

Chapter 3 California Environmental Quality Act (CEQA) Evaluation

The Westbound State Route 91 (SR-91) Improvement Project (project) is a joint project by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA’s responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans. 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 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.

3.1 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. 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.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.1.1 Aesthetics

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 within a state 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.1.1 CEQA Significance Determinations for Aesthetics

The potential for the Build Alternative (including design options) to adversely impact aesthetics was assessed in the *Visual Impact Assessment* (2018) and Section 2.6, Visual/Aesthetics, of this Initial Study/Environmental Assessment (IS/EA). The following discussion is based on those analyses.

a, b) No Impact. The project is located within a highly urbanized area and the landscape is characterized by developed land and an extensive transportation network. The land use within the study area for the Westbound SR-91 Improvement Project is primarily urban residential and transportation uses, but also includes areas of commercial and recreational uses. No scenic resources have been identified for this project, and no scenic corridors or designated scenic highways are located within the vicinity of the project. Therefore, a substantial adverse effect on a scenic vista or substantial damage to scenic resources would not occur.

c) Less Than Significant Impact. As discussed in more detail in Section 2.6, Visual/Aesthetics, of this IS/EA, the study area can be treated as a single landscape unit, defined as Visual Assessment Unit 1 (VAU1). The landscape in VAU1 is generally characterized by surrounding urban development, transportation uses, and other man-made features. Six key views were analyzed that would most clearly demonstrate the change in the project’s visual resources and represent the viewer groups that have the highest potential to be affected by the project, considering visual exposure and visual sensitivity. The selected key view locations simulations can be found on Figures 2.6-1 through 2.6-7 provided in Section 2.6. In general, the project would result in moderate visual impacts at Key Views 1 through 4, moderate-high visual impacts at Key View 5, and moderate-low visual impacts at Key View 6.

However, with the inclusion of Project Features PF-VIS-1 through PF-VIS-3, provided in Section 2.6.3, potential impacts that may degrade the existing visual character would be minimized with the inclusion of landscaping, architectural treatments, and review of the usage of construction lighting. Impacts would be less than significant, and no mitigation is required.

d) Less Than Significant Impact. Please also refer to the response to checklist question c), above. The proposed project would construct improvements to an existing freeway facility located within a highly urbanized area and would not introduce a new source of substantial light or glare which would adversely affect day or nighttime views in the area. During construction, lighting types, plans and placement shall be reviewed at the discretion of the Caltrans District Landscape Architect in order to minimize light and glare impacts on surrounding sensitive uses, as provided in measure PF-VIS-3. Therefore, impacts would be less than significant and no mitigation is required.

3.1.2 Agriculture and Forest Resources

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

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.2.1 CEQA Significance Determinations for Agriculture and Forest Resources

a, b) No Impact. The proposed project is located in a highly urbanized area and involves improvements to an existing freeway facility. As discussed in more detail in Section 2.1, Land Use, there are no existing or general plan agricultural land uses in the study area; therefore, no agricultural land would be converted as part of the project. In addition, a review of the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency as well as a review of the California Department of Conservation's (CDC) California Important Farmland Finder tool (online at <https://maps.conservation.ca.gov/DLRP/CIFF/>) indicated that no Prime or Unique Farmland, Farmland of Statewide Importance, or land subject to a Williamson Act contract is present within the study area. No impact would occur.

c, d) No Impact. As discussed in more detail in Section 2.1, there are no currently zoned forest lands or timberland zoned Timberland Production areas within the study area; therefore, there would be no conflict with or conversion of these lands as part of the project. No impact would occur.

e) No Impact. See also responses to questions a) through d) above. Because there are no farmland, timberland, or agricultural land uses within the study area, changes to the existing environment as a result of the project that, due to their location or nature, could result in the conversion of Farmland to non-agricultural use or the conversion of forest land to non-forest use are not reasonably foreseeable. No impact would occur.

3.1.3 Air Quality

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.				
Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.3.1 CEQA Significance Determinations for Air Quality

The potential for the Build Alternative to adversely impact air quality was assessed in the *Air Quality Analysis* (2018) and Section 2.13, Air Quality, of this IS/EA. The following discussion is based on those analyses.

a, b, c, d) Less Than Significant Impact. The proposed project is located in an area of attainment for federal 1-hour nitrogen dioxide (NO₂) and 24-hour sulfur dioxide (SO₂) attainment/maintenance for federal carbon monoxide (CO), particulate matter less than 10 microns in size (PM₁₀), and annual nitrogen dioxide (NO₂), and nonattainment for federal ozone (O₃), particulate matter less than 2.5 microns in size (PM_{2.5}) and lead (Los Angeles County only) standards. The proposed project is located in an area of attainment for State CO and NO₂ and nonattainment for State O₃, PM₁₀, annual PM_{2.5}, and lead (Los Angeles County only). The applicable Air Quality Plan is the current South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP) that was adopted by the SCAQMD in 2017, which is submitted as part of the California State Implementation Plan (SIP). Implementation of the SIP would bring the region into conformance with the applicable air quality standards. If a project “conforms” with the SIP, it would not conflict with or obstruct implementation of the applicable air quality plan. Project conformity with the SIP is demonstrated by inclusion of the project in the current Regional Transportation Plan (RTP) and detailed project-level analyses

demonstrating that the project will not contribute to any new violations of the national ambient air quality standards (NAAQS), increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any required interim milestone.

As described in Section 2.12.3.2, the project is listed in Amendment #3 to the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) as Project ID 1163S012, with a description as follows: “Improvements to the I-605/SR-91 interchange consist of adding an additional general purpose lane, adding auxiliary lanes, and on- and off-ramp improvements.” The 2016 RTP/SCS was approved by the Regional Council of the Southern California Association of Governments (SCAG) on April 7, 2016, and was adopted on September 6, 2018. The proposed project is included in the Federal Transportation Improvement Program (FTIP), Amendment #17-22. The FTIP was approved by the SCAG on July 31, 2018, and the FTA and FHWA approved the FTIP on December 17, 2018. The RTP/SCS and FTIP listings are included in the *Air Quality Analysis* (2018).

Thus, the proposed Build Alternative is included in the regional emissions analysis used to meet regional air quality conformity. Construction and long-term operation of the project would be considered consistent with the purpose of the SIP, and the project Build Alternative would conform to the requirements of the federal Clean Air Act (CAA).

Air quality models were used to demonstrate the potential contribution of the project’s emissions to the deterioration of or impediment to progress of air quality goals as stated in the AQMP. The project has been determined to not be a project of air quality concern (POAQC) by the Transportation Conformity Working Group (TCWG) (a copy of the determination is included in Appendix C).

As described in Section 2.12.2.4, six pollutants have been established as criteria pollutants. Table 2.12.2 lists them, their associated thresholds of significance, and the health effects associated with exposure. As Table 2.12.1 shows, the background PM₁₀ concentrations currently exceed the State 24-hour and annual standards.

Section 2.12.3.2 describes the project permanent impacts, including detailed analyses of CO Hot Spots. The analyses conclude that the project is not expected to result in any concentrations exceeding the 1-hour or 8-hour State CO standards. However, the Build Alternative emissions listed in Table 2.12.11 would likely contribute to more violations of the PM₁₀ California ambient air quality standards (CAAQS) compared

with the No Build Alternative. Similarly, because the Basin is in nonattainment for PM_{2.5}, the increase in PM_{2.5} emissions from the Build Alternative as listed in Table 2.12.11 would likely worsen the existing violation of the PM_{2.5} CAAQS in the Basin compared with the No Build Alternative. However, these increases in PM₁₀ and PM_{2.5} are primarily due to tire wear and brake dust rather than exhaust emissions, and are relatively minor (less than 2 pounds/day regionally). Additionally, when compared to the Existing (2016) conditions as shown in Table 2.12.11, PM₁₀ and PM_{2.5} exhaust emissions would be lower in the Build Alternative. Thus, the proposed Build Alternative would not create a new violation or worsen an existing violation of the federal PM₁₀ or PM_{2.5} standards.

As described in more detail in Section 2.12.3.2, the project is not expected to result in higher CO concentrations than those existing within the region at the time of attainment demonstration, the project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards, and a detailed California Line Source Dispersion Model, version 4 (CALINE4), CO hot-spot analysis is not required for the project. The proposed project will not conflict with the AQMP, violate any air quality standard, result in a net increase of any criteria pollutant, or expose sensitive receptors to substantial pollutant concentrations. Impacts would be less than significant, and mitigation is not required.

e) Less Than Significant Impact. During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated. However, SCAQMD Rule 403 regarding fugitive dust minimization requirements would reduce potential dust emissions during construction. Also, project features and standard measures PF-AQ-1 through PF-AQ-6 would be implemented during construction to avoid and minimize air quality-related impacts. Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below-detectable levels as distance from the site(s) increases. Therefore, objectionable odors affecting a substantial number of people would be less than significant, and no mitigation is required.

3.1.4 Biological Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.4.1 CEQA Significance Determinations for Biological Resources

The potential for the Build Alternative to result in adverse impacts to biological resources was assessed in the *Natural Environment Study (Minimal Impacts) (NES [MI]) (2017 and 2018 Errata)*, the *Jurisdictional Delineation Report (2017 and 2018 Errata)*, and Sections 2.15, Plant Species; 2.16, Animal Species; and 2.17, Invasive Species, in this IS/EA. The following discussions are based on those analyses.

a, b) Less Than Significant Impact. A literature review and records search as well as reconnaissance-level field surveys were conducted to identify the existence or potential occurrence of sensitive or special-interest plant species located in or within the vicinity of the biological study area (BSA). The BSA is composed of disturbed habitat and landscaped and nonvegetated urban/developed areas. Plant species occurring in the BSA are characteristic of those found in landscaped and regularly disturbed areas. The results of the literature review indicated three special-status plant

species as potentially occurring in the BSA. Of these three species, two are federally designated and/or State-listed endangered or threatened species: Ventura marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) and Salt marsh bird's-beak (*Chloropyron maritimum* ssp. *maritimum*). Neither of these species was observed during surveys, and no suitable habitat was observed within the BSA. Therefore, the proposed project would have no impact on these species. The remaining special-status plant species identified as potentially occurring in or within the vicinity of the BSA is Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), a perennial herb that occurs in coastal bluff scrub, coastal dunes, coastal scrub, and valley and foothill grasslands, usually on ocean bluffs and ridgetops in alkaline or clay soils (from 10 to 1,510 ft (ft) in elevation). The Coulter's goldfields is identified as occurring within 2 miles (mi) of the BSA. However, no suitable habitat to support this plant species occurs within the BSA, and the species was not observed during surveys. Therefore, the species will not be impacted by the proposed project.

The following 10 special-species animal species (5 California Species of Special Concern [SSC] and 5 California Special Animals) that are not federally and/or State-listed endangered or threatened were identified as potentially occurring in or near the BSA due to the presence of suitable habitat: rufous hummingbird (*Selasphorus rufus*), Cooper's hawk (*Accipiter cooperii*), silver-haired bat (*Lasionycteris noctivagans*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), southwestern yellow bat (*Lasiurus xanthinus*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), hoary bat (*Lasiurus cinereus*), and Yuma myotis (*Myotis yumanensis*). No special-status animal species were observed in the BSA during field surveys, but the rufous hummingbird, Cooper's hawk and six special-status bats have the potential to occur within the BSA due to the presence of suitable habitat, and two structures with guano evidence indicating bat use for roosting were observed during surveys. To avoid impacts to special-status bird species during construction, and in compliance with the requirements of the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code regarding nesting birds, vegetation clearing and construction activities that impact existing vegetation will be conducted, to the maximum extent feasible, outside the primary nesting season for birds (typically February 15–September 1), as described in Project Feature PF-BIO-1. To avoid impacts to special-status bat species during construction, humane eviction and exclusion of bats from a roost would be employed and alternate habitat provided, with the bats permitted to recolonize the original roost site following construction. These and other avoidance strategies are outlined in Project Features PF-BIO-2 through PF-BIO-12.

With the inclusion of applicable project features, BMPs, and other measures, impacts to candidate, sensitive, or special status species, riparian habitat, or other sensitive natural communities would be less than significant, and no mitigation is required.

c) Less Than Significant Impact. There is preliminarily 0.88 acre (ac) of jurisdictional United States Army Corps of Engineers (USACE) area, 1.17 ac of jurisdictional CDFW area, and 1.33 ac of nonjurisdictional USACE area within the BSA. These are entirely across 14 concrete-lined drainage features within the highly urbanized study area (designated as Drainage Features A through N). Drainages E, I, J, K, and L, as well as portions of Drainage Features A, B, F, and H, are human-altered and surrounded by urban habitat but appear to contain relatively permanent water (RPW) and function like streams with a nexus to a traditional navigable water (TNW). Based on preliminary project design, it is anticipated that some of the flood control channels within the BSA, particularly on the westbound side of SR-91, may be impacted by the project. Specifically, the Build Alternative is expected to result in 0.01 ac of temporary effects to nonwetland waters subject to USACE jurisdiction due to construction within Drainage Feature J. The Build Alternative is expected to result in 0.002 ac of temporary effects to nonjurisdictional USACE areas within Drainage Features C and D. The Build Alternative would result in the temporary removal of 0.02 ac of nonwetland water subject to CDFW jurisdiction during construction within Drainage Feature J. Construction of the Build Alternative would also potentially result in 0.002 ac of temporary impacts to nonjurisdictional CDFW areas within Drainage Features C and D. Finally, temporary impacts to Regional Water Quality Control Board (RWQCB) areas would be the same as noted above for USACE areas (0.01 ac).

