual buffers for visual assessment units bordering the I-80 and SR 65 corridors that are affected by the project. This landscaping will serve as a buffer and screen against nuisance lighting resulting from oncoming vehicle headlights and roadway lighting and will help to prevent or greatly reduce nuisance lighting from affecting nearby sensitive viewers. Prior to approval of the roadway design, the Caltrans project landscape architect will review project designs to ensure that the following elements are implemented in the project landscaping plan.

- One hundred percent of the species composition will reflect species that are native and indigenous to the project area and California. Native plant species can be used to create attractive spaces, high in aesthetic quality, that are not only drought-tolerant but attract more wildlife than traditional landscape plant palettes. Use of native species promotes a visual character of California that is being lost through development and reliance on nonnative ornamental plant species.
- The species list will include trees, shrubs, and an herbaceous understory of varying heights, as well as both evergreen and deciduous types. Plant variety will increase the effectiveness of the roadside planting areas by providing multiple layers, seasonality, diverse habitat, and reduced susceptibility to disease. Evergreen groundcovers or low-growing plants, such as *Ceanothus* spp., should be used in areas where taller vegetation would potentially cause driving hazards by obscuring sight distances.
- Special attention should be paid to plant choices near residences to ensure that species chosen are of an appropriate height and rely on evergreen species to provide year-round light screening from nuisance light.
- Under no circumstances will any invasive plant species be used at any location.

- Vegetation will be planted within the first 6 months following project completion at any given location.
- An irrigation and maintenance program will be implemented during the plant establishment period and carried on, as needed, to ensure plant survival. However, design of the landscaping plan will try to maximize the use of planting zones that are water efficient. The design also may incorporate aesthetic features, such as cobbling swales or shallow detention areas, which can reduce or eliminate the need for irrigation in certain areas.
- If an irrigation system is required, areas that are irrigated will use a smart watering system that evaluates the existing site conditions and plant material against weather conditions to avoid overwatering of such areas. To avoid undue water flows, the irrigation system will be managed in such a manner that any broken spray heads, pipes, or other components are fixed within 1–2 days, or the zone or system will be shut down until it can be repaired.

Implement Project Design Aesthetics

The project will incorporate an aesthetic design treatment with a consistent motif for new and reconfigured structures such as retaining walls, lane barriers, and connector system structures. Choosing earth-toned colors for the surfaces would be less distracting to viewers than light or brightly colored surfaces. The design motif applied to structures will reflect a combination of naturally colored surfaces and surfaces that are textured to appear as natural materials (e.g., rock or cobble) or that incorporates a design theme (such as wildlife and plants of native oak woodlands, traditional architectural elements such as inset panels, or other design reflecting local heritage or environment) using form liners. Such a motif would reduce visual monotony, soften verticality, reduce glare, and be more visually pleasing to viewers than plain surfaces. It will be used for surfaces that would be visible to highway users and other viewers: retaining walls, exterior facing barriers and girders on bridges, decking, abutments and side supports, and columns. Local examples of such treatments include the I-5/French Camp interchange in Stockton and SR 99/Sheldon Road overcrossing in Elk Grove. Non-local examples include Maryland 216 in Prince Georges County, Maryland; US 54/East Kellogg Drive and South Oliver Street interchange in Wichita, Kansas; and Roberts Road bridge in Los Gatos, California.

Roughened retaining wall surfaces would soften the verticality of the wall faces by providing visual texture and reducing the amount of smooth surface that can reflect light. Furthermore, if possible, a plantable wall surface, such as a retaining wall structure that allows interstices for planting, will be evaluated for use as a possible best management practice to help introduce more landscaping. A local example includes the slopes east and west of the Rocklin Road/I-80 undercrossing. However, a plantable wall surface will not be used if it would require more space or create a greater impact on adjacent visual assessment units. The shade of the wall also will be carefully considered. Studies have shown that structures 2–3 degrees darker than the color of the general surrounding area creates less of a visual impact than matching or lighter hues (U.S. Bureau of Land Management 2008). In general, very light buff/tan, brown, or gray colors stand out more than darker colors such as deep browns, deep red-browns, and deep warm grays that have the ability to complement the surrounding vegetation. Lane barrier coloring should complement project retaining walls and avoid using lightly colored concrete that appears to be white or greyish-white and, instead, use mid- to darker greys or tans to limit reflective glare.

