Chapter 3 California Environmental Quality Act (CEQA) Evaluation

The proposed 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 May 27, 2022, 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 Environmental Impact Statement (EIS), or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require Caltrans to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an Environmental Impact Report (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 *State 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 CEQA 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 CEQA Checklist incorporates by reference the information contained in Chapters 1 and 2.

3.1.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:

Question	CEQA Determination
a) Have a substantial adverse effect on a scenic vista?	Less Than Significant Impact
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	No Impact
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less Than Significant Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less Than Significant Impact

CEQA Significance Determinations for Aesthetics

The potential for the Build Alternatives to result in adverse impacts to aesthetics was assessed in the Visual Impact Assessment (VIA, March 2023), and Section 2.6, Visual/Aesthetics, in this EIR/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. Existing land uses in the Study Area primarily consist of relatively flat urban areas characterized by residential, commercial/retail, parks and open space, and industrial land uses. The Santa Ana Mountains, Chino Hills, and Puente Hills are located north and east of I-5. They are blocked from view throughout most portions of the Study Area by existing land cover (noise barriers, buildings, fences, signage, etc.) and existing vegetation, but they are visible to the north and east from some locations; however, they are not visually prominent from the Study Area. Vegetation in the Project Area is predominantly comprised of trees and vegetation located along the I-5 rights-of-way (ROWs) and ornamental vegetation located in adjacent areas outside of the I-5 ROWs. Several rivers and creeks cross the Project Area, including Coyote Creek, Santiago Creek, Santa Ana River, and several smaller creeks. However, these waterways are generally confined by concrete and are not in natural courses and would be considered to fit in with the surrounding urban environment.

Implementation of the Build Alternatives would result in minimal changes to the visual character and visual quality of the Study Area. The visual character of the Build Alternatives would be compatible with the existing visual character of the Project Area. Under Alternatives 2 and 3, visual changes would primarily include park-and-ride facilities, pavement, lane markings, lane separators, signage, and other elements in the freeway corridor within existing paved areas, which is consistent with what viewers are currently experiencing within the Study Area. In addition to the design features noted for Alternative 3, visual changes associated with Alternative 4 would include some lane expansion and retaining walls. Views within the existing corridor consist of multiple lanes in each direction, HOV lanes, noise barriers, extensive signage, under and overpass structures, elevated lanes, and pavement. The reconfiguration or addition of similar elements would not substantially alter the existing visual environment. The scale of the design elements under Alternative 4 compared to Alternatives 2 and 3 would slightly increase but would continue to be consistent with the existing visual environment within the Study Area.

According to the Chapter 2.6, Visual/Aesthetics, of this EIR/EA and the *Visual Impact Assessment* completed for the proposed Project, no scenic resources have been identified for the proposed Project and no visual impacts to scenic areas would be expected. Existing views of the surrounding mountains are largely obstructed by existing development and waterbodies in the Study Area are generally confined by concrete and no longer in a natural state. Furthermore, implementation of the Build Alternatives would result in minimal changes to visual environment of the Study Area as described above. Therefore, the Build Alternatives would result in less than significant impacts related to scenic quality and scenic vistas. No mitigation is required.

b) No Impact. I-5 is not a State-designated Scenic Highway, and there are no State-designated Scenic Highways crossing or in the vicinity of the Project Area. Therefore, the Build Alternatives would result in no impacts related to scenic highways or resources. No mitigation is required.

c) Less Than Significant Impact. Land within the Study Area is zoned for specific plan, commercial, industrial, mixed use, open space, public and institutional, civic center, and residential. The proposed improvements associated with the Build Alternatives would be consistent with the existing transportation land uses and would not result in significant changes to the visual environment that would conflict with applicable zoning and other regulations governing scenic quality. Additionally, Project Features PF-VIA-1 and PF-VIA-2 would be implemented, which would require the avoidance of vegetation removal where feasible and the provision of landscape designs that meet State and local requirements and minimization of lighting impacts to the surrounding environment. In addition, Measure VIA-1 would require coordination with appropriate public agencies to discuss the theme and aesthetic look of the park-and-ride facilities. Therefore, the Build Alternatives would not result in significant changes to the visual environment that would conflict with applicable zoning or other regulations governing scenic quality and impacts would be less than significant.

d) Less Than Significant Impact. Existing light sources surrounding the Project Area include traffic and street lighting; signalization at intersections and freeway on- and off-ramps; electric advertising; commercial/retail areas; industrial areas; and limited light sources from residential areas. Construction work for the Build Alternatives would primarily be done during daylight hours but night lighting may also be used to avoid construction activities during periods of heaviest congestion.

However, lighting used during construction would only be temporarily utilized; therefore, it is anticipated that residential areas adjacent to the Project Area would be minimally affected.

Replacement of existing lighting with new LED lighting may slightly change the how the Project Area looks at night and additional safety lighting would be provided for new ELs. Impacts due to the change to LED lighting should be minimal; however, additional safety lighting for new ELs would introduce new visual elements to the corridor and increase the number of light sources. Changes in nighttime light levels would likely impact viewers but would be remain consistent with the existing condition in the Project Area. Light sources, such as existing roadway, site, and architectural, and advertising lighting is common. New lighting would likely be noticeable but would not significantly change existing ambient light levels. As noted in Section 2.6, the overall visual impacts related to lighting would generally be low or neutral. Furthermore, Project Feature PF-VIA-2 would be implemented, which would require minimizing lighting impacts to the surrounding environment to the greatest extent feasible. As a result, the Build Alternatives would have a less than significant impact related to nighttime views, and no mitigation is required.

During the day, glare from reflective surfaces, such as windows and metallic details on cars travelling on the roadway is expected and intensifies when the direction and angle of sunlight changes, especially in hot summer months. While new roadway lanes could potentially increase the total number of vehicles at a given time, the additional lanes may decrease congestion and the duration of exposure to those visual elements. These elements would include light and glare sources in night and low-light conditions, but the overall proposed light and glare conditions would be consistent and compatible with existing conditions. As a result, the Build Alternatives would have a less than significant impact related to glare, and no mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

Measure VIA-1 as described below would implement communication and coordination measures with the Cities of Santa Ana and Anaheim regarding the planned park-and-rides associated with the Build Alternatives in order to ensure any potential impacts are minimized or avoided to the fullest extent possible.

VIA-1 **Park and Ride Coordination.** Coordinate with the City of Santa Ana and the City of Anaheim to discuss the theme and aesthetic look of the park-and-ride facilities during the design phase.

In addition, the following Project Features would be implemented to ensure impacts to visual resources are not significant:

PF-VIA-1 **Demolition Coordination.** Demolition of existing trees, shrubs, vines, or other vegetation will be avoided where feasible. Should trees, shrubs, vines, or other vegetation be removed, Project Landscape Architects will work with the District Landscape Architect and local jurisdictions to provide landscape, roadside, or urban forest designs that meet State and local requirements, where needed.