Permanent impacts to these drainage features are outlined in Tables 2.14.2 and 2.14.3 in Section 2.14, Wetlands and Other Waters. As shown in Table 2.14.2, the Build Alternative will result in the permanent impacts to 0.43 ac of nonwetland waters potentially subject to USACE jurisdiction (i.e., Drainage Features B, H, I, and J). The Build Alternative will result in 0.461 ac of permanent effects to nonjurisdictional USACE areas. The potential nonjurisdictional impact areas are within portions of Drainage Features B, C, D, G, and H. As shown in Table 2.14.3, the Build Alternative will result in the permanent impacts to 0.52 ac of nonwetland waters subject to CDFW jurisdiction. The permanent impacts would occur within Drainage Features B, H, I, and J. The Build Alternative would result in the permanent impacts to 0.461 ac of nonjurisdictional CDFW areas. The impact areas are within Drainage Features B,

C, D, G, and H. The permanent impacts to RWQCB areas under the Build Alternative would be the same as shown in Table 2.14.2 for the USACE areas, 0.43 ac.

Project Features PF-WET-1 through PF-WET-4 provide for securing permits prior to construction initiation, which would also implement specifications outlined in those permits as required by the USACE, CDFW, and RWQCB. In addition to permits and permit requirements, BMPs will be utilized to prevent loose soil or pollutants associated with the project from inadvertently entering the drainage features located within and adjacent to the BSA. Because impacts to these drainage features will be minor and addressed by implementation of project features, standard BMPs, and permit conditions, impacts will be less than significant.

d) Less Than Significant Impact. Seminal corridors above or below roads that are utilized for wildlife crossings include undercrossings, overcrossings, and culverts. Species of primary interest for wildlife movement within the BSA are medium-sized mammals such as raccoon (*Procyon lotor*). The existing SR-91 and Interstate 605 (I-605) freeways generally present barriers to wildlife movement and do not facilitate habitat connectivity or movement, as the freeway facilities have high traffic volumes and are lined with fences and walls. The various flood-control channels crossing under the two freeways may facilitate some wildlife movement, though little evidence of this was observed. Raccoon tracks were observed in the drainage feature near Iron-Wood Nine Golf Course. However, raccoons are well adapted to the urban environment and are increasingly present in urban drainage channels. The drainage feature near Iron-Wood Nine Golf Course does not connect to any upstream natural habitat and therefore does not serve as a wildlife movement corridor. Construction activities associated with the Build Alternative within the drainage feature near Iron-Wood Nine Golf Course would temporarily discourage raccoon presence in that relatively short section of the drainage, but raccoons would likely continue to utilize the adjacent areas. No native wildlife nursery sites are present within the BSA. Therefore, a less than significant impact would occur with regards to substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impediment to the use of native wildlife nursery sites.

e) Less Than Significant Impact. Although the Cities of Cerritos and Artesia do have several ordinances and policies governing biological resources, the project will not have a significant impact to biological resources. Several project features and standard BMPs will address the potential for effects on animal and plant species, but

the project area is generally within an area of developed and ornamental landscaping. Per the requirements of Project Features PF-BIO-13 and PF-BIO-14, Prevention of the Spread of Invasive Species, provided in Section 2.17.3, city tree planting and removal requirements would be adhered to. Therefore, the project would not conflict with local policies or ordinances protecting biological resources, and no mitigation is necessary.

f) No Impact. The project is not located within or near a Los Angeles County regional habitat linkage or wildlife corridor, existing or proposed significant ecological area, or adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

3.1.5 Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.5.1 CEQA Significance Determinations for Cultural Resources

The potential for the proposed project to result in adverse impacts related to cultural and paleontological resources was assessed in the *Historic Property Survey Report* (HPSR) (2018) and its attachments, the *Paleontological Identification Report and Paleontological Evaluation Report* (PIR/PER) (2017 and 2018 Errata), and Sections 2.7, Cultural Resources, and 2.10, Paleontology, of this IS/EA. The following discussions are based on those analyses. In accordance with Public Resource Code (PRC) section 21080.3.1 and Assembly Bill (AB) 52, Caltrans initiated early consultation with California Native American tribes in May 2017. Refer to Chapter 4 of this IS/EA for detailed information pertaining to California Native American tribal consultation.

a, b) Less Than Significant Impact. It was determined that there are no National Register of Historic Places (National Register) listed or eligible cultural resources within the project’s Area of Potential Effect (APE). As a result, no cultural resources qualify as historical resources pursuant to CEQA, or are exempt per the Section 106 Programmatic Agreement (PA). In addition, it has been determined that a finding of No Historic Properties Affected is appropriate for the project because there are no historical resources within the APE and there are no impacts to historical resources pursuant to *State CEQA Guidelines* Section 15064.5(b)(3). Six built environment resources were evaluated for the proposed project and determined ineligible for listing on the National Register and also determined ineligible as a historical resource under CEQA. These resources were listed in Table 2.7.1.

No archaeological resources were identified within the APE through archival research, Native American consultation, or field surveys, and the majority of the

direct APE is within Caltrans' right-of-way (ROW). Pedestrian surveys for archaeological resources showed that all surveyable areas in the direct APE exhibited high levels of disturbance from the freeway, adjacent drainages, and nearby road construction. The entire direct APE has been substantially altered from previous construction activities, indicating that the likelihood of encountering intact archaeological resources is very low.

However, there is always a potential for previously undocumented cultural materials to be unearthed during construction activities. It is Caltrans' policy that if cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be halted and diverted until a qualified archaeologist can assess the nature and significance of the find. Potential effects to these materials would be avoided or minimized with the inclusion of Project Features PF-CR-1 and PF-CR-2, provided in Section 2.7.3. Therefore, any impacts would be less than significant.

c) Less Than Significant Impact. Geologic mapping indicates the entire study area is underlain by Holocene to late Pleistocene (less than 126,000 years ago) Alluvial Fan and Valley Deposits, Undivided. Although not mapped, artificial fill is likely present from the surface to varying depths throughout much of the study area where it was placed during construction of the existing freeways, streets, overcrossings, and undercrossings. Because of its disturbed context, artificial fill does not have the potential to contain scientifically significant paleontological resources. Young Alluvial Fan and Valley Deposits below a depth of 10 ft may be old enough to contain scientifically significant paleontological resources. The results of the locality search through the Natural History Museum of Los Angeles County (LACM) indicated that there are no vertebrate fossil localities within the study area. However, LACM has records of several fossil localities near the project from deposits similar to those found in the study area. The museum notes that these deposits are not usually paleontologically sensitive in the uppermost layers, but that scientifically important fossils may be encountered in the older deposits found at varying depths. Various vertebrate fossil localities have been recorded in cities surrounding the study area. Similarly, the pedestrian survey indicated that most of the study area is underlain by artificial fill. Other sediments observed are consistent with the Young Alluvial Fan and Valley Deposits, Undivided mapped in the study area.

Construction of the Build Alternative may require excavation that extends more than 10 ft below the original ground surface, potentially resulting in impacts to

paleontological resources. Excavation depths and locations of retaining walls, bridge abutments and piers, sewer lines, power and signal poles, drainage improvements, and noise barriers would be established during final design. A project feature addressing the development of a Paleontological Mitigation Plan (PMP) would provide procedures for the treatment of paleontological resources discovered during construction. As described in Project Feature PF-PAL-1, provided in Section 2.10.3.2, Paleontology, a qualified paleontologist will prepare the PMP following the guidelines in the Caltrans Standard Environmental Reference (SER), Environmental Handbook, Volume 1, Chapter 8 – Paleontology (June 2016 or more current) and those developed by the Society of Vertebrate Paleontology (SVP) (2010). The PMP shall be prepared concurrently with final design plans during the Plans, Specifications, and Estimates (PS&E) phase. The PMP would detail the work plan to mitigate project effects, monitoring to be conducted, excavation methods, and curation agreement. Therefore, with implementation of the PMP during construction, impacts to paleontological resources would be less than significant, and no mitigation is required.

d) Less Than Significant Impact. As discussed previously and in Section 2.7, all surveyable areas in the direct APE exhibited high levels of disturbance from the freeway, adjacent drainages, and nearby road construction. The entire direct APE has been substantially altered from those previous construction activities and the likelihood of encountering intact archaeological resources, including human remains, is very low. However, there is always a potential for previously undocumented cultural materials or human remains to be unearthed during site preparation, grading, or excavation for construction of the Build Alternative. If human remains are discovered, the State of California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the Los Angeles County Medical Examiner-Coroner shall be contacted. Pursuant to California PRC Section 5097.98, if the remains are thought by the Coroner to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At that time, the person who discovered the remains will contact the Caltrans Resident Engineer, who will then contact the Caltrans District 7 Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 will be followed as applicable. This provision is included as Project Feature PF-CR-2. Therefore, any potential impacts to human remains would be less than significant.

3.1.6 Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.6.1 CEQA Significance Determinations for Geology and Soils

The potential for the proposed project to result in adverse impacts related to geology and soils was assessed in the *Preliminary Geotechnical Report* (2018) and the *Preliminary Geotechnical Materials Report* (2017). The findings of the report are discussed in Section 2.9, Geology/Soils/Seismic/Topography, in this IS/EA. The following discussions are based on those analyses.

a) i) Less Than Significant Impact. The study area is located within a seismically active region of Southern California. Earthquakes within the region occur primarily as loose clusters along the Newport-Inglewood Structural Zone, along the southern margin of the Santa Monica Mountains, the southern margin of the Santa Susana and San Gabriel Mountains, and in the Coyote Hills-Puente Hills area. The study area is not located within an Alquist-Priolo Fault Zone. The closest noteworthy active fault with Holocene surface rupture is the Newport-Inglewood-Rose Canyon Fault,

crossing approximately 6 mi southwest of the I-605/SR-91 interchange. The closest mapped active fault with surface rupture is the late Quaternary Los Alamitos Fault, located approximately 3 mi southwest of the I-605/SR-91 interchange. Additionally, the Anaheim Fault crosses SR-91 at the on-ramp from Bloomfield Avenue; however, the top of the rupture plane of this Holocene-age fault is approximately 2.4 mi below ground surface (bgs). Therefore, given the distance of the study area to active faults which may be subject to surface rupture, the project would have a less than significant impact with regards to exposure of people or structures to potential substantial adverse effects involving rupture of a known earthquake fault.

a) ii) Less Than Significant Impact. The nearest substantial local sources of earthquakes and estimated peak ground acceleration (PGA) was summarized in Table 2.9.1 in Section 2.9, Geology/Soils/Seismic/Topography, in this IS/EA. PGA is a measurement of maximum ground acceleration in a particular area and can be described as how hard the ground may shake in a given geographic area based on several factors. The study area is likely to experience strong ground motion with an approximate PGA of 0.61 g. During construction, activities could be affected by ground motion from seismic activities. Possible ground rupture, liquefaction, and consolidation settlement could occur in the study area if an earthquake were to occur during construction. Implementation of safe construction practices and compliance with Caltrans and the California Division of Occupational Safety and Health (Cal-OSHA) safety requirements would minimize the impacts to worker safety during construction activities. Since the potential for strong seismic ground shaking is currently present within the study area, and construction or operation of the project would not further expose people or structures to substantial adverse effects involving strong seismic ground shaking. Therefore, impacts would be less than significant.

a) iii) Less Than Significant Impact. Liquefaction occurs when loose, saturated, generally fine sands and silts are subjected to strong ground shaking. The soils lose shear strength and become liquid; potentially resulting in large total and differential ground surface settlements as well as possible lateral spreading during an earthquake. Based on the California Geological Survey (CGS) Seismic Hazard Maps, the study area is located within a liquefaction study zone. Underlying soils within the study area are expected to consist of fine to medium grained, loose to medium dense sand. The groundwater table is relatively shallow and the site is subject to strong ground motion. Therefore, liquefaction potential is high. The preliminary estimate for free-field liquefaction settlement is in the range of between 4 and 8 inches at different locations of the study area. According to the City of Cerritos General Plan Safety

Element (2004), the entire city is located within a liquefaction hazard zone. According to the City of Artesia General Plan (2010), the city of Artesia is located within a mapped Liquefaction Zone of Required Investigation. Project Feature PF-GEO-1, provided in Section 2.9.3.2 in this IS/EA, would provide for a detailed geotechnical investigation and make project-specific recommendations to be incorporated into the final design of the selected Build Alternative. Project Features PF-GEO-2 and PF-GEO-3 would minimize soil erodibility and address slope stability and reduce the compressibility of soils and potential for liquefaction. Construction and operation of the project would not have substantial effects on seismic-related ground failure, including liquefaction. Therefore, impacts that would expose people or structures to substantial adverse effects involving seismic-related ground failure, including liquefaction, would be less than significant.

a) iv) No Impact. The study area is not located within an earthquake-induced landslide zone (CGS 1999). Evidence of landslides was not observed during the site investigation and the study area topography is relatively flat. Additionally, according to the City of Cerritos General Plan Safety Element (2004), the city does not have the potential for landslides. The City of Artesia General Plan Geology and Soils Element (2010) states that the city is not located within a mapped Earthquake-Induced Landslide Zone of Required Investigation and earthquake-induced landsliding is not anticipated to occur. The existing embankment slopes along the proposed project alignment are generally inclined 1.5:1 (horizontal:vertical) or flatter and are generally vegetated. No sign of slope instability was observed during site investigation. No hazardous geologic structure exists near the surface that may cause instability of the existing embankments. Therefore, no impact related to exposure of people or structures to substantial adverse effects involving landslides would occur.

b) Less Than Significant Impact. According to the *Preliminary Geotechnical Materials Report* (2017), due to a predominance of granular soils throughout the study area, the soils are not expected to be corrosive. Construction of the Build Alternative would result in a total Disturbed Soil Area (DSA) of approximately 29.25 ac. Excavated soil in the construction areas would be exposed and, as a result, there would be an increased potential for soil erosion during construction compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. Temporary cut slopes would follow the guidelines of Caltrans Trenching and Shoring Manual (2011) and Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1926 Subpart-P would be followed for temporary excavations.