Minimize Fugitive Light from Portable Sources Used for Construction

At a minimum, the construction contractor will minimize project-related light and glare to the maximum extent feasible, given safety considerations. Color-corrected halide lights will be used. Portable lights will be operated at the lowest allowable wattage and height and will be raised to a height no greater than 20 feet. All lights will be screened and directed downward toward work activities and away from the night sky, highway users, and highway neighbors, particularly residential areas, to the maximum extent possible. The number of nighttime lights used will be minimized to the greatest extent possible.

Apply Minimum Lighting Standards

All overhead street lighting is to be limited to the minimum required for driver safety and will be designed using the Illuminating Engineering Society's design guidelines and in compliance with International Dark-Sky Association approved fixtures. All lighting is to cause minimum impact on the surrounding environment and will utilize downcast, cut-off type fixtures that are shielded and direct the light only toward surfaces requiring illumination. Accordingly, lights must be installed at the lowest allowable height and cast low-angle illumination while minimizing incidental light spill onto adjacent properties, open spaces, or backscatter into the nighttime sky. The lowest allowable wattage will be used for all lighted areas, and the amount of nighttime lights needed to light an area will be minimized to the highest degree possible. Light fixtures will have non-glare finishes that will not cause reflective daytime glare. Lighting will be designed for energy efficiency, use high-pressure sodium vapor lights with individual photocells, and have daylight sensors or be timed with an on/off program. Lights will provide good color rendering with natural light qualities with the minimum intensity feasible for security, safety, and personnel access. Technologies to reduce light pollution evolve over time and design measures that are presently available may help, but may not be the most effective means of controlling light pollution once the project is designed. Consequently, all design measures used to reduce light pollution will use the technologies available at the time of project design to allow for the highest potential reduction in light pollution.

Install Visual Barriers between Construction Work Areas and Sensitive Receptors

The contractor will install visual barriers to obstruct undesirable views of construction activities from, and to protect privacy for, sensitive receptors—especially residents and recreational areas that are adjacent to the construction site. The visual barrier may be chain-link fencing with privacy slats, fencing with windscreen material, wood or concrete barrier/soundwall, or other similar barrier. The visual barrier will be a minimum of 6 feet high to help to maintain the privacy of residents and block long-term ground-level views toward construction activities. While this visual barrier would introduce a visual intrusion, it would greatly reduce the visual effects associated with visible construction activities.

Compensate for the Temporary and Permanent Loss of Non-Wetland Riparian Forest (including SRA Cover)

The final compensation plan for the permanent and temporary loss of non-wetland riparian forest, including areas considered SRA cover habitat, will be more fully developed as part of

consultation with NMFS and additional coordination with the City of Roseville Open Space manager and environmental coordinator. Compensation for the impacts on riparian forest will depend on the amount and location of SRA and the availability and feasibility of onsite restoration along Miners Ravine, Secret Ravine, and Antelope Creek.

The project proponent will compensate for temporary and permanent impacts on non-SRA riparian forest at a minimum ratio of 2:1 and on SRA riparian forest habitat at a minimum of 3:1. For non-SRA riparian habitat, the project proponent may choose to purchase mitigation bank credits at a locally approved bank or compensate by restoring or enhancing riparian forest at onsite and/or offsite locations within the Dry Creek watershed. Each of these options is described below.