PF-VIA-2 **Lighting Installation Guidance.** Lighting should provide minimal impact to the surrounding environment; utilize downcast, cut-off type fixtures that are shielded and direct the light only toward areas requiring illumination. Install lights at the lowest allowable height and cast low-angle illumination while minimizing incidental light spill onto adjacent properties, open spaces, or backscatter into the nighttime sky.

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 Department 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:

Question	CEQA Determination
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?	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact

Question	CEQA Determination
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))?	No Impact
d) Result in the loss of forest land or conversion of forest land to non-forest use?	No Impact
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?	No Impact

CEQA Significance Determinations for Agriculture and Forest Resources

a) No Impact. No agricultural uses exist within the Project Area. Because the proposed Project Area is not designated as farmland pursuant to the Farmland Mapping Monitoring Program (FMMP) of the California Resources Agency, the Build Alternatives would not result in the conversion of farmland to a non-agricultural use. Therefore, no impacts related to farmland conversion would occur, and no mitigation is required.

b) No Impact. Existing land uses in the Study Area include single- and multifamily residential, mobile homes and trailer parks, commercial and service, general office, mixed commercial and industrial, facilities, education, open space and recreation, transportation/communications/utilities, vacant, and water. There are no Williamson Act agricultural preserves located within the Project Area. Therefore, the Build Alternatives would not conflict with existing zoning for agricultural use or a Williamson Act contract. No impact would occur.

c) No Impact. Land within the Study Area is zoned for specific plan, commercial, industrial, mixed use, open space, public and institutional, civic center, and residential. There is no land zoned for forest land, timberland, or timberland production in the vicinity of the Project Area. The proposed Project Area is not currently being managed or used for forest land or timberland. No impact would occur.

d) No Impact. As discussed under Response 3.1.2.c, the Build Alternatives do not support forests, nor is there any forest land adjacent to the Project Area. Further, there is no land zoned for forest land, timberland, or timberland production in the vicinity

of the Project Area. The infrastructure and roadway improvements associated with the Build Alternatives would not result in the loss of forest land or the conversion of forest land to non-forest uses. No impact would occur.

e) No Impact. There are no agricultural operations or timberland production operations within the proposed Project Area; therefore, the Build Alternatives would not result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use. No impact would occur.

Avoidance, Minimization, and/or Mitigation Measures

None required.

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:

Question	CEQA Determination
a) Conflict with or obstruct implementation of the applicable air quality plan?	Less Than Significant Impact
b) 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?	Less Than Significant Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	Less Than Significant Impact
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less Than Significant Impact

CEQA Significance Determinations for Air Quality

The potential for the proposed Project to result in adverse impacts related to air quality is assessed in the following discussion. An Air Quality Report was completed in April 2023. The following discussion is based on those analyses.

a) Less Than Significant Impact. The proposed Project is located in the South Coast Air Basin (Basin) and is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). The SCAQMD is the primary agency responsible for writing the Air Quality Management Plan (AQMP) in cooperation with Southern California Association of Governments (SCAG), local governments, and the private sector. The AQMP

provides the blueprint for meeting California and National Ambient Air Quality Standards (CAAQS and NAAQS, respectively).

The Build Alternatives are included in the 2023 Federal Transportation Improvement Program (FTIP) under ID No. ORA210604 and are proposed for funding from the COVID Relief Funds – State Transportation Improvement Program (STIP), State Highway Operation and Protection Program (SHOPP) Advance Construction (AC) – Mobility, and STIP AC Interregional Improvement Program (IIP) programs. The proposed Project is currently included in the future commitments section of SCAG's *2020–2045 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability, and High Quality of Life* (2020–2045 RTP/SCS). However, the proposed Project is not captured in future regional models and efforts to incorporate the Build Alternatives into such models are being taken. Once updated, later in 2023, the 2020–2045 RTP/SCS and the FTIP will capture the Build Alternatives in regional models. The proposed Project was found to be conforming (see Section 2.13.3.2); therefore, the proposed Project would 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. No mitigation is required.

b) Less Than Significant Impact. Short-term impacts to air quality as a result of the Build Alternatives would occur during clearing, cut-and-fill activities, grading, and paving roadway surfaces, as described in more detail in Section 2.13.3.1. Additionally, the SCAQMD has established rules for reducing fugitive dust emissions. With the implementation of Project Feature PF-AQ-1, which includes standard construction measures (providing 50 percent effectiveness) such as frequent watering (e.g., a minimum of twice per day), fugitive dust and exhaust emissions from construction activities associated with the Build Alternatives would not result in any adverse air quality impacts. After construction of the Build Alternatives are complete, all construction-related impacts would cease. Therefore, construction of the Build Alternatives would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is in nonattainment under an applicable NAAQS or CAAQS.

The United States Environmental Protection Agency (USEPA) modified the nitrogen dioxide (NO_2) NAAQS to include a 1-hour standard of 100 parts per billion in 2010. Currently, there is no federal project-level NO_2 analysis requirement. However, NO_2 is among the near-road pollutants of concern. Within the Project Area, it is unlikely

that NO_2 standards would be approached or exceeded based on the relatively low ambient concentrations of NO_2 in the Basin and the long-term trend toward reduction of nitrogen oxides (NO_X) emissions. Additionally, all the Build Alternatives would result in lower NO_X emissions than the No Build Alternative. Because of these factors, a specific analysis of NO_2 was not conducted for any of the Build Alternatives.

A quantitative MSAT analysis determined that all the Build Alternatives' emissions are lower than the Existing condition emissions in 2035 and 2055. Because the emission effects of the Build Alternatives would be low and emissions with the Build Alternatives would be reduced from the Existing condition, it is expected that there would be no appreciable difference in overall MSAT emissions between the No Build condition and the Build Alternatives (see Table 2.13.7 in Section 2.13, Air Quality).

In addition, as discussed in Section 2.13.3.2, in all cases, the emissions from a Build Alternative are less than both the Existing scenario and the corresponding No Build Alternative.

Therefore, the Build Alternatives meet the Clean Air Act requirements, are not a Project of Air Quality Concern (POAQC), and would not cause or contribute to a violation of NAAQS for $PM_{2.5}$, PM_{10}, or CO. The Build Alternatives would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable NAAQS or CAAQS. Any impacts associated with the Build Alternatives would be less than significant. No mitigation is required.

c) Less Than Significant Impact. As discussed in Section 2.13.2.4 in this Environmental Impact Report/Environmental Assessment (EIR/EA), the sensitive receptors in the vicinity of the Project Area are schools, hospitals, and places of worship. The Build Alternatives may result in temporary, short-term construction-related increases in pollutant concentrations associated with construction equipment emissions and fugitive dust. However, implementation of Project Feature PF-AQ-1, provided in Section 2.13.3.1, would address those potential short-term air quality impacts on sensitive receptors. Additionally, as discussed in Section 2.13.3.2 in this EIR/EA, operation of the Build Alternatives would result in pollutant concentrations lower than the Existing and No Build Alternative. The Build Alternatives would not expose sensitive receptors to substantial pollutant concentrations. Any impacts

associated with the Build Alternatives would be less than significant. No mitigation is required.

d) Less Than Significant Impact. Temporary construction activities could generate fugitive dust from the operation of construction equipment. The Build Alternatives would comply with construction standards adopted by the SCAQMD as well as with California Department of Transportation (Caltrans) standardized procedures for minimizing air pollutants during construction.