During all construction activities for the Build Alternative, the construction contractor will be required to adhere to the requirements of the Construction General Permit (CGP) and to implement erosion and sediment control BMPs specifically identified in the project Storm Water Pollution Prevention Plan (SWPPP) to keep sediment from moving off site into receiving waters and impacting water quality. Refer to Section 2.8, Water Quality and Storm Water Runoff, for additional discussion regarding construction-related water quality issues and mitigation, including BMPs.

Worker safety hazards resulting from erosion during construction of the Build Alternative would be minimized based on implementation of the requirements in the CGP and erosion and sediment control BMPs in the SWPPP.

Adherence to recommendations within the detailed geotechnical recommendation report provided in Project Feature PF-GEO-1 would substantially reduce substantial adverse effects from geologic hazards. In addition, surficial soils that are sandy can be susceptible to soil erosion produced by running water. The clayey surficial soils are expected to expand when wet, and crack upon drying. Cracking allows infiltration of water from storms and irrigation, ultimately causing loosening of the surficial soils. This results in an increase of soil erodibility. Proposed fill slopes are generally 4:1 (horizontal:vertical) which satisfy Caltrans *Highway Design Manual* (HDM) (2016) requirements for side slopes. Other proposed grading requires 1.5:1 or flatter cut slopes. Revegetation and engineering of graded slopes specified in Project Feature PF-GEO-2 will be performed prior to construction that would minimize the soil erodibility and slope stability. Therefore, impacts related to substantial soil erosion or the loss of topsoil would be less than significant.

c) Less Than Significant Impact. The main geotechnical considerations for the study area are the presence of potentially compressible (shallow and deep) and liquefiable soils. Settlement is anticipated at the SR-91 crossing street off/on ramps where approach fills are required. Preliminary liquefaction settlement estimates indicate settlements between 4 and 8 inches could occur within the study area. Future subsidence of the site should also be expected. Recommendations to reduce the compressibility of soils and potential for liquefaction would be followed, as included in Project Feature PF-GEO-3. The proposed project would not be, and the existing facility is not, located on a geologic unit or soil that is unstable, and the geologic unit or soil would not become unstable as a result of the proposed project. Therefore, potential for on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse is considered less than significant.

d) Less Than Significant Impact. Soils within the study area are predominantly silty and clayey sand, sandy silt, poorly graded sand, and clayey silt. The sandy soils are primarily silty sand, which are not considered to be expansive. The clayey soils consist of sandy and clayey silt and silty clay; the corresponding expansion potential is considered to be moderate to high. Design and construction of the proposed improvements would comply with the HDM and other required standards, and recommendations from the Geotechnical Report, as included in Project Feature PF-GEO-1. Adherence to recommendations within these reports would substantially reduce substantial adverse effects from geologic hazards. Therefore, impacts related to soil expansion will be less than significant.

e) No Impact. As discussed in detail in Section 2.8, construction work related to the disposal of waste water will include the construction of drainage structures, protection in place and possible extension of existing drainage facilities, and creation of permanent water quality BMPs. The use of septic tanks or alternative waste water systems is not applicable, and current sewer systems within this highly urbanized area are available. No impact related to soils that are incapable of adequately supporting use of septic tanks or alternative waste water disposal systems would occur.

3.1.7 Greenhouse Gas Emissions

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<p>Caltrans has used the best available information based to the extent possible on scientific and factual information, to describe, calculate, or estimate the amount of greenhouse gas emissions that may occur related to this project. The analysis included in the climate change section of this document provides the public and decision-makers as much information about the project as possible. It is Caltrans' determination that in the absence of statewide-adopted thresholds or GHG emissions limits, it is too speculative to make a significance determination regarding an individual project's direct and indirect impacts with respect to global climate change. Caltrans remains committed to implementing measures to reduce the potential effects of the project. These measures are outlined in the climate change section that follows the CEQA checklist and related discussions.</p>			
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				

3.1.8 Hazards and Hazardous Materials

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 checked="" type="checkbox"/>	<input 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 handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.8.1 CEQA Significance Determinations for Hazards and Hazardous Materials

The potential for the proposed project to result in significant impacts related to hazards and hazardous materials was assessed in the *Phase I Initial Site Assessment (ISA)* (2018), Section 2.11, Hazardous Waste/Materials, and Section 2.4, Utilities and Emergency Services, of this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. Construction of the project would result in temporary impacts related to hazardous materials/waste that could occur within the maximum disturbance limits for the Build Alternative and design options, although

no hazardous waste concerns were observed or reported within parcels on which temporary construction easements (TCEs) and/or partial acquisitions would occur. An aerially deposited lead (ADL) site investigation report indicated that concentrations of lead in soil samples along on- and off-ramp locations along SR-91 between I-605 and Shoemaker Road exceed regulatory limits. Project Feature PF-HAZ-1, in Section 2.11.3.1, would reduce the effects of ADL by implementing a project-specific ADL site investigation to evaluate and regulate the handling, reuse, and disposal of excess soils.

Yellow traffic striping and pavement marking materials (paint, thermoplastic, permanent and temporary tape) that would be removed during construction may contain elevated concentrations of metals such as lead, and the removal of these materials during construction could impact workers and the surrounding environment. Project Feature PF-HAZ-2, in Section 2.11.3.1, would minimize effects related to yellow traffic striping by mandating testing and regulating disposal of materials in accordance with Caltrans' *Construction Manual* (2017).

The Build Alternative would require the acquisition of 18 single-family residences and two commercial parcels. The Build Alternative would also require improvements to the following bridges: Studebaker Road (both the SR-91 mainline Undercrossing [Br. No. 53-1706] and the westbound SR-91 to I-605 Connector Undercrossing [Br. No. 53-1707F]), Gridley Road Overcrossing (Br. No. 53-1324), Pioneer Boulevard Undercrossing (Br. No. 53-1335), Norwalk Boulevard Undercrossing (Br. No. 53-1334), and Bloomfield Avenue Overcrossing (Br. No. 53-1433). The Pioneer Boulevard Westbound Ramps/168th Alignment Design Option would result in five residential acquisitions. Based on the construction dates of these structures, asbestos-containing materials (ACMs) and LBP may be present in these bridges and structures. ACMs and lead-based paint (LBP) represent a concern during demolition of these bridges and structures. The acquired parcels are shown in Figure 2.11-1. Project Features PF-HAZ-3, PF-HAZ-4, PF-HAZ-5, PF-HAZ-6, and PF-HAZ-7 specifically require proper testing, monitoring, removal, and disposal of ACMs and LBP as well as focused ISAs and site investigations.

Soils within the study area may contain residue pesticide, based on the historical use of many areas within or in the vicinity. It is likely that the previous construction of SR-91 and I-605 will have reduced the potential for pesticide contamination within the project limits, but Project Feature PF-HAZ-8, in Section 2.11.3.1, requires a site investigation be performed for any undeveloped areas that might contain elevated

contaminations of pesticide to identify residual contamination that might be present and determine if associated potential hazards could occur during construction. Project Feature PF-HAZ-9 requires sampling, handling, and disposal of soils contaminated with pesticides in accordance with applicable federal, State, and local regulations.

Removal of sign posts and/or guard rails located along the SR-91 and I-605 ROW as well as at on-/off-ramps during construction of the Build Alternative would generate treated wood waste (TWW). Removal of these materials during construction could affect construction workers and the surrounding environment. Project Feature PF-HAZ-10 would minimize this effect.

Polychlorinated biphenyls (PCBs) were used prior to the 1980s as insulating oils in electrical transformers, fluorescent light ballasts, and/or as hydraulic oils in elevator equipment. There are 21 electrical distribution transformers (both ground-mounted and utility pole-mounted) present within the project area along the north side of SR-91 and the east side of I-605. Of these 21, 8 are located over bare soil and 1 is located partially over bare soil. Soil disturbance during construction activities may affect construction workers and the surrounding environment. Project Feature PF-HAZ-11 would minimize this effect.

Construction could disturb potentially contaminated soil and/or groundwater originating at properties beyond the maximum disturbance limits and the boundaries of property. Six properties located in the vicinity of the maximum disturbance limits of the Build Alternative have been identified as contributing to known groundwater impacts. These six properties are located at 16821 Norwalk Boulevard, 16604/16620 Pioneer Boulevard, 16632 Pioneer Boulevard, 16905 Pioneer Boulevard, 16849 Studebaker Road, and 10802 College Place. None of these properties would be fully or partially acquired for the proposed project; however, there is potential that contaminated groundwater originating at these parcels could be encountered during project construction. Measure PF-HAZ-12, in Section 2.11.4, requires a site investigation be performed on these parcels to identify potential hazards associated with contaminated soil and groundwater that could occur during project construction, and to provide appropriate measures to address these hazards.

Operation and maintenance of the transportation facilities proposed as part of the Build Alternative and/or design options would not introduce new sources of hazardous materials or waste. Routine maintenance activities would be required to

follow applicable regulations with respect to the handling and disposal of potentially hazardous materials.

With the incorporation of applicable project features and measures as outlined above, a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials would not occur. Impacts associated with hazardous materials would be less than significant. No mitigation is necessary.

b) Less Than Significant Impact. Vehicles utilizing SR-91 would continue to transport hazardous substances that could spill and impact the roadway and adjacent properties or resources. However, one purpose of the proposed project is to improve traffic safety on this roadway segment, which would help to minimize impact related to hazardous waste spills. In addition, transport of hazardous materials is subject to strict regulation. Caltrans, the California Highway Patrol, and local police and fire departments are trained in emergency response procedures for safely responding to accidental spills of hazardous substances on public roads, which further reduces impacts. For these reasons, operation of the Build Alternative and/or design options would not result in 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. Impacts would be less than significant, and no mitigation is necessary.

c) Less Than Significant Impact. Table 2.3.6, provided in Section 2.3, Community Impacts, lists the community facilities, including schools, that are within 0.5 mi of the Build Alternative. Although construction of the project would result in temporary impacts related to hazardous materials/waste that could occur within the maximum disturbance limits for the Build Alternative and design options (although no hazardous waste concerns were observed or reported within parcels on which TCEs and/or partial acquisitions would occur), with the implementation of project features and measures intended to address the handling of hazards and hazardous materials, impacts would be less than significant. Additionally, the proposed project would operate in the same manner as existing conditions, and would not result in new hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mi of an existing or proposed school in a manner that would differ from existing conditions. Therefore, impacts would be less than significant and no mitigation is required.

d) No Impact. The project is not located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment.

e) No Impact. The study area is not located within an airport land use plan, nor is it within 2 mi of a public airport or public use airport. The nearest public airport is the Long Beach Airport (Daugherty Field), approximately 4.5 mi southwest of the study area. The project would not result in a safety hazard for persons residing or working within the project area.

f) No Impact. The project is not within the vicinity of a private airstrip and would not result in a safety hazard for persons residing or working within the project area.

g) Less Than Significant Impact. Construction of the project could require partial or complete closures of local streets and ramps during night time and off-peak hours during critical construction phases. Some impairment to the delivery of emergency services, including fire and response times, may occur due to limited lane closures on the freeway mainline, ramps, and arterials. Emergency service providers, including local fire and police departments and the California Highway Patrol (CHP), could experience travel delays when traveling to and from emergency scenes during closures. Detour routes would be provided to direct traffic around any mainline or ramp closures using the local arterial street network. Project features would be incorporated into the Build Alternative to address the temporary impacts of project construction on emergency services and to ensure that no impairment of an adopted emergency response plan would occur. Project Feature PF-UES-2 (refer to Section 2.4.2.1 for more detailed information) states that prior to and during construction, the construction contractor will coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including the identification of alternative routes for emergency vehicles and routes across the construction areas that are developed in coordination with the affected agencies. In addition, Project Feature PF-T-1 (refer to Section 2.5.3.2 for more detailed information) requires the development and implementation of a Transportation Management Plan (TMP) during construction of the Build Alternative to address traffic delays, maintain traffic flow in the study area, manage detours and temporary road, lane, and ramp closures, provide ongoing information to the public regarding construction activities, closures, and detours, and maintain a safe

environment for construction works and travelers. Implementation of these project features would reduce the likelihood of impaired implementation of an adopted emergency response plan or emergency evacuation plan. The proposed project would add lanes to an existing freeway facility and would not construct structures which would physically interfere with an adopted emergency response plan or emergency evacuation plan. No mitigation is required.

h) No Impact. The project is located in a highly urbanized area, not near wildlands, and would add lanes to an existing freeway facility. The project would not 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.