- **Mitigation Bank Credit Purchase.** If this option is chosen for non-SRA riparian forest habitats, the project proponent will provide written evidence to the resource agencies that compensation has been established through the purchase of mitigation credits. The amount to be paid will be the fee that is in effect at the time the fee is paid. The mitigation will be approved by CDFW and may be modified during the permitting process.
- **Onsite and/or Offsite Restoration in the Dry Creek Watershed.** This option may be chosen for non-SRA riparian forest and will be required for riparian forest identified as SRA cover. Onsite restoration will be required for all areas temporarily disturbed by construction. For onsite or offsite replacement plantings, an onsite mitigation planting plan will be prepared that includes a species list and number of each species, planting locations, and maintenance requirements. Plantings will consist of cuttings taken from local plants or plants grown from local material. Planted species for the mitigation plantings will be similar to those removed from the project area and will include native species, such as valley oak, Fremont cottonwood, Oregon ash, black willow, red willow, and arroyo willow. The final planting plan will be developed based on results of the arborist survey for species to be removed. All plantings will be fitted with exclusion cages or other suitable protection from herbivory. Plantings will be irrigated for up to 3 years or until established.

For riparian habitat restored onsite, it should occur in the same year as construction. Plantings will be monitored annually for 3 years or as required in the project permits. If 75 percent of the plants survive at the end of the monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected. Riparian forest compensation will be consistent with the requirements of the City of Roseville and City of Rocklin tree ordinances to ensure compensation for losses of individual protected trees.

To provide a more accurate estimate of tree loss, an arborist survey will be conducted upon completion of 90% design plans for each phase of the project. In addition to a description of the tree, the arborist survey report will include the precise location of the trunk and size of the dripline for all trees whose trunk or canopy overlap with the project footprint.

To satisfy NMFS and compensate for the loss of SRA cover, this measure will include the following:

- Replace affected SRA cover vegetation at a 3:1 replacement ratio by planting native riparian trees in temporary impact areas and along existing unshaded banks. This linear distance will provide a 3:1 replacement ratio (i.e., 3 linear feet replaced for every 1 foot affected).
- Plant native riparian trees onsite to the maximum extent practicable, followed by planting on adjacent reaches of affected streams to minimize the need for offsite mitigation.
- Plant riparian trees that are intended to provide SRA cover along the water's edge at summer low flows and at levels sufficiently dense to provide shade along at least 85 percent of the bank's length when the plant reaches maturity.
- Ensure that riparian plantings intended for SRA cover mitigation are planted within 10 feet (horizontal distance) of the summer wetted channel. This maximum planting distance will ensure that riparian plantings will contribute to SRA cover once they approach maturity.
- Monitor and evaluate the revegetation success of riparian plantings intended for SRA cover mitigation as described above.

Compensate for the Permanent Loss of Oak Woodland

The project proponent will compensate for the permanent loss of oak woodland at a minimum ratio of 1:1 (1 acre restored for every 1 acre permanently affected). Replacement plantings for oak woodland may be planted onsite and/or at offsite locations. If onsite replacement is not feasible, the project proponent will pay an in-lieu fee to the appropriate jurisdiction (i.e., the City of Roseville or the City of Rocklin).

If onsite or offsite replacement planting will occur, a mitigation planting plan will be prepared that includes a species list and number of each species, planting locations, and maintenance requirements. Plantings will consist of cuttings taken from local plants or plants grown from local material. Planted species for the mitigation plantings will be similar to those removed from the project area and will include native species, such as interior live oak, blue oak, valley oak, ceanothus (*Ceanothus* sp.), toyon (*Heteromeles arbutifolia*), and other locally appropriate species. The final planting plan will be developed based on results of the arborist survey for species to be removed. All plantings will be fitted with exclusion cages or other suitable protection from herbivory. Plantings will be irrigated for up to 3 years or until established.

Plantings will be monitored annually for 3 years or as required in the project permits. If 75 percent of the plants survive at the end of the monitoring period, the revegetation will be considered successful. If the survival criterion is not met at the end of the monitoring period, planting and monitoring will be repeated after mortality causes have been identified and corrected.