Heavy-duty equipment in the Project vicinity during construction would emit odors, primarily from the vendor trucks and heavy-duty off-road equipment exhaust. These odors may be noticeable to nearby sensitive receptors; however, they would be expected of any construction and not necessarily be objectionable. These odors would also dissipate quickly beyond 300 feet from a source and would be temporary in nature. Additionally, the construction-produced odors would cease to occur after individual construction is completed. No other sources of objectionable odors have been identified for the proposed Project, and no mitigation measures are required. The Build Alternatives would comply with SCAQMD Rule 402 to minimize the likelihood of odor impacts.

SCAQMD Rule 402 regarding nuisances states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

The odor section of CEQA Guidelines Appendix G has two parts: (1) whether air contaminants are emitted that cause injury, nuisance, or annoyance, and (2) whether the odors endanger health/safety or comfort, or cause injury/damage to business or property. The only known source of odors from operation of the Build Alternatives would be vehicle exhaust. While vehicle exhaust can be considered annoying at close range, it is not anticipated that the Build Alternatives would emit any odors that

would result in either condition at the distance of any sensitive receptor. Impacts will be less than significant, and no mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, or minimization measures are required; however, the following Project Feature would be implemented:

PF-AQ-1 The Contractor shall comply with the California Department of Transportation (Caltrans)' Standard Specifications in Section 14-9 (2022) for reducing impacts from construction activities. Section 14-9.02 specifically requires compliance by the contractor with all applicable air-pollution-control rules, regulations, and ordinances related to air quality, including air quality management district rules and regulations.

3.1.4 Biological Resources

Would the project:

Question	CEQA Determination
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Less Than Significant Impact
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 Wildlife or U.S. Fish and Wildlife Service?	Less Than Significant Impact
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Less Than Significant Impact
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?	Less Than Significant Impact
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No Impact

Question	CEQA Determination
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?	No Impact

CEQA Significance Determinations for Biological Resources

The potential for the Build Alternatives to result in adverse impacts to biological resources was assessed in the Natural Environment Study (Minimal Impacts) (NES[MI], March 2023), the Jurisdictional Delineation (JD, March 2023), and Sections 2.16, Natural Communities; 2.17, Wetlands and Other Waters; 2.18, Plant Species; 2.19, Animal Species; and 2.20, Invasive Species, in this EIR/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. There are 61 special-status plant species and 82 animal species considered for their potential to occur in the Biological Study Area (BSA). No listed special-status plant species were observed within the BSA, and 10 non-listed plant species were identified as having a moderate potential to occur within the BSA; these non-listed special-status plant species include lucky morning-glory, southern tarplant, smooth tarplant, Peruvian dodder, Los Angeles sunflower, mud nama, Gambel's watercress, Sanford's arrowhead, southern mountains skullcap, and San Bernardino aster. Although suitable habitat for these 10 species exist in the BSA, based on nine focused botanical surveys, none of these species appear to occur in the BSA. As a result, the Build Alternatives would not result in temporary or permanent impacts any special-status plant species. No mitigation is required.

Most of the special-status animal species have specialized habitat requirements that do not occur within the BSA and are not expected to occur within the proposed work areas. One special-status animal species, great blue heron, was observed or otherwise detected in the BSA during the field surveys. Twenty-nine other special-status animal species have the potential to occur in the BSA, including monarch butterfly; western ridged mussel; Arroyo chub and Santa Ana speckled dace; Arroyo toad; western spadefoot; coastal whiptail; western pond turtle; coast horned lizard; coast patch-nosed snake; two-striped garter snake; nesting migratory birds including Cooper's hawk, grasshopper sparrow, golden eagle, great blue heron, burrowing owl, ferruginous hawk, yellow rail, white-tailed kite, California horned lark, and yellow-breasted chat; bridge/culvert and crevice-dwelling species including pallid bat,

Mexican long-tongued bat, Western mastiff bat, silver-haired bat, hoary bat, western yellow bat, Yuma myotis, pocketed free-tailed bat, and big free-tailed bat.

Temporary Impacts

Monarch butterfly is not anticipated to occur within the habitat that would be temporarily removed by construction of the Build Alternatives. Indirect temporary effects to suitable monarch butterfly habitat through construction of the Build Alternatives may include increased noise, vibration, dust, and lighting during construction activities. However, these activities would be performed on highly traveled portions of I-5 and the monarch butterfly already experiences noise, vibration, dust, and lighting; therefore, indirect impacts are expected to be minimal.

An increase or change in off-site runoff due to construction activities could result in temporary indirect impacts to western ridged mussel, arroyo chub, Santa Ana speckled dace, arroyo toad, western spadefoot, western pond turtle, and two-striped garter snake. However, construction activities would be performed adjacent to highly traveled portions of I-5 that already experience off-site runoff and construction activities are not anticipated within suitable habitat for these species. Implementation of Project Features PF-NAT-1 through PF-NAT-5 would address, and Measures NAT-1 and NAT-2 (defined in Section 2.16.3.1) would avoid and/or minimize indirect impacts to suitable habitat for these species and that the impact would be less than significant.

Construction of the Build Alternatives is anticipated to temporarily impact suitable habitat for the coastal whiptail, coast horned lizard, and coast patch-nosed snake. In addition, these areas could be indirectly temporarily impacted by dust, changes in hydrology, erosion, siltation, increased runoff, and invasion by nonnative species introduction and spreading during construction of the Build Alternatives. With implementation of Measure PL-1 as identified in Section 2.18.4 and Measure IS-1, provided in Section 2.20.4, potential temporary impacts to these species during construction of the Build Alternatives would be less than significant.

Construction of the Build Alternatives could also temporarily impact nesting birds protected under the MBTA and the California Fish and Game Code either directly as a result of the removal of trees occupied by nesting birds or disturbances to bridge and crevice habitat, or indirectly as a result of disturbances near trees occupied by nesting birds. With implementation of Project Features PF-ANS-1 through PF-ANS-5

(as identified in Section 2.19.3.1), potential temporary impacts to nesting birds during construction of the Build Alternatives would be less than significant.

Bat roosting habitat is not subject to direct impacts from construction activities associated with the Build Alternatives, as construction activities would occur away from bridges that provide potentially suitable day-roosting and/or night-roosting habitat within the BSA. Impacts to the underside of these bridges where bats are likely to roost would not occur as part the Build Alternatives. Because those activities would be performed adjacent to highly traveled portions of I-5 and other highly traveled roadways within the BSA and impacts to suitable roosting habitat would be avoided, direct impacts to bat roosting habitat are not anticipated.