3.1.9 Hydrology and Water Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.9.1 CEQA Significance Determination for Hydrology and Water Quality

The potential for the Build Alternative to adversely impact hydrology and water quality was assessed in the *Water Quality Assessment Report (WQAR)* (2017), and Section 2.8, Water Quality and Storm Water Runoff, of this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. The State Water Resources Control Board (SWRCB) administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving basin plans, total maximum daily loads (TMDLs) and National Pollutant Discharge Elimination System (NPDES) permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility. The SWRCB has identified Caltrans as an owner/operator of an Municipal Separate Storm Sewer System (MS4) under federal regulations. Caltrans' MS4 permit covers all Caltrans ROW, properties, facilities, and activities in the state. The permit has three basic requirements: Caltrans must comply with the requirements of the CGP; Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) BMPs, to the maximum extent practicable, and other measures as the SWRCB determines necessary to meet water quality standards. To comply with the MS4 permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California, and describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff. Adherence to the applicable permits as well as the inclusion of project features and standard BMPs outlined in Section 2.8.3.1 would ensure that impacts related to the violation of water quality standards or waste discharge requirements would be less than significant.

b) Less Than Significant Impact. Previous studies have estimated the depth to historically high groundwater in the vicinity of the study area to range from 8 to 35 ft bgs. The nearest groundwater wells with current groundwater level and quality data is nearly 2 mi south of the southern limits of the study area. Depletion or dewatering of groundwater, or interference with groundwater recharge, is not anticipated to occur during construction or operation of the proposed project. In the event that groundwater and any other non-storm water dewatering activities become necessary, these activities would be subject to the requirements and permitting authority of the RWQCB. Any impacts to groundwater would be less than significant.

c, d) Less Than Significant Impact. As described in Section 2.8 of this IS/EA, construction activities under the Build Alternative involve construction of drainage structures, protection in place of existing drainage facilities where feasible and extension to the widening limits, and creation of permanent water quality BMPs. The existing man-made drainage pattern in the study area would not be substantially changed as a result of the proposed project, and no alteration to the course of a stream or river would occur, including those to which the project's storm water runoff would discharge. Construction BMPs addressing erosion and siltation would be implemented during the construction phase, and Design Pollution Prevention and Treatment BMPs would be designed, implemented, and maintained during operation of the proposed project, reducing any impacts related to erosion or siltation on- or off-site. The Build Alternative results in a 5.83 ac increase in impervious surface area over the baseline conditions due to new roadway area, interchanges, and bridges, as well as alteration of drainage patterns on roadways. This permanent increase in impervious surface area will result in a permanent increase in runoff and pollutant loading by increasing peak loads and runoff volumes, in turn increasing the potential for erosion and sedimentation in surface waters. Turbidity in downstream water bodies may increase due to the increase in impervious surface area. Overall, once Design Pollution Prevention and Treatment pollution BMPs are properly designed, implemented, and maintained, impacts related to substantial erosion, siltation, or flooding would be less than significant.

e) Less Than Significant Impact. As stated previously, the Build Alternative represents a 5.83 ac increase in impervious surface over existing conditions due to new roadway area, interchanges, and bridges, as well as an alteration of drainage patterns on roadways. This permanent increase in impervious surface area will result in a permanent increase in runoff and pollutant loading by increasing peak loads and runoff volumes, in turn increasing the potential for erosion and sedimentation in surface waters. Contaminants in the runoff from the widened roadway could include sediments, oils, grease, and metals, similar to existing contaminants within the study area. Targeted Design Constituents are defined in the Caltrans NPDES Permit as pollutants that are expected to be generated by the proposed project and may "cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters," or their properties, or may cause the impairment of Section 303(d) listed receiving waters. Targeted Design Constituents anticipated to be generated by the proposed project include copper, lead, pesticides, and nutrients. As required by the Caltrans NPDES Permit, the proposed project is required to prepare a Storm Water Data Report (SWDR) and evaluate the project for the feasibility of

Treatment BMPs that will be implemented during construction to the maximum extent practicable. The SWDR will document the Caltrans-approved Treatment BMPs that will treat the Targeted Design Constituents listed above. Also included as a project element is the incorporation of Design Pollution Prevention BMPs that include the preservation of existing vegetation and slope and surface protection systems (e.g., permanent soil stabilization), as well as the use of 4:1 or flatter slopes. A new substantial source of pollutants would not be introduced, as the project is proposed to accommodate existing uses. Turbidity in downstream water bodies may increase due to the increase in impervious surface area. Overall, once Treatment and Design Pollution Prevention BMPs are properly designed, implemented, and maintained, a less than significant impact related to the creation of runoff water that would exceed the capacity of existing or planned storm water drainage systems or substantial additional sources of polluted runoff would occur.

f) Less Than Significant Impact. As discussed in the responses to questions a) through e) above and in Section 2.8, the inclusion of project features and standard temporary and permanent BMPs intended to address potential impacts to water quality would minimize and prevent substantial degradation of water quality in general. Impacts would be less than significant.

g) No Impact. The proposed project is a highway improvement project and would add lanes and modify an interchange at an existing facility. The proposed project is not within a 100-year flood hazard area, and would not construct housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map (FIRM) or other flood hazard delineation map, nor would construction of such housing be reasonably foreseeable as a result of the project. No impact would occur.

h) No Impact. The study area is not within the 100-year flood hazard area, and therefore construction of the project would not place structures that would impede or redirect flood flows within a 100-year flood hazard area. No impact would occur.

i) No Impact. The proposed project involves addition of lanes and alteration of an interchange at an existing facility, and would not make alterations to a levee or dam. No work to be done during construction or operation of the Build Alternative would substantially alter the baseline conditions so as to expose people or structure to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. No impact would occur.

j) Less Than Significant Impact. Seiches are large waves generated in enclosed bodies of waters, such as lakes, in response to ground shaking. Tsunamis are waves generated in large bodies of water as a result of fault displacement or major ground movement. There are no enclosed bodies of water near the study area and the Pacific Ocean is approximately 17.25 mi west of the study area. As a result, the existing potential risks related to tsunamis and seiches are considered negligible. Mudflows generally occur on steep slopes lacking sufficient vegetation. The study area is generally flat, and existing embankment slopes along the proposed project alignment are generally inclined 1.5:1 (horizontal:vertical) or flatter and are generally vegetated. Therefore, a less than significant impact would occur related to seiches, tsunamis, and mudflows.

3.1.10 Land Use and Planning

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>

3.1.10.1 CEQA Significance Determinations for Land Use and Planning

The potential for the Build Alternative to result in adverse impacts related to land use and planning was assessed in Sections 2.1, Land Use, and 2.3, Community Impacts, in this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. The proposed project would add lanes and widen an existing freeway facility. Up to 20 residential and non-residential acquisitions would be needed to construct the project; however, the acquisitions would occur on the fringes of neighborhoods. Therefore, the proposed improvements would not result in the physical division of an established community.

b) Less Than Significant Impact. The Build Alternative would require the permanent conversion from current and planned land uses to transportation uses to accommodate the proposed project improvements. As shown in Table 2.1.4 in Section 2.1.1.4, the Build Alternative would result in the conversion of approximately 0.76 ac of land for commercial and services uses, approximately 1.24 ac of existing educational/institutional uses, approximately 0.57 ac of existing industrial uses, approximately 1.74 ac of existing single-family residential uses, approximately 0.08 ac of existing multi-family residential uses, approximately 0.13 ac of open space and recreation uses, approximately 0.002 ac of transportation, communications, and utility uses, and approximately 1.07 ac of vacant land, as identified in local General Plans. With the inclusion of the design options, the Build Alternative would result in the conversion of a slightly smaller overall amount of General Plan land uses

The local land use policy consistency analysis for the Build Alternative can be found in Table 2.1.3 in Section 2.1.4.1. The Build Alternative would be generally consistent

with the applicable policies and objectives contained in the General Plans of the Cities of Artesia and Cerritos, including those intended to improve regional transportation facilities, maximize the efficiency of the circulation system, and improve access to city streets. Changes to existing land use patterns along SR-91 and I-605 after implementation of the Build Alternative would not occur because these freeways are existing transportation facilities located in a highly developed area, and a limited number of acquisitions would occur. No amendments to the General Plans of the Cities of Artesia and Cerritos would be required. Therefore, a less than significant impact would occur, and no mitigation would be required.

c) No Impact. The project is not located within or near a Los Angeles County regional habitat linkage or wildlife corridor, existing or proposed significant ecological area, or adopted HCP, NCCP, or other approved local, regional, or State HCP. Therefore, no impact would occur.

3.1.11 Mineral Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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"/>

3.1.11.1 CEQA Significance Determinations for Mineral Resources

The potential for the Build Alternative to result in adverse impacts related to mineral resources was assessed based on information from the Cities of Cerritos and Artesia General Plans.

a) No Impact. The General Plans of the Cities of Cerritos or Artesia and the CGS Map of the Aggregate Sustainability in California do not identify any known mineral resource deposits that would be of value to the region and the residents of the state within their respective city limits. Therefore, construction and operation of the proposed project would have no impact on any known mineral resources.

b) No Impact. The General Plans of the Cities of Cerritos and Artesia, the City of Artesia’s Artesia Boulevard Corridor Specific Plan, land use maps for the Cities of Cerritos and Artesia, and the CGS Map of the Aggregate Sustainability in California do not identify or delineate any mineral resource recovery sites, locally-important or otherwise. Therefore, construction and operation of the proposed project would have no impact on any such site.

3.1.12 Noise

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.12.1 CEQA Significance Determinations for Noise

The potential for the proposed project to result in significant noise impacts was assessed in the *Noise Study Report (NSR)* (2018) and *Noise Abatement Decision Report (NADR)* (2018), and in Section 2.13, Noise, of this IS/EA. The following discussion is based on those analyses.

a, c) Less Than Significant Impact. The *Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (Noise Protocol) specifies the policies, procedures, and practices to be used by agencies that sponsor new construction or reconstruction of federal or federal-aid highway projects. The Noise Abatement Criteria (NAC) specified in the Noise Protocol are the same as those specified in 23 CFR 772. The FHWA NAC were established by considering hearing impairment, annoyance, sleep, and task interference or disturbance, and interference with speech communication. The Noise Protocol defines a noise increase as “substantial” when the predicted noise levels under build conditions exceed existing noise levels by 12 A-weighted decibels (dBA). For this CEQA analysis, which is independent of the 23 CFR 772 analysis contained in Section 2.13, Noise, the “substantial increase” of 12 dBA has been used as the “applicable standards of other agencies” referred to in checklist question a).

Noise analysis for projects under CEQA centers on whether the proposed project or the proposed noise abatement would result in significant adverse environmental effects. Whether an increase in future noise level would result in a significant effect for purposes of CEQA is determined by comparison of the existing noise level (the baseline environmental setting) to the predicted noise level with the project. The assessment entails looking at the setting of the noise impact and the perceptibility of the noise increase. Key considerations include the uniqueness of the setting, sensitive nature of the receptors, magnitude of the noise increase, number of residences affected, and the absolute noise level.

Future with-project noise levels for Horizon Year 2044 were modeled and are included in Tables B-1 through B-11 in Appendix B of this IS/EA. Generally, with-project noise increases over the existing conditions under the Build Alternative and all design options will be imperceptible (e.g., less than a 5 dBA increase in noise levels is considered not readily perceptible to the human ear¹). Noise increases across all receptor locations and Build Alternative/options range from zero to four dBA. There is one residential location (Receptor R-190) at which a perceptible (5 dBA) increase was projected to occur in the with-project condition over existing baseline conditions for the Build Alternative, the Build Alternative with Design Option 2 (Pioneer Boulevard L-9), and the Build Alternative with Design Option 4 (Diamond Ramps). A 5 dBA noise increase is not considered significant under CEQA. Additionally, this location contains three noise-sensitive receptors currently shielded from the freeway facility by an existing sound wall. The existing sound wall would be removed and reconstructed to accommodate widening of the freeway, and the replacement wall would reduce the noise increase at this receptor to, which is below the level of perceptibility by the human ear. Therefore, under CEQA, there would be no substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. Impacts would be less than significant, and no mitigation is required.

b) Less Than Significant Impact. For purposes of determining significance under CEQA, the Caltrans *Transportation- and Construction-Induced Vibration Guidance Manual* (2013) shows that the vibration damage threshold for continuous/frequent

¹ Federal Highway Administration (FHWA). Highway Traffic Noise Analysis and Abatement Policy and Guidance. Website: https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/polguide/polguide02.cfm (accessed January 24, 2018).

intermittent sources is 0.25 peak particle velocity (PPV) inches per second (in/sec) for historic and old buildings, 0.3 PPV in/sec for old residential structures, and 0.5 PPV in/sec for new residential structures. The same manual shows the vibration annoyance potential criteria to be barely perceptible at 0.01 PPV in/sec, distinctly perceptible at 0.04 PPV in/sec, strongly perceptible at 0.1 PPV in/sec, and severe at 0.4 PPV in/sec. Both of these criteria for damage and annoyance were used to evaluate short-term, construction-related ground-borne vibration.