Oak woodland compensation will be consistent with the requirements of the City of Roseville and City of Rocklin tree ordinances to ensure compensation for losses of individual oak trees.

To provide a more accurate estimate of tree loss, an arborist survey will be conducted upon completion of 90% design plans for each phase of the project. In addition to a description of the tree, the arborist survey report will include the precise location of the trunk and size of the dripline for all trees whose trunk or canopy overlap with the project footprint.

Compensate for Temporary and Permanent Impacts on Wetlands

To compensate for temporary and permanent project impacts on seasonal wetland, freshwater emergent wetland, and riparian forest/scrub wetland, Caltrans will purchase credits at an approved mitigation bank to ensure no net loss of wetland functions and values. Vernal pool mitigation will be coordinated with compensatory mitigation for listed vernal pool fairy shrimp, such that mitigation for loss of listed species habitat does not duplicate mitigation for loss of USACE-jurisdictional vernal pool habitat. Mitigation banks with service areas for Placer County include Laguna Terrace East Conservation Bank, Reeds Creek Vernal Pool Preserve, Twin Cities Conservation Bank and Preserve, Toad Hill Ranch Mitigation Bank, and Western Placer Schools Conservation Bank. The minimum wetland compensation ratio will be 1:1 (1 acre of wetland habitat credit for every 1 acre of impact) to ensure no-net-loss of wetland habitat functions and values.

The construction contractor will be required to implement the conditions and requirements of state and federal permits that will be obtained for the proposed project.

Compensate for Placement of Permanent Fill in Waters of the United States/Waters of the State

Caltrans will compensate for the permanent fill of other waters of the United States and waters of the State (a direct impact associated with roadway construction). Temporarily disturbed waters of the United States will be returned to pre-construction condition following construction. Caltrans will purchase compensatory credits at a USACE-approved mitigation bank to ensure no net loss of functions and values. As discussed previously, mitigation banks with service areas for Placer County include Laguna Terrace East Conservation Bank, Reeds Creek Vernal Pool Preserve, Twin Cities Conservation Bank and Preserve, Toad Hill Ranch Mitigation Bank, and Western Placer Schools Conservation Bank. The minimum other waters compensation ratio will be 1:1 (1 acre of other waters habitat credit for every 1 acre of permanent impact) to ensure no net loss of habitat functions and values.

The construction contractor will be required to implement the conditions and requirements of state and federal permits that will be obtained for the proposed project.

Compensate for Direct Effects on Valley Elderberry Longhorn Beetle Habitat

The project proponent will compensate for direct effects (including transplanting) on all elderberry stems measuring 1 inch or more at ground level (i.e., VELB habitat) that are located within 20 feet of construction activities. Compensation will include planting replacement elderberry seedlings or cuttings and associated native plantings in a USFWS-approved conservation area, at a ratio between 1:1 and 8:1 (ratio = new plantings to affected stems), depending on the diameter of the stem at ground level, the presence or absence of exit holes, and whether the shrub is located in riparian habitat (U.S. Fish and Wildlife Service 1999).

Mitigation credits for VELB can be purchased at a USFWS-approved mitigation bank, or an onsite or offsite conservation area can be established and a management plan can be developed in accordance with the *Conservation Guidelines for Valley Elderberry Longhorn Beetle* (U.S.

Fish and Wildlife Service 1999). The exact amount and location of compensatory mitigation will be based on consultation with USFWS.

Compensate for Direct and Indirect Impacts on Vernal Pool Fairy Shrimp Habitat

The project proponent will compensate for direct impacts on vernal pools at a 2:1 preservation and 1:1 restoration/creation, and will compensate at a 2:1 preservation for indirect impacts on vernal pools (within 250 feet of ground disturbance). The exact acreage and location of compensatory mitigation will be based on final revisions to the project design and consultation with USFWS in compliance with the ESA. Compensatory mitigation can be accomplished through one or a combination of the following options.