Indirect construction-related impacts could temporarily deter access to roost sites in the crevices of bridges, culverts, and overhead structures. Because those activities would be performed on highly traveled roadways, indirect impacts (i.e., noise and lighting) are expected to be minimal. The Build Alternatives include measures to avoid and/or minimize adverse effects to roosting bats to the fullest extent practicable. With implementation of Measures ANS-1 through ANS-11 (as identified in Section 2.19.4), potential temporary impacts to bats and bridge- and crevice-nesting species during construction of the Build Alternatives would be less than significant.

Permanent Impacts

The Build Alternatives would not result in permanent impacts to monarch butterfly, western ridged mussel, arroyo chub, Santa Ana speckled dace, arroyo toad, western spadefoot, western pond turtle, two-striped garter snake, coastal whiptail, coast horned lizard, and coast patch-nosed snake that have potential but are not expected to occur within the BSA.

The Build Alternatives would not result in any permanent direct impacts on nesting birds. Humane eviction and exclusion of bats from a roost would be considered a permanent impact if the roost site remained sealed after construction. Indirect noise impacts on bats and nesting birds from traffic on I-5 and area streets would be expected to be the same as under existing conditions.

With implementation of Measure PL-1, Project Features PF-ANS-1 through PF-ANS-5, and measures ANS-1 through ANS-11, potential direct and indirect permanent impacts to monarch butterfly, western ridged mussel, arroyo chub, Santa Ana speckled dace, arroyo toad, western spadefoot, western pond turtle, two-striped garter

snake, coastal whiptail, coast horned lizard, coast patch-nosed snake, nesting birds, and bats and bridge- and crevice-nesting species resulting from implementation of the Build Alternatives would be less than significant.

b) Less Than Significant. As detailed in Section 2.16, Natural Communities, the only habitat and natural community of special concern within the BSA is riparian, in the form of freshwater marsh (refer to Figure 2.16-2). Within the BSA, 0.04 acre of freshwater marsh emergent wetland occurs east of I-5 near the northbound Artesia Boulevard off-ramp.

Temporary Impacts

Implementation of Alternatives 3 and 4 would result in temporary impacts to .04 acre of the freshwater marsh. Temporary direct impacts of Alternatives 3 and 4 would include vegetation removal, grubbing, and/or grading. Temporary indirect impacts to freshwater marsh include potential impacts to adjacent habitats caused by an increase or change in off-site runoff, erosion, and spread of invasive species during construction. These indirect impacts would not be new to the BSA due to the current operation of I-5 but would temporarily increase the level of indirect disturbance near the freshwater marsh during construction activities associated with Alternatives 3 and 4. Implementation of Project Features PF-NAT-1 through PF-NAT-5 (as identified in Section 2.16.3.1) would address, and measures NAT-1 and NAT-2 (as identified in Section 2.16.4), would minimize potential indirect impacts to adjacent habitats resulting from general construction activities by delineating Environmentally Sensitive Areas (ESAs), controlling invasive species, implementing BMPs, conducting on-site training for construction workers, and revegetating the impacted freshwater marsh. Stormwater and litter impacts would be avoided through compliance with the Construction General Permit and implementation of Project-specific BMPs, which are included as Project Features. These include Project Features PF-WQ-3 and PF-WQ-4 (as identified in Section 2.9.3.2. Therefore, temporary impacts of the Build Alternatives related to riparian habitat would be less than significant.

Permanent Impacts

Implementation of the Build Alternatives would not result in permanent impacts to riparian habitat in the form of freshwater marsh.

With implementation of Project Features PF-NAT-1 through PF-NAT-5, PF-WQ-3, PF-WQ-4, and measures NAT-1 and NAT-2; the Build Alternatives would not result

in any substantial temporary or permanent impacts to any riparian habitat or other sensitive natural communities. Impacts would be less than significant and no mitigation is required.

c) Less Than Significant Impact. As detailed in Section 2.17, Wetlands, there are a total of 34.87 acres of nonwetland waters and 0.58 acre of wetlands within the Jurisdictional Delineation Study Area (JDSA) that are potentially subject to USACE jurisdiction. The total area of potential Regional Water Quality Control Board (RWQCB) jurisdiction is the same as the USACE jurisdiction (i.e., 35.45 acres). Based on the results of the Jurisdictional Delineation, Drainages 35 (0.36 acre) and 84 (0.22 acre) satisfy the USACE wetland criteria. Therefore, the USACE is expected to assert jurisdiction over Drainages 35 and 84 as wetland WOTUS. The total area in the JDSA subject to CDFW jurisdiction is 52.09 acres as further detailed in Section 2.17, Wetlands.

Temporary Impacts

As outlined in Section 2.17, Alternative 3 would result in 2.02 acres of temporary impacts to nonwetland waters and 0.22 acre of temporary impacts to wetland waters subject to USACE jurisdiction, while Alternative 4 would result in 2.24 acres of temporary impacts to nonwetland waters and 0.22 acre of temporary impacts to wetland waters subject to USACE jurisdiction. The temporary impacts to RWQCB jurisdictional areas would be the same as for the USACE, 2.02 acres and 2.24 acres of nonwetlands, respectively, and 0.22 acre of wetlands under both Alternatives 3 and 4. Alternative 3 would result in 3.29 acres of temporary impacts to aquatic resources subject to CDFW jurisdiction, and Alternative 4 would result in 4.50 acres of temporary impacts to drainages subject to CDFW jurisdiction. Implementation of PF-WQ-3 and PF-WQ-4 would address these impacts by complying with the GCP and implementing BMPs which would ensure adverse impacts to water quality are minimal. In addition, delineation of ESAs, control of invasive species, on-site training for construction workers, and revegetation of impacted freshwater marsh, as outlined in PF-NAT-1 through PF-NAT-5 and Measures NAT-1 and NAT-2 would ensure that temporary impacts to wetlands are minimal.

There is also the potential for temporary indirect water quality impacts through sediment introduction and transport downstream. Identification and implementation of erosion, sedimentation, and pollution prevention best management practices (BMPs) in the Stormwater Pollution Prevention Plan (SWPPP; refer to PF-WQ-3 and

PF-WQ-4 in Section 2.9.3.1) for the Build Alternatives would avoid or minimize indirect impacts to jurisdictional areas during construction.

With implementation of Project Feature PF-WQ-3 in Section 2.9.3.1, Project Features PF-NAT-1 through PF-NAT-5 in Section 2.16.3.1, measures NAT-1 and NAT-2 in Section 2.16.4, and WET-1 in Section 2.17.4, potential temporary impacts to jurisdictional areas would be less than significant.