Because the rubber tires and suspension systems of trucks and other on-road vehicles provide vibration isolation, it is unusual for on-road vehicles to cause ground-borne noise or vibration problems. When on-road vehicles cause effects such as rattling of windows, the source is almost always airborne noise. Groundborne vibrations are mostly associated with passenger vehicles and trucks traveling on roadways with poor conditions such as potholes, bumps, expansion joints, or other discontinuities in the road surface. Smoothing the bump or filling the pothole will usually solve the problem. As the proposed project will use new asphalt pavement followed with proper maintenance, there will be no potholes, bumps, expansion joints, or other discontinuities in the road surface that would generate ground-borne vibration or direct or indirect noise impacts from vehicular traffic traveling on SR-91.

Vibration generated by construction equipment can result in varying degrees of ground vibration, depending on the equipment. The operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings situated on soil near the active construction area respond to these vibrations, which range from imperceptible to low rumbling sounds with perceptible vibrations and slight damage at the highest vibration levels. Typically, construction-related vibrations do not reach vibration levels that would result in damage to nearby structures. However, old and fragile structures would require special consideration to avoid damage.

The proposed project may require the use of pile drivers and other heavy-tracked construction equipment during construction. The FTA, in its *Transit Noise and Vibration Impact Assessment* (2006), shows that a typical-impact pile driver would generate approximately 0.644 PPV in/sec when measured at 25 ft. It also shows that typical heavy-tracked construction equipment would generate approximately 0.003 to 0.089 PPV in/sec when measured at 25 ft.

The closest sensitive receptors are within 50 ft of project construction areas for the Build Alternative and design options, so therefore, potential pile-driving activities could be located approximately 50 ft from the closest residence. The closest residence would be subject to a vibration level of 0.3 PPV in/sec. This vibration level is considered to be strongly perceptible and would have the potential to damage residential structures that are considered old, such as many of the structures that could be exposed to these vibration levels during construction activities. Other construction equipment and activities would generate vibration levels much lower than those of pile driving and heavy-tracked construction equipment and would therefore result in lower vibration levels at adjacent receiver locations. A review of the structures evaluated for inclusion on the National Register of Historic Places (and thereby may be “considered old”) shows that none of these structures are residential in nature, and moreover, none are within 50 ft of potential pile-driving activities. Therefore, ground-borne vibration levels generated by the proposed project would be less than significant.

d) Less Than Significant Impact. As described in more detail in Section 2.13.3.1, two types of short-term noise impacts would occur during construction of the proposed project. Construction crew commute and equipment transportation would have the potential to result in a high single-event noise exposure to receptors at a maximum of 75 dBA maximum instantaneous noise level (L_{max}), due to trucks passing at 50 ft from the receptor. Noise generated during roadway construction would take a variety of forms and are generally categorized by work phase. Types of construction equipment and their actual maximum sound levels at 50 ft can be found in Table 2.13-9 in Section 2.13.3.1. Sensitive receptor locations may be subject to short-term noise higher than 86 dBA L_{max} generated by construction activities along the project alignment. However, existing conditions within the project vicinity include the operation of the existing SR-91 freeway facility, and temporary noise impacts from the project would not dominate the noise environment. However, Project Feature PF-N-1 would control noise levels during construction between the hours of 9:00 p.m. and 6:00 a.m. to minimize construction noise impacts on sensitive land uses adjacent to the project site, as well as requiring internal combustion engines on the job site to be equipped with the appropriate manufacturer-recommended muffler. With the incorporation of this project feature, impacts would be less than significant, and no mitigation is required.

e) No Impact. The study area is not located within an airport land use plan, nor is it within 2 mi of a public airport or public use airport. The nearest public airport is the

Long Beach Airport (Daugherty Field), approximately 4.5 mi southwest of the study area. The project would not result in the exposure of people residing or working in the project area to excessive noise levels. No impact would occur.

f) No Impact. The project is not within the vicinity of a private airstrip and would not result in a safety hazard for persons residing or working within the project area.

3.1.13 Population and Housing

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.13.1 CEQA Significance Determinations for Population and Housing

The potential for the Build Alternative to result in adverse impacts related to population and housing was assessed in the *Relocation Impact Report* (2018), and Sections 2.2, Growth, and 2.3, Community Impacts, of this IS/EA. The following discussions are based on those analyses.

a) No Impact. As discussed in detail in Section 2.2 of this IS/EA, the Build Alternative proposes only improvements to an existing freeway facility and intends to accommodate projected growth that is already expected to occur with or without the project (3 percent for the City of Cerritos and 8 percent for the City of Artesia by 2040 as projected by the SCAG 2016–2040 RTP/SCS Final Growth Forecasts). The proposed project is located in a highly urbanized and built-out area, with little land available for new development, and the proposed improvements do not provide a new transportation facility or provide access to previously inaccessible areas. Although the improvements made to alleviate congestion and enhance the capacity of the existing facilities could make growth in the study area more attractive, a number of development projects were proposed and approved prior to the initiation of the planning studies for the proposed project. This indicates that development in the study area cities is not dependent or otherwise related to the completion of this transportation project. Table 2.18.1 in Section 2.18, Cumulative Impacts, provides a status of developments proximate to the study area. These developments would presumably be developed with or without the proposed project. Therefore, the project would not influence the rate, type, or amount of growth that would otherwise occur, and reasonably foreseeable growth that is anticipated to occur in the study area is not project-related. The project would not induce substantial population growth, either directly or indirectly. No impact would occur.

b, c) Less Than Significant Impact. According to the *Relocation Impact Report* (2018) and as described in Section 2.3.2, Relocations and Real Property Acquisition, the Preferred Alternative (which includes both Design Option 1 and Design Option 3) would result in the displacement of five residences, which could affect approximately 24 residents. This estimate was determined based on an average of 4.86 persons per household according to the American Community Survey (ACS) 2015 Estimates (utilizing the average of the three average household size figures of the applicable census tract block groups in the displacement area). The displaced properties are entirely single-family residences. The replacement area is defined as the local area where residential and business displacees would likely secure replacement sites. Generally, displacees prefer to remain in existing school systems and their immediate familial and cultural settings. The communities within the replacement area are located within the boundaries of the existing school district, ABC Unified School District (ABCUSD), which serves the city of Artesia, most of the cities of Cerritos and Hawaiian Gardens, the portion of the city of Lakewood east of the San Gabriel River, as well as small portions of the cities of Long Beach, Norwalk, and La Mirada. The replacement neighborhoods are generally located less than 3 mi from the displacement areas and are homogenous to the displacement areas. They are comparable in terms of amenities, public utilities, and accessibility to public services, transportation, and shopping.

Currently there are a limited number of available properties for sale within the specific displacement neighborhood. Therefore, adjacent neighborhoods within the ABCUSD boundaries were also analyzed for replacement housing availability. The results of the analysis indicated that there are affordable replacement properties within the identified replacement areas, but there could be relocation problems for displacees as a result of overcrowded residences, higher rents, real estate market competition, among other issues. Therefore, a longer timeline to vacate properties may be required, and Last Resort Housing Program payments may be required to relocate residential households being displaced. The construction of replacement housing under the Last Resort Housing Program would not be required, because there are adequate availability of replacement properties with similar purchase prices and amenities as the displaced properties, and there are currently no scheduling constraints for the project related to replacement housing. Therefore, as the project does not displace substantial numbers of people or housing, and the construction of replacement housing would not be required, this impact would be less than significant and no mitigation is required.

3.1.14 Public Services

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.14.1 CEQA Significance Determinations for Public Services

The potential for the Build Alternative to impact public services and facilities is assessed in the *Utility Impacts and Relocation Report (2018)* and Sections 2.1, Land Use, and 2.4, Utilities and Emergency Services, in this IS/EA. The following discussions are based on those analyses.

a) i, ii) Less Than Significant Impact. Potential impacts to fire and police protection response times due to construction activity may occur due to traffic diversion resulting from temporary closures to local roadways, sidewalks, and bikeways, and freeway lanes, and would be addressed by Project Feature PF-T-1, provided in Section 2.5.3.2. Project Feature PF-T-1 provides for a TMP to be developed in detail during final design and include elements intended to reduce traveler delays and enhance traveler safety during project construction. Project Feature PF-UES-2, provided in Section 2.4.2.1, would require the construction contractor to coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including identification of alternate routes. With the inclusion of these project features, acceptable service ratios, response times, and other performance objectives for fire and police protection would be maintained, and the provision of new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, would not be necessary. Impacts would be less than significant, and no mitigation is necessary.

a) iii, iv, and v) Less Than Significant Impact. No schools, parks, or other public facilities would be substantially impacted or displaced by construction or operation of the proposed project and so current acceptable service ratios of these resources would be maintained. In addition, and as discussed in more detail in Section 2.2, Growth, the proposed project is planned to accommodate existing and planned growth in the study area and would not induce growth that would require the 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. Impacts would be less than significant, and no mitigation is necessary.

3.1.15 Recreation

	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.15.1 CEQA Significance Determinations for Recreation

The potential for the Build Alternative to adversely impact recreation resources was assessed in Section 2.1, Land Use, in this IS/EA. The following discussions are based on the findings of that analysis.

a) Less Than Significant Impact. As described in more detail in Section 2.2, Growth, the proposed project would be located within an existing highly urbanized area, and would not provide accessibility to a previously inaccessible area or provide a new transportation facility. Rather, the project would help alleviate existing and forecasted traffic volumes and improve operations on SR-91, I-605, and surrounding arterials. Growth is not a reasonably foreseeable outcome of the proposed project, and therefore, an increase in the use of existing neighborhood and/or regional parks or other recreational facilities such that substantial physical deterioration of the facility would not occur or be accelerated. In addition, although the project would require small temporary acquisitions for TCEs and small permanent acquisitions at Ecology Park and the parking lot of Tracy High School in Cerritos, these acquisitions would occur at the peripheries of the facilities and would not contribute to the deterioration of the facilities or inhibit the facility’s ability to function normally. Impacts would be less than significant and no mitigation is required.

b) No Impact. Please also refer to the response given for checklist question a) above. The proposed project consists of improvements to an existing freeway facility and does not include the construction or expansion of recreational facilities which might have an adverse physical effect on the environment. No impact would occur.

3.1.16 Transportation/Traffic

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input 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"/>

3.1.16.1 CEQA Significance Determinations for Transportation/Traffic

The potential for Build Alternative to result in adverse traffic impacts was assessed in the *Traffic Operations Analysis Report* (2018) and in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, in this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. The analysis evaluation criteria used to determine acceptable traffic operation conditions are based on the level of service (LOS) policies identified by Caltrans. Caltrans strives for freeway facilities to operate at either LOS C or D. Based on Caltrans policy, LOS D was used as the threshold for the freeway facilities analysis. Any future freeway facilities projected to operate at an unacceptable LOS (LOS E or F) would be considered to be significantly impacted and require mitigation, as follows:

- Degrade the LOS on the freeway facility from LOS D to LOS E or F, or
- Impact (worsen) a facility that is already operating at an unacceptable LOS (E or F) when compared to the 2016 Baseline (and is not projected to operate at unacceptable LOS under the Future No Build Alternative scenario, indicating that the degradation in LOS is attributable to the proposed project)

In addition to freeway facilities, six local study area intersections were also analyzed utilizing *Highway Capacity Manual* (HCM) 2010 methodology. Intersections would be impacted if they are projected to operate at an unacceptable LOS (E or F) under the Build Alternative (and are not projected to operate at unacceptable LOS under the No Build Alternative scenario, indicating that the degradation in LOS is attributable to the proposed project).

The traffic analysis evaluated the existing baseline conditions (2016) as well as two future scenarios: the Opening Year (2024) and the Horizon Year (2044), for the Build Alternative and design options, as well as the No Build Alternative.

As shown in Table 2.5.6 provided in Section 2.5.4, some freeway segments experience a worsening of LOS (from LOS C to LOS D) in the p.m. peak hour when compared to existing baseline conditions, including the segments from Carmenita Road off-ramp to 183rd Street on-ramp and from Artesia Boulevard off-ramp to Artesia Boulevard on-ramp, but other segments would experience an improvement from LOS D to LOS C when compared to existing baseline conditions, including the segments from Artesia Boulevard on-ramp to Bloomfield Avenue on-ramp and from Norwalk Boulevard off-ramp to Norwalk Boulevard Loop on-ramp. None of the segments analyzed for the Opening Year (2024) would experience a degradation in LOS to E or F.