- Purchase the appropriate number and type of habitat credits at a USFWS-approved mitigation bank or conservation area.

OR

- Establish a conservation easement on a parcel(s) containing a sufficient amount of existing and restored vernal pool fairy shrimp habitat and adaptively manage the mitigation lands consistent with the most current information on vernal pool fairy shrimp habitat requirements.

Implement Avoidance and Notification Procedures for Cultural Resources

It is the Caltrans' policy to avoid cultural resources whenever possible. If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. All reasonable measures will be implemented to avoid, minimize, or mitigate further harm to the resource. If appropriate, the project proponent will notify Indian tribes or Native American groups that may attach religious or cultural significance to the affected property.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the county coroner shall be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendent (MLD). The project proponent will work with the MLD to avoid the remains, and if avoidance is not feasible, to determine the respectful treatment of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable.

Conduct Phase III Data Recovery on P-31-1443

Because site P-31-1443 appears to be eligible for listing on the NRHP and project construction cannot avoid a portion of the site, data recovery will be necessary. The potential contribution of a prehistoric site to archaeological research can be preserved, at least in part, through an excavation program designed to recover the materials that constitute important data. This research program is referred to as data recovery, or a Phase III study. Under 36 CFR 800, data

recovery at an archaeological site is no longer the basis for a finding of "no adverse effect" to the site. However, data recovery continues to be an important measure to mitigate adverse effects, when avoidance of impacts is not feasible. The data recovery (or Phase III) study will consist of:

- Preparation of a Memorandum of Agreement (MOA)
- Preparation of a data recovery plan
- Preparation of a Phase III Proposal
- Fieldwork
- Laboratory work and analysis
- Reporting the study's results

A MOA will be prepared that documents any agreements made about the timing, nature, and extent of the data recovery effort. Signatories on the MOA will be SHPO, Caltrans, and the project proponent. Native American groups consulting on the project can be invited to sign the MOA as concurring parties.

A data recovery plan will be attached to the MOA. This plan serves to obtain concurrence from Caltrans and SHPO that the objectives and scope of the proposed Phase III study are appropriate. Guidelines given in the Caltrans Standard Environmental Reference (SER) and Attachment 6 of the FHWA Section 106 Programmatic Agreement for preparation of a data recovery plan will be followed by the plan preparer. The data recovery plan will, at a minimum, include the following:

- Discussion of the National Register significance of all affected properties.
- Research questions that are directly pertinent to those data sets that qualify the property for inclusion in the National Register.
- A discussion that explains why it is in the public interest to pursue answers to these research questions. The discussion should indicate whether, why, and how the public may benefit from the scope and nature of the information developed through data recovery, and demonstrate that the costs of proceeding with the data recovery are prudent and reasonable.
- Results of previous research relevant to the property type.
- Proposed investigations (data needed to address research questions and the proposed methods and techniques to acquire that data, including any special studies).
- Field methods and techniques that will clearly and cost-effectively address the property's structure and content in the context of the defined research questions and the property's stratigraphic and geomorphic context.
- Laboratory processing and analyses, with justification of their cost-effectiveness and of their relevance to the property and its research values.
- Methods and techniques used in artifact, data, and other record management.
- Provisions for ongoing Native American consultation, monitoring, and coordination, if Native American values or concerns are present or are likely to be present.

- Qualifications of key personnel.
- Disposition, including curation, of recovered materials and records resulting from implementation of the data recovery plan.
- Cost proposal.
- All required permits
- Report preparation schedule, including the names of parties to whom reports will be distributed upon completion.
- Monitoring provisions and procedures for evaluating and treating discoveries of unexpected finds during the course of the project, which may include consultation with other parties.
- Explicit provisions for disseminating research findings to professional peers in a timely manner.
- Plan for public involvement and educational or interpretive programs, focusing particularly on the community or communities that may have interest in the results.