Permanent Impacts

Implementation of the Build Alternatives would not result in permanent impacts to jurisdictional features within the JDSA. Therefore, the Build Alternatives would not result in permanent impacts to USACE, CDFW, or RWQCB areas in the BSA. Measure WET-1 would continue to apply to Alternatives 3 and 4 due to presence of temporary impacts to USACE, CDFW, or RWQCB areas in the JDSA. However, compensatory mitigation is not required or warranted as the Build Alternatives would not result in permanent impacts.

With implementation of Project Features PF-NAT-1 through PF-NAT-5, PF-WQ-3, PF-WQ-4, WET-1, and measures NAT-1 and NAT-2; the Build Alternatives would not result in any substantial temporary or permanent impacts to state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Impacts would be less than significant and no mitigation is required.

d) Less Than Significant Impact. Wildlife movement in the BSA has been substantially constrained for many years by human-made barriers (e.g., lack of suitable vegetative cover, existing roadways, storm water conveyance structures, and fencing, along with the associated surrounding development). The urban setting of the BSA provides limited opportunities for habitat continuity. Wildlife movement of species such as coyotes could occur within the BSA, but substantial movement is not expected within the 10 substantial drainage features—La Canada Verde Creek, Coyote Creek, Fullerton Creek, Carbon Creek, Crescent Retarding Basin, Santa Ana River, Bitterbrush Channel, Santiago Creek, El Modena-Irvine Channel, and Peters Canyon Wash—due to lack of habitat and cover.

Temporary Impacts

During construction of Alternatives 3 and 4, incremental increases in night lighting, noise, human activity, and impacts to water quality could temporarily impact and discourage coyote presence in the BSA. However, coyotes would likely continue to

utilize the BSA when construction workers are not present, and equipment is not operating. Therefore, construction of Alternatives 3 and 4 would not result in any significant temporary impacts to wildlife movement.

In total, 10 bird species protected under the Migratory Bird Treaty Act and the California Fish and Game Code have potential to nest in the BSA. Some species utilize ornamental vegetation or could nest on structures within the BSA (such as utilizing holes or crevices under existing bridges). With compliance with Project Features PF-ANS-1 through PF-ANS-5 (as identified in Section 2.19.3.1), potential impacts to migratory birds would be less than significant. No mitigation is required.

Permanent Impacts

Implementation of the Build Alternatives is not expected to permanently affect wildlife movement or decrease the functionality of any wildlife crossings within the BSA over existing conditions. No permanent barriers would be placed within any known wildlife movement corridors.

Overall, the Build Alternatives would not interfere with the movement of any native resident or migratory fish or wildlife species or impede the use of native wildlife nursery sites. Impacts would be less than significant and no mitigation is required.

e) No Impact. There are no local policies or ordinances protecting biological resources that are relevant to the BSA. Therefore, the Build Alternatives would not conflict with local policies or ordinances protecting biological resources. No mitigation is required.

f) No Impact. The Project Area is located outside of any Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP)-designated reserve areas. Therefore, the Build Alternatives would not conflict with the provisions of an adopted NCCP/HCP, or other approved local, regional, or state habitat conservation plan. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The following Project Features would be implemented to ensure impacts to biological resources associated with natural communities, wetlands, plant communities, animal communities, and invasive species would not be adverse. Project Features related to Water Quality are included in Section 3.1.10.

PF-NAT-1 **Delineation of Environmentally Sensitive Areas.** Prior to Project activities, highly visible barriers (e.g., orange construction fencing) will be installed along the boundaries of the Project footprint/ equipment access routes to designate Environmentally Sensitive Areas (ESAs) that are to be preserved. This will include ESA fencing along jurisdictional aquatic resources located adjacent to Project impact areas. No Project activity of any type will be permitted within the ESAs. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment will be operated in such a manner as to prevent accidental damage to the ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones.

PF-NAT-2 **Invasive Species Control.** All construction equipment accessing unpaved areas will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving at and leaving the Project site.

PF-NAT-3 **Equipment Staging Best Management Practices (BMPs).** All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated nonsensitive upland areas. The designated upland areas will be located in such a manner as to prevent any loose soil or spill runoff from entering jurisdictional waterways or adjacent sensitive vegetation communities. All construction materials will be removed from worksites following completion of Project activities.

PF-NAT-4 **Water Quality BMPs.** To avoid impacts to water quality during construction, stormwater and erosion control BMPs are recommended to prevent loose soil or pollutants associated with the Project from inadvertently entering the aquatic resources and sensitive vegetation communities located within and adjacent to the Biological Study Area (BSA). Example BMPs include silt fencing and straw wattle placed in such a manner that they are able to catch or filter sediment or other construction-related debris to prevent it from eroding into the nearby drainage channels.

PF-NAT-5 **Erosion Control Material Sourcing.** Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control. Invasive species will not be used in any landscaping palettes for the Project.

PF-ANS-1 **Avoidance of Breeding Season.** Project activities will occur outside the nesting season (February 1–September 30) to the fullest extent practicable.

PF-ANS-2 **Pre-Construction Nesting Bird Survey.** If Project activities with potential to indirectly disturb suitable avian nesting habitat within 500 feet (ft) of the work area would occur during the nesting season (as determined by a qualified biologist), a qualified biologist with experience conducting breeding bird surveys will conduct a nesting bird survey no more than 3 days prior to the initiation of Project activities to detect the presence/absence of migratory and resident bird species occurring in suitable nesting habitat. Project activities may begin no more than 3 days after the completion of the nesting bird survey in the absence of active bird nests. An additional nesting bird survey will be conducted if Project activities fail to start within 3 days of the completion of the pre-construction nesting bird survey.

PF-ANS-3 **Nesting Bird Exclusionary Buffers.** Should nesting birds be found during the pre-construction nesting bird survey, an exclusionary buffer will be established by the qualified biologist. This buffer will be clearly marked in the field by construction personnel under the guidance of the biologist, and construction will not be conducted in this zone until the biologist determines that the young have fledged or the nest is no longer active. Work may only occur during the breeding season if nesting bird surveys indicate the absence of any active nests within the work area. Without the written approval of the CDFW and/or the USFWS, no work will occur if listed or fully protected bird species are found to be actively nesting within 500 feet of the areas subject to construction activities.

PF-ANS-4 **Trash and Waste Removal.** During construction, trash and food waste will be removed from work sites on a daily basis to avoid the attraction of predators that prey on sensitive wildlife species.

PF-ANS-5 **Construction Equipment Staging.** To the extent practicable, internal combustion equipment (e.g., generators and vehicles) is not to be parked or operated beneath or adjacent to the structures unless it is required for Project-related work on that structure.

In addition, the following avoidance and minimization measures would be implemented to ensure impacts to biological resources associated with natural communities, wetlands, plant communities, animal communities, and invasive species would not be adverse:

PL-1 **Pre-Construction Clearance Surveys.** A qualified biologist will conduct pre-construction surveys to confirm the absence of sensitive biological resources within the work areas. The pre-construction surveys will take place no more than 24 hours prior to commencement of work activities. If listed species are observed within the work area (or areas potentially indirectly affected by Project activities, as determined by the qualified biologist) and the work cannot be postponed until the species is no longer present, the California Department of Transportation (Caltrans) will obtain written approval from the USFWS or the CDFW, as applicable, prior to completing Project work at these locations.