Freeway weave and merge/diverge areas were also analyzed for the Opening Year (2024) and can be found in Tables 2.5.7 and 2.5.8 in Section 2.5.4. One segment experiences a degradation in LOS when compared to existing baseline conditions (183rd Street on-ramp to Artesia Boulevard off-ramp). During both the a.m. and p.m. peak hours, LOS at this weave segment would worsen from LOS C in the existing baseline condition to LOS D for both the 2024 Build Alternative and 2024 Build Alternative with Design Option 4 (Diamond Ramps). Similarly, the Artesia Boulevard on-ramp merge junction LOS would worsen slightly from LOS C in the existing baseline condition to LOS D in both the 2024 Build Alternative and 2024 Build Alternative with Design Option 4 (Diamond Ramps) scenarios. However, none

of the weave and merge/diverge areas analyzed for the Opening Year (2024) would experience a degradation in LOS to E or F.

Intersection LOS analysis for the Opening Year (2024) can be found in Table 2.5.9. Some intersections experience a worsening of LOS in the Opening Year (2024) when compared to existing baseline conditions. For example, in the a.m. peak period, the Studebaker Road/WB SR-91 off-ramp would operate at LOS C under the 2024 Build Alternative and 2024 Build Alternative with Design Option 4 (Diamond Ramps) scenarios compared to LOS B under the existing baseline condition. However, none of the analyzed intersections would experience a degradation of LOS to E or F in Opening Year (2024).

Freeway mainline LOS analysis for Horizon Year (2044) can be found in Table 2.5.10, in Section 2.5.4. Similar to the Opening Year (2024), some segments experience a worsening of LOS when compared to the existing baseline conditions. For example, during the p.m. peak hour, the freeway mainline segments from Carmenita Road off-ramp to 183rd Street on-ramp, Artesia Boulevard off-ramp to Artesia Boulevard on-ramp, and northbound I-605/westbound SR-91 loop on-ramp to southbound I-605/westbound SR-91 on-ramp, would experience a worsening in LOS from C to D when compared to the existing baseline conditions. An improvement in LOS from D to C also occurs during the p.m. peak hour for the freeway mainline segments between the Artesia Boulevard on-ramp to the Bloomfield Avenue off-ramp and the I-605 off-ramp (northbound and southbound) to the Studebaker Road off-ramp. No mainline freeway segments are projected to degrade to LOS E or F in the Horizon Year (2044) under the Build Alternative or any design options when compared to the existing baseline condition.

The freeway weave and merge/diverge analyses for Horizon Year (2044) are contained in Tables 2.5.11 and 2.5.12 in Section 2.5.4. During both the a.m. and p.m. peak hours, the LOS of the weave segment between the 183rd Street on-ramp to Artesia Boulevard off-ramp would worsen from LOS C in existing conditions to LOS D under the 2044 Build Alternative and 2044 Build Alternative with Design Option 4 (Diamond Ramps). Also similarly to the Opening Year 2024 conditions, the merge junction at the Artesia Boulevard on-ramp would worsen to LOS D under the 2044 Build Alternative and 2044 Build Alternative with Design Option 4 (Diamond Ramps) scenarios when compared to existing baseline conditions (LOS C). However, during the p.m. peak hour, the Studebaker Road off-ramp diverge area would experience an improvement in LOS under the 2044 Build Alternative and 2044 Build

Alternative with Design Option 4 (Diamond Ramps) scenarios when compared to the existing baseline conditions (from LOS D to LOS C). No weave or merge/diverge areas would degrade to LOS E or F in the Horizon Year (2044) Build Alternative or any design option scenario when compared to the existing baseline condition.

Table 2.5.13 in Section 2.5.4 illustrates the intersection LOS analysis for Horizon Year (2044). In both the a.m. and p.m. peak hours, the Studebaker Road/WB SR-91 off-ramp would experience a worsening of LOS when compared to existing baseline conditions (from LOS B to LOS C during a.m. peak hour, and from LOS A to LOS B during p.m. peak hour). However, no intersections are projected to degrade to LOS E or F in the Horizon Year (2044) Build Alternative or any design option scenario when compared to the existing baseline condition.

Because no freeway mainline segments, weave, merge/diverge areas, or intersections would degrade to LOS E or F in any future with-project condition when compared to the existing baseline condition, impacts would be less than significant and no mitigation is necessary.

b) Less Than Significant Impact. As the Congestion Management Agency for the County of Los Angeles, the Los Angeles County Metropolitan Transportation Authority (Metro) is responsible for implementing the Congestion Management Program (CMP). As identified in the CMP, the County of Los Angeles LOS standard is LOS E, except where base year (for the 2010 CMP, the base year has been identified as 1992) LOS is worse than E, in which case the base year LOS is the standard. Please refer to the response to checklist question a) above. No freeway mainline segments, weave, merge/diverge areas, or intersections would degrade to LOS E or F in any future with-project condition when compared to the existing baseline condition, impacts would be less than significant and no mitigation is necessary.

c) No Impact. The proposed project would add mixed flow and auxiliary lanes to an existing freeway facility as well as make modifications to interchanges, and would not result in any change in air traffic patterns that would result in either an increase in traffic levels or a change in location that results in substantial safety risks.

d) Less Than Significant Impact. The proposed project would add mixed flow and auxiliary lanes to an existing freeway facility as well as make modifications to interchanges. No features that would substantially increase hazards, such as a sharp curve or dangerous intersection, would be included in the project design, as the

project would be designed and constructed to the standards as specified in the HDM (Caltrans 2017). Any mandatory or advisory design exceptions to these standards would be required to proceed through an approval process. These design exceptions are outlined in Section 1.3.3.1. Additionally, the proposed project would correct some existing nonstandard features that are inconsistent with the HDM, including (but not limited to) stopping sight distance, superelevation and transition, ramp curvature, and lane and shoulder width. The project would also not introduce any incompatible uses to the facility; it would remain a controlled-access highway in the same manner as it currently exists.

e) Less Than Significant Impact. During construction of the proposed project, some impairment to the delivery of emergency services, including fire and police response times, may occur due to limited lane closures on the mainline, ramps and arterials. Detour routes would be provided to direct traffic around any mainline or ramp closures using the local arterial street network. Emergency services providers (including the local fire and police departments and California Highway Patrol) could experience these travel delays when traveling to/from emergency scenes during these closures. Project Feature PF-UES-2, in Section 2.4.2.1, addressing coordination with emergency service providers regarding closures and alternative routes, and Project Feature PF-T-1, in Section 2.5.3.2, providing for development and implementation of a TMP during construction, would minimize potential impacts to emergency access. Because the proposed project would not remove access points to or from the freeway facility, no impacts to emergency access would occur during operation of the project. Overall, impacts would be less than significant.

f) Less Than Significant Impact. As discussed in the Section 2.1, Land Use, in this IS/EA, the Build Alternative would not conflict with adopted policies, plans, or programs supporting alternative transportation modes. The design of the freeway and ramp improvements in the Build Alternative would accommodate public and private buses. The improvements to arterials at their crossings of SR-91 would be designed to accommodate transit vehicles, pedestrians, and bicyclists. The arterial improvements would also include features consistent with Americans with Disabilities Act requirements. As a result, the Build Alternative would not conflict with alternative transportation modes. No mitigation is required.

3.1.17 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

3.1.17.1 CEQA Significance Determinations for Tribal Cultural Resources

The potential for Build Alternative to adversely impact Tribal Cultural Resources was assessed in the HPSR (2018), the attachments to the HPSR, Section 2.7, Cultural Resources; and through tribal consultation as required by AB 52. AB 52 went into effect on July 1, 2015, and introduced a new class of resources into the CEQA analysis: Tribal Cultural Resources. The California Office of Administrative Law approved the changes to the CEQA Checklist to incorporate the Tribal Cultural Resources Questions on September 27, 2016. The proposed project is subject to the requirements of AB 52, the CEQA Tribal Consultation law. As such, additional Native American coordination under AB 52 was initiated by Caltrans in May 2017. Details on this coordination and copies of the correspondence is provided in Chapter 4, Comments and Coordination, of this IS/EA. The tribes and representatives contacted per the requirements of AB 52 include the NAHC (Gayle Totton, Associate Governmental Program Analyst), Gabrieleño Band of Mission Indians – Kizh Nation (Andrew Salas, Chairperson), Gabrieleño/Tongva San Gabriel Band of Mission Indians (Anthony Morales, Chairperson), Gabrielino/Tongva Nation (Sandonne Goad, Chairperson), Gabrielino Tongva Indians of California Tribal Council (Robert F. Dorame, Chairperson), Gabrielino-Tongva Tribe (Linda Candelaria, Co-Chairperson), Juaneño Band of Mission Indians Acjachemen Nation – Belardes (Matias Belardes, Chairperson, and Joyce Perry, Tribal Manager). An initial project

notification letter was sent as well as follow up contact via phone and/or email. During a follow-up phone call, Mr. Morales of the Gabrieleño/Tongva San Gabriel Band of Mission Indians asked to be informed of the recommendations for monitoring and recommended that a monitor from his group specifically be present. Ms. Perry of the Juaneño Band of Mission Indians Acjachemen Nation – Belardes indicated on a follow-up phone call that her group does not have any concerns regarding the proposed project work. During a follow-up phone call, Mr. Dorame of the Gabrielino Tongva Indians of California Tribal Council expressed concern about the project, stating that the area is culturally sensitive and that Native American monitoring should occur during project work. Additional background research was conducted to address Mr. Dorame’s concerns and verify the sensitivity of the project areas for cultural resources. Mr. Dorame was provided a summary of these findings in a letter dated November 20, 2017. No other responses were received from the tribes contacted. Further detail of the tribal coordination process subject to the requirements of AB 52 can be found in Chapter 4, Comments and Coordination.

a) No Impact. Six properties were identified as falling within the APE requiring formal evaluation for the California Register of Historical Resources (California Register). No archaeological resources were identified within the APE through archival research, Native American Consultation, or field survey. All six of these properties are built environment resources, and none of them are listed in a local register of historical resources or that have been identified as significant in a historical resources survey. None of these resources appear to be eligible for the California Register. Therefore, the proposed project would have no impact on a tribal cultural resource that is listed or eligible for listing on the California Register or in a local register of historical resources as defined in PRC Section 5020.1(k).

b) No Impact. Based on the information provided above in the response to question a), as well as the results of AB 52 tribal coordination summarized above and outlined in more detail in Chapter 4, Comments and Coordination, there would be no impact to a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1, or a resource considered significant to a California Native American tribe, as a result of the proposed project.

3.1.18 Utilities and Service Systems

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

3.1.18.1 CEQA Significance Determinations for Utilities and Service Systems

The potential for the Build Alternative to adversely impact utilities and service systems was assessed in Section 2.4, Utilities and Emergency Services, in this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. The proposed project would reconstruct and incrementally expand storm water treatment facilities that currently exist to serve the existing SR-91. The project is required to meet the requirements of the SWRCB NPDES CGP, along with any other permits deemed necessary that may be issued by the State or Los Angeles RWQCB. Because there are already existing storm water treatment facilities serving the existing SR-91, and the expansion of said facilities under the Build Alternative would be minor, there would not be a significant increase in wastewater treatment requirements under the Build Alternative, and the project would incorporate project features to address potential water quality impacts and standard BMPs for construction and operation. No mitigation is necessary.

b, c) Less Than Significant Impact. The proposed project would reconstruct and incrementally expand storm water treatment facilities that currently exist to serve the existing SR-91 as part of the project description. The environmental impacts of that expansion is analyzed and discussed in Section 2.8, Water Quality. The construction of these facilities would not have significant environmental effects. BMPs would be employed both during construction and operation to avoid and minimize impacts to water quality, and impacts would be less than significant. No mitigation is necessary.

d, e, f) No Impact. The proposed project is a highway improvement project and would not require a substantially greater water supply, wastewater treatment facilities, or landfill accommodation during construction or operation. An increase of water supply entitlements, increased wastewater treatment capacity, or landfill capacity will not be necessary; therefore, no impact would occur.

g) No Impact. The proposed project is a highway improvement project and would not conflict with federal, state, or local statutes and regulations related to solid waste. No impact would occur.

3.1.19 Mandatory Findings of Significance

	Significant and Unavoidable 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

3.1.19.1 CEQA Significance Determinations for Mandatory Findings of Significance

a) Less Than Significant Impact. As described in more detail in the various resource sections contained in Chapter 2 of this IS/EA, the proposed project consists of modifications to an existing freeway facility within a highly urbanized area. With appropriate project features and measures contained within the various sections of Chapter 2 that address potential impacts to the quality of the environment, the project would not cause degradation of the quality of the environment. As there is little to no suitable fish or wildlife habitat in the highly urbanized study area, the project would not substantially reduce such habitat. Therefore, there is no correlative impact to fish or wildlife populations that would cause any populations to drop below self-sustaining levels. As discussed in more detail in Section 2.15, Plant Species, and 2.16, Animal Species, the project would not result in permanent impacts to any federally or State-listed special status plant or animal species of concern. Any temporary impacts to day-roosting bats, fully protected raptors, special-status bird species, and other nesting birds protected by the MBTA or the California Fish and Game Code, as well as any southern steelhead that may occur in existing downstream suitable habitat, would be avoided and minimized with the incorporation of project features PF-BIO-1 through PF-BIO-12. There are no species listed or proposed for listing as threatened

or endangered occurring within the study area. Similarly, there are no known important examples of the major periods of California history or prehistory that would be eliminated by construction and operation of the project, and any potential impacts to currently unknown paleontological resources would be addressed by incorporation of Project Feature PF-PAL-1, which would implement a PMP. Therefore, impacts would be less than significant, and no mitigation is necessary.

b) Less Than Significant. Cumulative impacts were assessed by looking at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time. As described in detail in Section 2.18, Cumulative Impacts, potential cumulative impacts are presented by environmental resource area, and reasonably foreseeable actions and projects discussed in that section can be found in Table 2.18.1 and are shown geographically on Figure 2.18-1. In general, for all resource areas, impacts resulting from the project would not be adverse and, therefore, not cumulatively considerable. Therefore, impacts would be less than significant and no mitigation is required.

c) Less Than Significant Impact. Because of the nature of the project (the addition of lanes to an existing freeway facility) and the highly urbanized setting, and taking into account the impact analyses detailed in Chapter 2 of this IS/EA and the CEQA significance determinations included in this chapter, none of the environmental effects resulting from the project would have a substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant, and no mitigation is necessary.