The plan will then undergo several levels of review including review by Caltrans PQS, review by the Caltrans CSO officer, and review by the SHPO.

A Phase III Proposal will be prepared, which is primarily an in-house document that builds on the Data Recovery Plan; it may reference appropriate portions of the plan or include them as attachments, if they have been adequately developed. The Phase III Proposal will differ from the Data Recovery Plan in that it will include the specifics of personnel, schedule, and cost.

Intensive fieldwork and detailed laboratory analyses are needed to realize the objectives of the data recovery program. Data recovery fieldwork will be conducted with a Native American monitor present. Recovered materials will be curated at an appropriate repository in accordance with 36 CFR Part 79, “Curation of Federally Owned and Administered Archaeological Collections,” and the Office of Historic Preservation’s “Guidance for the Curation of Archaeological Collections.”

Once fieldwork and laboratory analysis are completed, a Data Recovery Report will be prepared that details the methods and results of the effort. The final report will describe the contributions the excavation made toward creating a more complete picture of regional prehistory. The SER guidelines for preparing Data Recovery Reports will be followed by the archaeologist. The archaeologist will also prepare a revised archaeological site record that documents the changed information about the site as a result of the Phase III studies. The district PQS will send a copy of this revised record to the CHRIS North Central Information Center located at California State University, Sacramento.

Educate Construction Personnel in Recognizing Fossil Material

All construction personnel receive training provided by a qualified professional paleontologist experienced in teaching non-specialists to ensure that construction personnel can recognize fossil materials in the event that any are discovered during construction.

Stop Work if Substantial Fossil Remains Are Encountered during Construction

If substantial fossil remains (particularly vertebrate remains) are discovered during earth-disturbing activities, activities will stop immediately until a State-registered professional geologist or qualified professional paleontologist can assess the nature and importance of the find and a qualified professional paleontologist can recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection, and may include preparation of a report for publication describing the finds. The project proponent will ensure that recommendations regarding treatment and reporting are implemented.

Resource Stewardship Measures

The following will be added to the project's standard specification.

If paleontological resources are discovered at the job site, do not disturb the material and immediately:

5. Stop all work within a 60-foot radius of the discovery
6. Protect the area
7. Notify the Resident Engineer

The project proponent investigates and modifies the dimensions of the protected area if necessary.

Do not take paleontological resources from the job site. Do not resume work within the specified radius of the discovery until authorized. A specification alerting the construction contractor that paleontological monitoring will occur during activities that will disturb native sediments will also be added to the project's specifications.

Regional Coordination for Transportation Improvements

The *Transportation Analysis Report* assumed modifications to the existing transportation network according to improvement projects anticipated to be constructed by the construction (2020) and design (2040) years (refer to *Transportation Analysis Report* Figures 6 and 7). These projects are based on the financially constrained project list contained in the 2035 MTP/SCS, but also consider projects the project development team agreed would likely be constructed by the design year (2040).

The rationale for adding projects to the MTP/SCS list was that the design year is five years beyond the 2035 horizon of the MTP/SCS. This creates a longer timeframe for revenue to accumulate. Further, the additional socioeconomic growth added to the model would also be contributing to transportation revenue to help pay for these improvements.

Based on results from the *Transportation Analysis Report*, it was determined that even with transportation improvements assumed through year 2040, the following specific locations in the

project boundary may operate below acceptable thresholds and potential future improvements are identified below.

Westbound I-80:

- Improve from SR 65 to Riverside Avenue by providing an additional through lane from the Douglas Boulevard off-ramp to the westbound on-ramp and from the Riverside Avenue off-ramp to the northbound on-ramp. This improvement may cause a secondary operational deficiency downstream at Elkhorn Boulevard.
- Improve from the truck scales to Elkhorn Boulevard by providing a full auxiliary lane from the truck scales to Elkhorn Boulevard or adding a through lane at Elkhorn Boulevard.
- An alternate improvement to the above widening options would be to operate the ramp meters on westbound I-80 and southbound SR 65 at a more restrictive rate. With a more restrictive rate, longer ramp queues may cause a secondary operational deficiency on local streets.