NAT-1 **On-Site Training.** All personnel involved in on-site Project construction will be required to participate in a pre-construction environmental training program to understand the avoidance and minimization measures and environmental regulations pertinent to the Project.

NAT-2 **Vegetation.** Prior to initiation of construction, a revegetation plan will be prepared for freshwater marsh and jurisdictional aquatic resources temporarily impacted by Project activities. The goal of the revegetation plan will be to restore these areas to their pre-construction condition. The revegetation plan will include the procedures to install and maintain the revegetated areas, details and timing of monitoring and maintenance activities, reporting requirements, and success criteria. The revegetation plan will be consistent with all measures identified in the jurisdictional aquatic resources permitting, including the Nationwide Permit, Streambed Alteration Agreement (SAA), and

Section 401 Water Quality Certification, and will be reviewed and approved by the United States Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) prior to its implementation.

ANS-1 **Pre-Construction Bat Surveys.** At bridge and culvert structures where construction activities would occur on or below that structure, and where there is also potential for maternity roosting, nighttime bat surveys should be performed by a qualified bat biologist during the peak period (June or July) of the bat maternity season (April 1–August 31) to confirm whether maternity colonies are present. These surveys should be performed by a qualified bat biologist at least 1 year in advance of construction so that appropriate site-specific and species-specific minimization measures can be developed in coordination with the CDFW and a qualified bat biologist.

ANS-2 **Avoidance of the Bat Maternity Season.** Within 500 feet of structures where maternity roosting is confirmed, activities that pose adverse impacts to roosting bats through elevated noise and vibration, such as demolition and pile-driving activities, shall avoid the recognized bat maternity season (April 1–August 31) to prevent potential mortality of flightless young bats. Any such construction activities at structures housing maternity colonies shall be coordinated with a qualified bat biologist and the CDFW prior to work within the bat maternity season.

ANS-3 **Humane Eviction and Exclusion.** Direct impacts to bats and bat-roosting habitat are not anticipated from the proposed Project. If direct impacts to bat-roosting habitat are anticipated, humane evictions and exclusions of roosting bats should be performed under the supervision of a qualified bat biologist in the fall (September or October) prior to any work activities that would result in direct impacts or direct mortality to roosting bats. This action will be performed in coordination with the CDFW. To avoid potential mortality of flightless juvenile bats, evictions and exclusions of bats cannot be performed during the maternity season (April 1–August 31). Winter months are also inappropriate for bat eviction because not all individuals in a roost will emerge on any given night. In addition, long-distance movements

to other roost sites are more difficult during the winter, when prey availability is scarce, resulting in high mortality rates of evicted bats.

ANS-4 **Night Work Lighting.** If night work (i.e., between dusk and dawn) is anticipated within 100 feet of structures where bat roosting is confirmed, night lighting shall be used only in areas of active work and shall be focused on the direct area(s) of work and away from the culvert entrances to the greatest extent practicable.

ANS-5 **Obstruction of Bat Roosting Features.** Airspace access to and from the roost features of the structures shall not be obstructed except in direct work areas, and construction personnel shall not be present in non-active areas beneath the structures or near the entrances to the structures.

ANS-6 **Construction Equipment Staging.** To the extent practicable, internal combustion equipment (e.g., generators and vehicles) is not to be parked or operated beneath or adjacent to the structures unless it is required for Project-related work on that structure.

ANS-7 **Replacement Lighting Locations.** The proposed Project includes the replacement of lighting in various areas. Siting of these lights should avoid overspill into bat-roosting sites, and light shields should be installed for lights adjacent to suitable foraging habitat to avoid permanent impacts to roosting and foraging bats.

ANS-8 **Swallow Nest Removal.** If swallow nests are removed to prevent swallows from nesting in the Project area during construction activities, the nests should be inspected for roosting bats by a CDFW-approved bat biologist and removed in the fall (September or October) in a manner that ensures they do not fall to the ground before lack of occupancy has been established.

ANS-9 **Tree Trimming and Removal.** To the greatest extent feasible, tree trimming/removal activities shall be performed outside the bat maternity season (April 1–August 31) to avoid direct impacts to nonvolant (flightless) young that may roost in trees within the study area. This period also coincides with the typical bird nesting season. If trimming or removal of trees during the bat maternity season cannot be

avoided, a qualified biologist shall monitor tree trimming and removal activities.

ANS-10 **Compensation for Direct Impacts to Bats.** If permanent, direct impacts to bat-roosting habitat are anticipated and/or a humane eviction/exclusion is performed, alternate roosting habitat shall be provided to ensure no net loss of bat-roosting habitat. The design, numbers, and locations of these roost structures should be determined in consultation with a qualified bat biologist. This action shall be coordinated with Caltrans, the CDFW, and a qualified bat biologist to ensure that the installed habitat will provide adequate mitigation for impacts.

ANS-11 **Construction Night Lighting.** All lighting used at night for Project construction will be of the lowest illumination necessary for human safety and will be selectively placed and directed at the immediate work area and away from adjacent habitats. Light glare shields will be used to reduce the extent of illumination into habitats.

IS-1 **Weed Abatement Program.** In compliance with Executive Order 13112, and guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control plans included in the project will not use species listed as invasive. A weed abatement program shall be developed for the proposed project and incorporated into the Plans, Specifications, and Estimates (PS&E) package to avoid and/or minimize the importation of nonnative plant material during and after construction. At a minimum, the program shall include the following measures:

- During construction, invasive plant material will be removed from the proposed project work area. All removed invasive plant material will be disposed of properly in a landfill or other suitable facility.
- During construction, the Construction Contractor shall inspect and clean construction equipment at the beginning of each day and prior to transporting equipment from one project location to another.

- During construction, soil and vegetation disturbance will be minimized to the greatest extent feasible.
- During construction, the Construction Contractor shall ensure that all active portions of the construction site are watered a minimum of twice daily, or more often when needed, due to dry or windy conditions, to prevent excessive amounts of dust.
- During construction, the Construction Contractor shall ensure that all material stockpiled is sufficiently watered or covered to prevent excessive amounts of dust.
- During construction, soil, gravel, and rock will be obtained from weed-free sources.
- Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control.
- After construction, affected areas adjacent to native vegetation will be revegetated with plant species that are native to the vicinity as approved by the District Biologist.
- After construction, all revegetated areas will avoid the use of species listed on the California Invasive Plant Council (Cal-IPC) California Invasive Plant Inventory that have a High or Moderate rating.
- Erosion control and/or revegetation sites will be monitored after construction to detect and control the introduction/invasion of nonnative species. The monitoring period will be determined in consultation with resource agencies.
- Eradication procedures (e.g., spraying and/or hand weeding) will be outlined should an infestation occur; the use of herbicides will be prohibited within and adjacent to native vegetation, except as specifically authorized and monitored by the District Biologist.
- All woody invasive species will be removed from the proposed project limits.