3.1.20 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.¹ In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.² The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” Greenhouse gas mitigation covers the activities and policies aimed at reducing GHG emissions to limit or “mitigate” the impacts of climate change. Adaptation, on the other hand, is concerned with planning for and responding to impacts resulting from climate change (e.g., adjusting transportation design standards to withstand more intense storms and higher sea levels).

3.1.20.1 Regulatory Setting

This section outlines federal and State efforts to comprehensively reduce GHG emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

NEPA (42 USC Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

¹ United States Environmental Protection Agency. 2017. U.S. Greenhouse Gas Inventory Report: 1990–2014 (last updated February 23, 2017). Website: <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014>.

² California Air Resources Board (ARB). 2017. California Greenhouse Gas Emission Inventory. 2017 Edition. Website: <https://www.arb.ca.gov/cc/inventory/data/data.htm>.

The FHWA recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.¹ This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”² Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors 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.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, [Congress](#) set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the [U.S. Department of Energy](#) administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of this Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2)

¹ Federal Highway Administration (FHWA). 2017. Sustainability (last updated October 19, 2017). Website: <https://www.fhwa.dot.gov/environment/sustainability/resilience/>.

² FHWA. Sustainable Highways Initiative. Website: <https://www.sustainablehighways.dot.gov/overview.aspx>.

renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

The Environmental Protection Agency'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, the 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.

The EPA in conjunction with the 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 2010¹ and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted

¹ <https://one.nhtsa.gov/Laws-&-Regulations/CAFE-%E2%80%93-Fuel-Economy>, accessed March 15, 2018..

standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered the EPA to reopen the review and reconsider the mileage target.^{1,2}

NHTSA and EPA issued a Final Rule for “Phase 2” for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO₂ emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

State

With the passage of legislation including State Senate and Assembly Bills and Executive Orders, California has been innovative and proactive in addressing GHG emissions and climate change.

- **Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002:** This bill requires the California 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 (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 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of AB 32 in 2006 and SB 32 in 2016.

¹ NBC News. 2017. Websites: <http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256>, and Federal Register 14671. Website: <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse>.

² *Federal Register*. 2017. Notice of Intention to Reconsider the Final Determination of the Mid-Term Evaluation of Greenhouse Gas Emissions Standards for model Year 2022–2025 Light Duty Vehicles. March 22. Website: <https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse> (accessed October 2017).

- **Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006:** AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.” The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.
- **Executive Order S-01-07 (January 18, 2007):** This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California’s transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.
- **Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions:** This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the *State 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 for 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 how it will achieve the emissions target for its 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.
- **Executive Order B-16-12 (March 2012):** This EO orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.
- **Executive Order B-30-15 (April 2015):** This EO establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order

to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all State agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMT CO₂e). Finally, it requires the Natural Resources Agency to update the State's climate adaptation strategy, *Safeguarding California*, every 3 years, and to ensure that its provisions are fully implemented.

- **Senate Bill 32, (SB 32) Chapter 249, 2016:** This bill codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

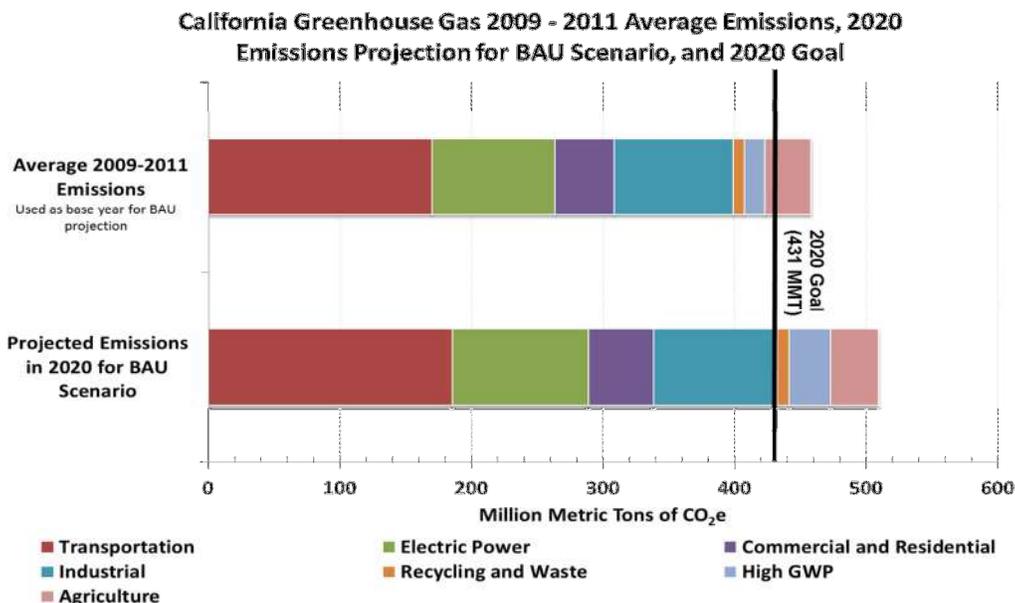
3.1.20.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 ([AB 32](#)), which created a comprehensive, multi-year program to reduce GHG emissions in California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32.

The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the updated Scoping Plan, ARB released the GHG inventory for California.¹ ARB is responsible for maintaining and updating California's GHG Inventory per Health and Safety Code Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure 3.2-1 represent

¹ ARB. 2017. California Greenhouse Gas Emission Inventory (Released June 2017). Website: <https://www.arb.ca.gov/cc/inventory/data/data.htm>.



Source: ARB. Greenhouse Gas Inventory. Website: <https://www.arb.ca.gov/cc/inventory/data/bau.htm>.

Figure 3.2-1 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMT CO₂e.¹ The 2017 edition of the GHG emissions inventory ([released in June 2017](#)) found total California emissions of 440.4 MMT CO₂e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery.

The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMT CO₂e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMT CO₂e.

¹ The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4).

3.1.20.3 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.¹ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (*State 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.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best-faith effort to describe the potential GHG emissions related to the proposed project.

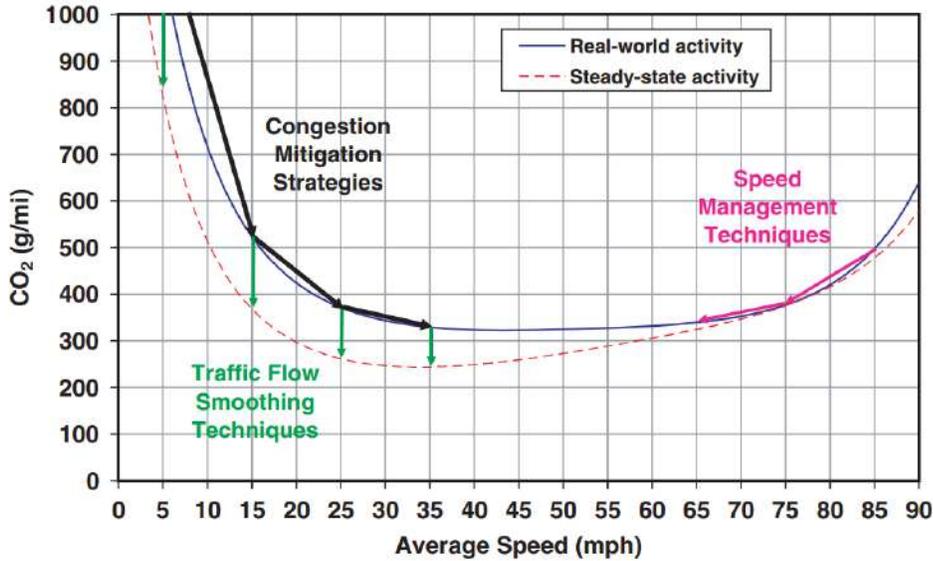
Operational Emissions

Four primary strategies can reduce 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 concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the State of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of 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 3.2-2). To the extent

¹ 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 SCAQMD (Chapter 6: The CEQA Guide, April 2011), and the United States Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).



Source: Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside (May 2010). Website: <http://uctc.berkeley.edu/research/papers/846.pdf>.

Figure 3.2-2 Possible Use of Traffic Operation Strategies in Reducing On-Road CO₂ Emissions

that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO₂, may be reduced.

SCAG’s 2016 RTP/SCS complies with the emission reduction targets established by the California Air Resources Board (ARB) and meets the requirements of SB 375 as codified in Government Code §65080(b) et seq. by achieving per capita GHG emission reductions relative to 2005 of 8 percent by 2020 and 18 percent by 2035, which meets or exceeds targets set by ARB. As required by SB 375, the SCS outlines growth strategies that better integrate land use and transportation planning and help reduce the State’s GHG emissions from cars and light trucks. The proposed project is listed in Amendment #3 of the 2016 RTP/SCS (project ID: 1163S012), which can be found in Appendix E. The project will assist the region with its overall goals to reduce vehicle-related GHGs by relieving congestion and improving traffic flow, thereby reducing emissions. This is consistent with the RTP/SCS’s identified strategies to manage congestion by maximizing the current system and ensuring it operates with maximum efficiency and effectiveness.

The 2016 RTP/SCS commits \$6.9 billion toward transportation demand management (TDM) strategies and \$9.2 billion for transportation systems management (TSM) improvements in the region. As described in Section 1.3.3, both TSM and TDM elements may be incorporated into the Build Alternative for the proposed project. Together, congestion management, TDM, and TSM strategies will all help the region achieve its goals of VMT and VHT reduction. Specifically, TSM and TDM measures may provide the following benefits: lessen the number of trips, lessen peak-hour travel, conserve energy, and provide more travel alternatives. Further, Section 1.3.3 states that the Build Alternative for the proposed project will replace existing bicycle and pedestrian facilities and construct new bicycle and pedestrian facilities at specific locations within the project limits. As a result, these strategies may reduce GHG emissions.

Quantitative Analysis

The regional vehicle miles traveled (VMT) for the Existing (2016), No Build Alternative, and Build Alternative were estimated using the daily traffic volumes included in the *Traffic Operations Analysis Report* (2018). The VMT data, along with the Caltrans Emissions Factor Model (CT-EMFAC2014) emission rates, were used to calculate and compare the CO₂ emissions for the 2016, 2024, and 2044 regional conditions.

The results of the modeling were used to calculate the CO₂ emissions listed in Tables 3.2.1 and 3.2.2. These tables show that both the future No Build and Build Alternatives would result in a net decrease in CO₂ emissions in 2024 and 2044, compared to the existing (2016) condition. The Build Alternative in both opening and horizon years would result in an increase in CO₂ emissions in the region when compared to the No Build Alternative in each year. The CO₂ emissions numbers in Tables 3.2.1 and 3.2.2 are only useful for a comparison between project 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 (e.g., the fuel mix [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 such as ethanol and the source of the fuel components], rate of acceleration, and the aerodynamics and efficiency of the vehicles).

Table 3.2.1 2024 Opening Year Greenhouse Gas Emissions and Vehicle Miles Traveled

Alternative	Annual VMT	CO ₂ (MT/yr)	CH ₄ (MT/yr)	CO ₂ e (MT/yr)
Existing (2016)	131,516,161	49,810	1.8	49,861
2024 No Build	109,391,887	36,938	1.0	36,966
<i>Change from Existing (2016)</i>	<i>-22,124,274</i>	<i>-12,872</i>	<i>-0.8</i>	<i>-12,895</i>
2024 Build Alternative	114,828,749	38,170	1.0	38,197
<i>Change from Existing (2016)</i>	<i>-16,687,412</i>	<i>-11,640</i>	<i>-0.9</i>	<i>-11,664</i>
<i>Change from No Build</i>	<i>5,436,862</i>	<i>1,232</i>	<i>0.0</i>	<i>1,231</i>

Source: Air Quality Analysis (2018).

Note: Totals may not appear to sum correctly due to rounding.