Northbound SR 65:

- Improve from Stanford Ranch Road to Pleasant Grove Boulevard by providing an additional through lane from the Pleasant Grove Boulevard off-ramp to on-ramp. The additional lane may need to be extended past the Blue Oaks Boulevard interchange to improve potential secondary operational deficiencies.

Southbound SR 65:

- Improve from Ferrari Ranch Road to Twelve Bridges Drive by providing an auxiliary lane between Twelve Bridge Drive and Placer Parkway. Secondary operational deficiencies may occur at downstream sections.
- Improve the westbound Placer Parkway on-ramp (Alternative 1 only) by extending the planned auxiliary lane between Placer Parkway and Sunset Boulevard to start at the westbound, instead of the eastbound, on-ramp.
- Improve the southbound-to-westbound connector at I-80 (Alternatives 1 and 2) by widening westbound I-80 at Douglas Boulevard or adjusting ramp meter rates as discussed above for westbound I-80.

Intersections:

- Improve the Stanford Ranch Road/Five Star Boulevard intersection by providing a second eastbound right-turn lane.
- Improve the Roseville Parkway/Creekside Ridge Drive intersection, caused by queuing from the adjacent intersection at Roseville Parkway/Galleria Boulevard, by implementing signal timing adjustments (when warranted based on monitoring) or widening improvements at the adjacent signal.
- Improve the Roseville Parkway/Taylor Road intersection (Alternative 3 only) by adding a third southbound left-turn lane.

- Improve the Atlantic Street/I-80 westbound ramps intersection (Alternatives 1 and 3) by adjusting the ramp meter rate or widening the on-ramp to provide more storage.
- Improve the Eureka Road/Taylor Road/I-80 eastbound ramps intersection. For Alternatives 1 and 2, add a second northbound left-turn and southbound right-turn lanes to reduce delays although accommodations may be needed for bicycles and pedestrians. Because Alternative 3 already includes these modifications, further improvements will need to be identified.
- Improve the Eureka Road/Sunrise Avenue intersection by widening to provide a fourth through lane or a third left-turn lane on some approaches.
- Improve the Pacific Street/Sunset Boulevard (Alternatives 1 and 2) under construction year conditions by constructing the planned widening of Sunset Boulevard from four to six lanes prior to the construction year. The planned widening is currently assumed to occur before the design year.

Some of the improvements identified above are already being considered as part of the SR 65 Widening (<http://pctpa.net/projects/sr65widening/>) and I-80 Auxiliary Lanes (<http://pctpa.net/projects/i-80-auxiliary-lanes/>) projects. Other improvements identified above are preliminary and need further study, including inclusion in the Placer County Regional Transportation Plan and SACOG MTP/SCS, environmental clearance and public outreach, project approval from Caltrans and/or FHWA, project design, and potential right of way acquisition, before the improvements can be constructed and open to the traveling public. Depending on the project size and cost, infrastructure improvements on federal and state highways can take an average of 16 years. If a project is not controversial, fully funded, and within existing right of way, then typically those projects can be constructed within five to ten years.

- The need for additional transportation improvements after year 2040 is based on growth in traffic demand from development over a wide area. Jurisdictions in Placer County currently have traffic impact fee programs both at the local jurisdiction and regional county levels. Traffic impact fees on new development are a potential source of funding for the above identified improvements. Placer County has a history of planning for both local and regional transportation improvements, including the South Placer Regional Transportation Authority (<http://pctpa.net/sprta/>). Caltrans, PCTPA, and local jurisdictions continuously update and add new projects that are identified to accommodate future population and employment growth. The specific intersection and roadway improvements identified above, which are all located on Caltrans facilities or within the City of Rocklin and City of Roseville, will be addressed as part of current ongoing projects, capital improvement program updates, and traffic impact fee updates.

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