WET-1 **Regulatory Permitting.** Prior to initiation of construction, permits shall be obtained for the proposed Project through the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA), the State Water Resources Control Board (SWRCB) pursuant to Section 401 of the CWA, and the California

Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code.

3.1.5 Cultural Resources

Would the project:

Question	CEQA Determination
a) Cause a substantial adverse change in the significance of a historical resource pursuant to in §15064.5?	Less Than Significant Impact
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	Less Than Significant Impact
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	Less Than Significant Impact

CEQA Significance Determinations for Cultural Resources

The potential for the proposed Project to result in adverse impacts related to cultural resources was assessed in the *Historic Property Survey Report* (HPSR, May 2023), and Section 2.7, Cultural Resources, of this EIR/EA. The section also compiles information from technical studies that accompany the HPSR, including the *Archaeological Survey Report* (ASR, May 2023) and the *Historical Resources Evaluation Report* (HRER, May 2023). 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 July 2022. Refer to Chapter 4 of this EIR/EA for detailed information pertaining to California Native American Tribe consultation.

a) and b) Less Than Significant Impact. It was determined there are no National Register of Historic Places (National Register) listed or eligible cultural resources in the Area of Potential Effects (APE) identified for the Build Alternatives. 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 because there are no historical resources within the APE or there are no impacts to historical resources pursuant to *State CEQA Guidelines* Section 15064.5(b)(3). Eleven 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 are listed in Table 3.1.

Table 3.1: Built Resources Within the Project APE

Name	Address/Location	Community	National Register/California Register Eligibility[1]
Apartment complex	1901 N. Spurgeon Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.
Commercial building	321 E. 17th Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.
Not extant	123 S. Cherry Street	Anaheim	• Determined ineligible as a historic property under Section 106 PA.
Not extant	119 S. Cherry Street	Anaheim	• Determined ineligible as a historic property under Section 106 PA.
Not extant	117 S. Cherry Street	Anaheim	• Determined ineligible as a historic property under Section 106 PA.
Not extant	1310 W. Center Street	Anaheim	• Determined ineligible as a historic property under Section 106 PA.
Residential	1809 N. Spurgeon Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.
Residential	1911 N. Spurgeon Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.
Residential	1915 N. Spurgeon Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.
Residential	1919 N. Spurgeon Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.
Residential	219 E. 20th Street	Santa Ana	• Determined ineligible for NRHP, CRHR, or local designation through survey evaluation.

Source: *Historical Resources Evaluation Report* (May 2023); *Historic Property Survey Report* (May 2023)
[1] These determinations are a result of studies conducted for the I-5 Managed Lanes Project.
CRHR = California Register of Historical Resources
NRHP = National Register of Historic Places
PA = Programmatic Agreement
Section 106 PA = Section 106 of the National Historic Preservation Act of 1966

No archaeological resources requiring evaluation were identified through archival research, consultation, or field survey, and the APE does not appear to be sensitive in terms of archaeological resources.

However, there is the potential to encounter unknown buried cultural resources or archaeological materials within the Project Area during construction of the Build Alternatives. If buried cultural resources or archaeological materials are exposed during construction, it is Caltrans policy that work in the area must halt until a qualified archaeologist can evaluate the nature and significance of the find. In the event that previously unknown buried cultural materials are encountered during

construction, compliance with Project Feature PF-CR-1 (as identified in Section 2.7.3) potential impacts to previously unknown cultural resources would be less than significant. No mitigation is required.

c) Less Than Significant Impact. No human remains are known to exist within the APE. Therefore, construction of the Build Alternatives would not impact known human remains. If human remains are exposed during construction, Project Feature PF-CR-2 (as identified in Section 2.7.3) requires compliance with State Health and Safety Code Section 7050.5, which states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains and that the Orange County Coroner shall be contacted. Pursuant to California PRC Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendant (MLD). At the same time, the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator will be contacted so they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable. With implementation of PF-CR-2, the impact related to the disturbance of human remains is less than significant and no mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

None required; however, the following Project Features would be implemented:

PF-CR-1 **Discovery of Cultural Materials.** If cultural materials are discovered during site preparation, grading, or excavation, the construction contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, coordination will be maintained with the California Department of Transportation (Caltrans) District 12 Environmental Branch Chief or the District 12 Native American Coordinator to determine an appropriate course of action. If the discovery of cultural materials occurs outside the Caltrans right-of-way, then coordination with the appropriate local agency will be conducted.

PF-CR-2 **Discovery of Human Remains.** If human remains are discovered during site preparation, grading, or excavation, California State Health and Safety Code (H&SC) Section 7050.5 states that further

disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the Orange County Coroner shall be contacted. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which, pursuant to California Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendant (MLD). At that time, the persons who discovered the remains will contact the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.

3.1.6 Energy

Would the project:

Question	CEQA Determination
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	Less Than Significant Impact
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less Than Significant Impact

CEQA Significance Determinations for Energy

State CEQA Guidelines Section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy resources. The *Energy Analysis Report* (April 2023) was consulted for this analysis.

a) Less Than Significant Impact. The purpose of the Build Alternatives is to improve the overall movement of people and goods along this section of Interstate (I) 5 by improving the managed lanes (ML) network operations, improving mobility and trip reliability, maximizing person throughput by facilitating the efficient movement of bus and rideshare users, and applying technology to help manage traffic demand. The Build Alternatives would result in direct but temporary fuel usage during construction as well as direct operational fuel consumption (i.e., vehicles using the facility).

Direct Energy (Construction): Construction of the Build Alternatives would primarily consume diesel and gasoline through operation of heavy-duty construction equipment, material deliveries, and debris hauling. As described in Section 2.15.3.1, the construction emissions were estimated for the Build Alternatives using CAL-CET2020, Version 1.0, which is consistent with the guidance provided by Caltrans for evaluating construction impacts from roadway projects. This evaluation includes the two proposed park-and-ride facilities that would be constructed within the existing freeway right-of-way (ROW). There are no changes planned to the existing park-and-ride facilities. The CAL-CET2020 results were used to quantify construction-related energy usage generated by construction of the Build Alternatives and are presented in Table 2.15.2, Table 2.15.3, and Table 2.15.4 in Section 2.15 of this EIR/EA.

As indicated in Section 2.15.3.1, energy use associated with Alternative 2 is estimated to result in the short-term consumption of 7,072 gallons from diesel-powered equipment and 1,737 gallons from gasoline-powered equipment. Alternative 3 is estimated to result in the short-term consumption of 434,712 gallons from diesel-powered equipment and 110,830 gallons from gasoline-powered equipment. Alternative 4 is estimated to result in the short-term consumption of 485,284 gallons from diesel-powered equipment and 123,747 gallons from gasoline-powered equipment. These energy use estimates represent a small demand on local and regional fuel supplies that would be easily accommodated, and this demand would cease once construction is complete. Moreover, construction-related energy consumption would be temporary and not a permanent new source of energy demand, and demand for fuel would have no noticeable effect on peak or baseline demands for energy. In addition, implementation of the following Project Feature PF-AQ-1, will address energy impacts resulting from construction activities by compliance with Caltrans' Standard Specifications Section 14-9. Therefore, the Project would not result in an inefficient, wasteful, and unnecessary consumption of energy.