Caltrans = California Department of Transportation

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

CT-EMFAC = Caltrans Emissions Factors Model

MT/yr = metric tons per year

VMT = vehicle miles traveled

Table 3.2.2 2044 Horizon Year Greenhouse Gas Emissions and Vehicle Miles Traveled

Alternative	Annual VMT	CO ₂ (MT/yr)	CH ₄ (MT/yr)	CO ₂ e (MT/yr)
Existing (2016)	131,516,161	49810	1.816	49,861
2044 No Build	109,391,887	29449	0.572	29,465
<i>Change from Existing (2016)</i>	<i>-22,124,274</i>	<i>-20361</i>	<i>-1.244</i>	<i>-20,396</i>
2044 Build Alternative	114,828,749	30380	0.541	30,395
<i>Change from Existing (2016)</i>	<i>-16,687,412</i>	<i>-19430</i>	<i>-1.275</i>	<i>-19,466</i>
<i>Change from No Build</i>	<i>5,436,862</i>	<i>931</i>	<i>0.0</i>	<i>930</i>

Source: Air Quality Analysis (2018).

Caltrans = California Department of Transportation

CH₄ = methane

CO₂ = carbon dioxide

CO₂e = carbon dioxide equivalent

CT-EMFAC = Caltrans Emissions Factors Model

MT/yr = metric tons per year

VMT = vehicle miles traveled

Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO₂ emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO₂ emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study,¹ brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO₂ emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate

¹ Matthew Barth, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system*. Transportation Research Part D: Transport and Environment Volume 14, Issue 6, August 2009, Pages 400–410

emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the EPA and the California Air Resources Board (CARB) have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of GHG emissions has limitations. Although a GHG analysis is included for this project, there are numerous external variables that could change during the design life of the proposed project and would thus change the projected CO₂ emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, "Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2016,"¹ which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003, subsequently increasing to higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 29 percent from model year 2004 to 2015 and is attributed to new technology that improved fuel economy while keeping vehicle weight relatively constant. Table 3.2.3 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025, from the National Highway Traffic Safety Administration for the 2012–2016 and 2017–2025 CAFE Standards.

¹ <https://www.epa.gov/fueleconomy/light-duty-automotive-technology-carbon-dioxide-emissions-and-fuel-economy-trends-1975-1>

Table 3.2.3 Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2017	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	39.6-40.1	41.1-41.6	44.2-44.8	55.3-56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.1-29.4	29.6-30.0	30.6-31.2	39.3-40.3
Combined	29.7	30.5	31.3	32.6	34.1	35.1-35.4	36.1-36.5	38.3-38.9	48.7-49.7

Source 1: Environmental Protection Agency (2013), <http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf>.

Source 2: Environmental Protection Agency (2012), <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-model-year-2017-and-later-light-duty-vehicle#rule-summary>.

mpg = miles per gallon

Second, new lower-emission and zero-emission vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO 2013):

“LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case.”¹

The greater percentage of lower-emissions and zero-emissions vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became effective on January 12, 2010 (codified in Title 17, California Code of Regulations [CCR], Sections 95480–95490). Beginning January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

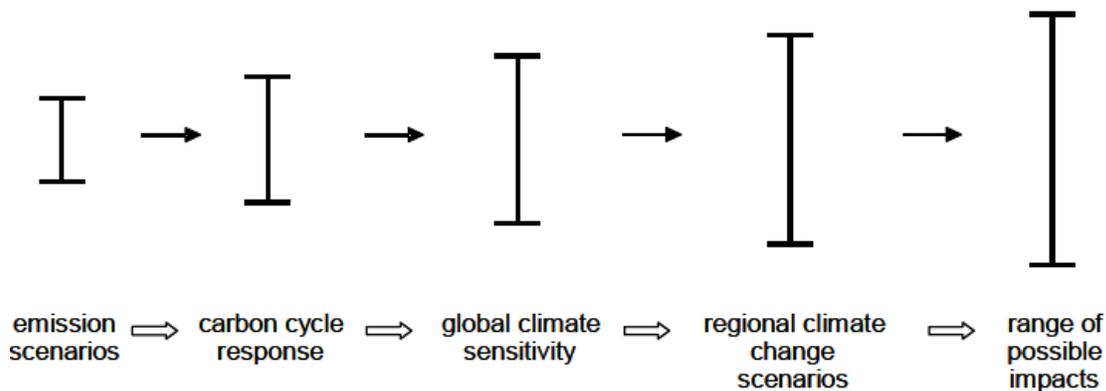
Limitations and Uncertainties with Impact Assessment

Figure 3.2-3 illustrates how the range of uncertainties in assessing GHG impacts grows with each step of the analysis, as noted in the *National Highway Traffic Safety Administration Final EIS for MY2017–2025 CAFE Standards* (NHTSA 2012):

“Moss and Schneider (2000) characterize the ‘cascade of uncertainty’ in climate change simulations (Figure 3.2-3). As indicated in Figure

¹ [http://www.eia.gov/forecasts/aeo/pdf/0383\(2013\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf)

3.2-3, the emission estimates ... have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources ...). Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood.”¹



Source: National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012). Page 5-22.

Figure 3.2-3 Cascade of Uncertainty in Climate Change Simulations

Much of the uncertainty in assessing an individual project’s impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO₂ emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO₂e. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global GHG emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce GHG emissions. Non-mitigation IPCC scenarios project an increase in global GHG emissions of 9.7 billion metric tons CO₂, which would represent an increase up to

¹ http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cape/FINAL_EIS.pdf. page 5-21

36.7 billion metric tons CO₂ from 2000 to 2030 (i.e., between 25 percent and 90 percent increase).¹

The assessment is further complicated by the fact that changes in GHG emissions can be difficult to attribute to a particular project because the projects often cause shifts in the locale for some type of GHG emissions rather than causing “new” GHG emissions. It is difficult to assess the extent to which any project-level increase in CO₂ emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

Table 3.2.4 shows maximum construction CO₂e emissions for the Build Alternative.

Table 3.2.4 Construction Greenhouse Gas Emissions

Project Phases	CO ₂	CH ₄	N ₂ O	CO ₂ e
Grubbing/Land Clearing (metric tons/phase)	73.65	0.02	0.00	67.42
Grading/Excavation (metric tons/phase)	1,250.56	0.36	0.01	1,145.84
Drainage/Utilities/Sub-Grade (metric tons/phase)	505.20	0.10	0.00	461.86
Paving (metric tons/phase)	135.94	0.03	0.00	124.44
Maximum (metric tons/phase)	1250.56	0.36	0.01	1,145.84
Total (metric tons/construction project)	1965.36	0.51	0.02	1,799.55

Source: *Air Quality Analysis* (2018).

Note: Totals may not appear to sum correctly due to rounding.

CH₄ = methane CO₂e = carbon dioxide equivalent
 CO₂ = carbon dioxide N₂O = nitrous oxide

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 offset to some degree by longer intervals between maintenance and rehabilitation activities.

¹ Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007: The Physical Science Basis: Summary for Policy Makers*. February. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/spm.html

Project features to reduce construction GHG emissions are included as part of the proposed project and can be found in Section 2.12, Air Quality. Project Feature PF-AQ-2 includes maintaining construction equipment engines to reduce and control air quality emissions, and Project Feature PF-AQ-6 requires all construction vehicles both on and off site to be prohibited from idling in excess of 5 minutes. Project Feature PF-AQ-4 requires compliance with Caltrans Standard Specifications Section 14-9.02, which requires contractors to adhere to all CARB, regional, and local air quality rules, regulations, ordinances, and statutes for air pollution control. Proper engine maintenance, idling restrictions on construction vehicles, and some air pollution control measures also help reduce GHG emissions due to construction.

3.1.20.4 CEQA Conclusion

As discussed above, both the No Build and Build Alternatives show a reduction in GHGs in 2024 and 2044 compared to existing conditions, due to improvements in fuel efficiency and engine technologies. However, the Build Alternative shows an increase in GHG emissions in 2024 and 2044 compared to the No Build Alternative. Nonetheless, there are also limitations with EMFAC and with assessing what a given CO₂ emissions increase means for climate change. 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.

Greenhouse Gas Reduction Strategies

Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined in AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars include: (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent of the State's electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy, *Safeguarding California*.

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction in VMT. One of [Governor Brown's key pillars](#) sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030. See Figure 3.2-4.

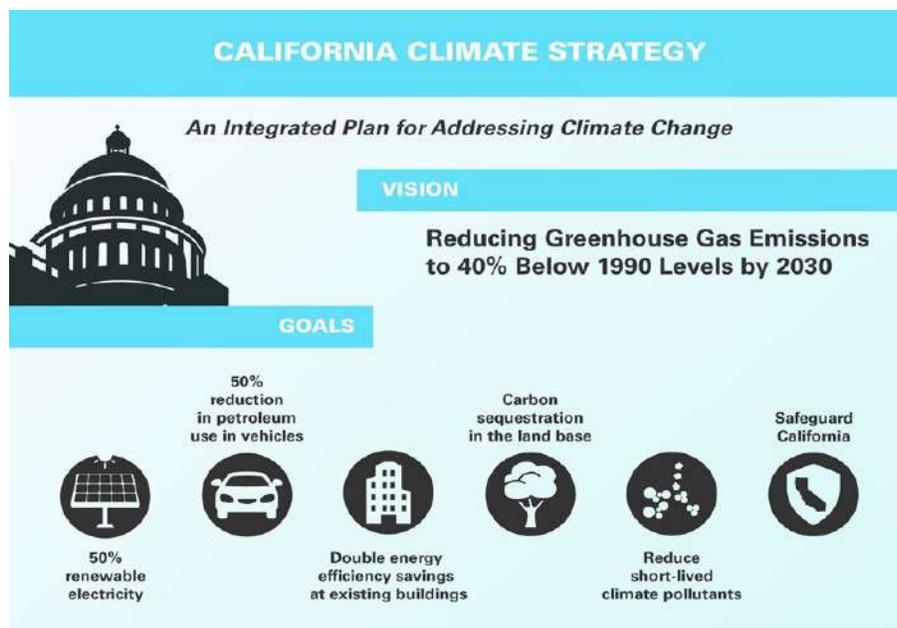


Figure 3.2-4 The Governor’s Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor’s Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

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. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391(Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in [*Activities to Address Climate Change*](#) (Caltrans 2013).

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

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

Project-Level Greenhouse Gas Reduction Strategies

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

- Project Feature PF-AQ-2 includes maintaining construction equipment engines to reduce and control air quality emissions. Proper engine maintenance can also help reduce vehicle GHG emissions.
- Project Feature PF-AQ-4 requires compliance with Caltrans Standard Specifications Section 14-9.02, which requires contractors to adhere to all CARB, regional, and local air quality rules, regulations, ordinances, and statutes for air pollution control. Measures that reduce emission of air pollutants may also reduce GHG emissions.
- Project Feature PF-AQ-6 requires all construction vehicles both on and off site to be prohibited from idling in excess of 5 minutes. Restricting idling reduces vehicle GHG emissions.
- Project Feature PF-T-1 requires a Transportation Management Plan (TMP) be implemented during construction of the Build Alternative to address changes in traffic flows and pedestrian and bicycle circulation and to provide measures to minimize the adverse effects of construction activities on traffic flows and pedestrian and bicycle travel within the study area. Managing traffic flows to reduce delays reduces excess emissions, including GHG emissions, from idling vehicles.
- Caltrans Standard Specification 7-1.02C, Emissions Reduction, requires contractors to certify they are aware of, and will comply with, the emissions reduction regulations being mandated by the CARB throughout the duration of the contract.

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—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their 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. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the 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, 2011¹, 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 provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The United States Department of Transportation issued USDOT Policy Statement on Climate Adaptation in June 2011, committing to “integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions.”²

To further the USDOT Policy Statement, on December 15, 2014, FHWA issued order 5520 (Transportation System Preparedness and Resilience to Climate Change and

¹ Obama White House. 2017. Council on Environmental Quality Climate Change Resilience. Website:
https://www.whitehouse.gov/sites/whitehouse.gov/files/ceq/2011_adaptation_progress_report.pdf.

² FHWA. Sustainability (Guidance withdrawn on May 19, 2017). Website:
https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm.

Extreme Weather Events).¹ This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, State, and local levels.²

State Efforts

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 and directed all State agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, 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, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences, Engineering, and Medicine to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, [*Sea-Level Rise for the Coasts of California, Oregon, and Washington*](#) (Sea-Level Rise Assessment Report),³ was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates as well as the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing

¹ FHWA. 2014. FHWA Order 5520. Website: <https://www.fhwa.dot.gov/legregs/directives/orders/5520.cfm>.

² FHWA. 2017. Sustainability Resilience (updated October 19, 2017). Website: <https://www.fhwa.dot.gov/environment/sustainability/resilience/>.

³ National Academy of Sciences, Engineering, and Medicine. 2012. *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Website: <https://www.nap.edu/read/13389/chapter/1>.

information on projected sea-level rise impacts to State infrastructure (e.g., roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems as well as a discussion of future research needs regarding sea-level rise.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, State, federal, and public and private entities, developed [*The California Climate Adaptation Strategy*](#) (December 2009),¹ which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across State agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as [*Safeguarding California: Reducing Climate Risk \(Safeguarding California Plan\)*](#).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring State agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how State agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the [*State of California Sea-Level Rise Interim Guidance Document*](#) (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided “guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California,” specifically, “information and recommendations to enhance consistency across agencies in their development of approaches to SLR.”²

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 actively

¹ State of California. Climate Change – California Climate Adaptation Strategy. 2011–2017. Website: <http://www.climatechange.ca.gov/adaptation/strategy/index.html>.

² <http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/>

engaged in in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

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