Direct Energy (Mobile Sources): As described in Section 2.15.3 of this EIR/EA, the future No Build scenario would result in an increase in fuel consumption in 2035 and 2055 compared to the Existing (2022) condition. In addition, all Build Alternatives would result in an increase in diesel fuel consumption when compared to the Existing (2022) condition, but would result in a decrease in diesel fuel consumption when compared to the future No Build scenario and also a decrease in gasoline fuel consumption compared to the No Build and Existing (2022) conditions in both the Opening Year (2035) and Future Year (2055) scenarios.

Although annual diesel fuel consumption for the Build Alternatives is higher than Existing conditions, the Build Alternatives would result in a decrease in diesel fuel consumption when compared to the No Build Alternative. Similarly, annual gas fuel consumption for the Build Alternatives is higher than Existing conditions, and the Build Alternatives would result in a decrease in diesel fuel consumption when compared to the No Build Alternative. The Build Alternatives are expected to improve the overall movement of people and goods along this section of I-5 by improving the ML network operations, improving mobility and trip reliability, maximizing person throughput by facilitating the efficient movement of bus and rideshare users, and applying technology to help manage traffic demand and reduce energy consumption. As such the Build Alternatives would not result in wasteful, inefficient, or unnecessary consumption of energy.

Therefore, the Build Alternatives would not result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during Project construction or operation. No mitigation is required.

b) Less Than Significant Impact. The proposed Project is currently included in the future commitments section of SCAG's 2020–2045 RTP/SCS. However, the proposed Project is not captured in future regional models, and efforts to incorporate the Build Alternatives into such models are being taken. Per Measure LU-1 (Section 2.1), once updated later in 2023, the 2020–2045 RTP/SCS will capture the Build Alternatives in regional models.

The Build Alternatives would be consistent with regional, State, and local energy conservation plans. The Connect SoCal 2020 RTP/SCS includes information about efforts to encourage energy efficiency and renewable energy use. Regional plans for renewable energy and energy efficiency would not be impacted from the construction and operation of the Build Alternatives. Energy-efficient building development is not applicable to this Project, and renewable energy policies are encouraged for all Caltrans projects where applicable and feasible, as described in Section 3.2. In addition, Measure GHG-2 would require the use of highly efficient light-emitting diodes (LEDs), which would reduce energy consumption. The result of the Build Alternatives would not conflict with or obstruct regional plans for renewable energy or energy efficiency.

Avoidance, Minimization, and/or Mitigation Measures

The following Project Feature would be implemented to ensure the Build Alternatives would not result in energy impacts from construction activities:

PF-AQ-1 The Contractor shall comply with the California Department of Transportation (Caltrans)' Standard Specifications in Section 14-9 (2022) for reducing impacts from construction activities. Section 14-9.02 specifically requires compliance by the contractor with all applicable air-pollution-control rules, regulations, and ordinances related to air quality, including air quality management district rules and regulations.

The following avoidance, minimization, and/or mitigation measure would be implemented to ensure the Build Alternatives would not conflict with or obstruct regional plans for renewable energy or energy efficiency.

GHG-2 Replacement of light fixtures with highly efficient light-emitting diodes (LEDs), including new safety lighting.

3.1.7 Geology and Soils

Would the project:

Question	CEQA Determination
a) Directly or indirectly cause 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.	No Impact
ii) Strong seismic ground shaking?	Less Than Significant Impact
iii) Seismic-related ground failure, including liquefaction?	Less Than Significant Impact
iv) Landslides?	Less Than Significant Impact
b) Result in substantial soil erosion or the loss of topsoil?	Less Than Significant Impact

Question	CEQA Determination
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?	Less Than Significant Impact
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Less Than Significant Impact
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?	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less Than Significant with Mitigation Incorporated

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 Geologic Study (*February 2023) and the *Paleontological Identification Report and Paleontological Evaluation Report* (PIR/PER, April 2023). The findings of these report are discussed in Section 2.10, Geology/Soils/Seismic/Topography, and Section 2.11, Paleontology, in this EIR/EA. The following discussions are based on those analyses.

a) i) No Impact. There are no mapped active faults intersecting the proposed Project corridor, and no Alquist-Priolo Earthquake Fault Zones have been identified in the Project Area. Therefore, there would be no impacts related to rupture of an Alquist-Priolo Earthquake Fault.

a) ii) Less Than Significant Impact. The principal seismic hazard in the vicinity of the Project Area is ground shaking resulting from an earthquake along one of several major active or potentially active faults that could damage I-5 facilities and structures**.** Nearby active or potentially active surface faults include the El Modeno Fault, the Peralta Hills Fault, the Whittier Fault, the Newport-Inglewood Fault, the Pelican Hill Fault, and the San Joaquin Hills Fault. The nearest active or potentially active fault is located approximately 3.33 miles from the I-5 Project segment; as a result, moderate-to-intense ground shaking should be anticipated within the proposed Project corridor in the event of an earthquake.

Construction activities could be affected by ground motion from seismic activities. 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. Additionally, as identified in Project Feature PF-GEO-1 (Section 2.10.3.2), conditions along the proposed Project corridor would be evaluated through a site-specific investigation as part of the engineering design of the Build Alternatives. The results of this investigation would inform the final engineering design of the Build Alternatives. Design and construction of the proposed improvements would adhere to the Caltrans *Highway Design Manual* (HDM) and other required standards, as well as recommendations from the Structure Foundation Report and the Geotechnical Design Report, as included in Project Feature PF-GEO-1. Therefore, impacts to the Project Area related to strong seismic ground shaking would be less than significant.

a) iii) Less Than Significant Impact. About half of the total Project Area is mapped by the California Geological Survey as being in a zone that is susceptible to earthquake-induced liquefaction. Liquefaction is a phenomenon whereby saturated granular soils lose their inherent shear strength due to increased pore water pressures, which may be induced by conditions such as an earthquake. Liquefaction is generally considered possible when the depth to groundwater is less than 50 feet below the ground surface. As shown in Table 2.10.2 in Section 2.10, Geology/Soils/Seismic/ Topography, historical high groundwater levels in the Project Area are between 19 and 95 feet below ground surface along the I-5 Project segment. Groundwater may vary locally, with potential for shallow conditions along major streams and tributaries. Depending on locally specific conditions, liquefaction has the potential to affect the proposed Project Area.

Construction activities could be affected by ground motion from seismic activities. Liquefaction could occur in areas with artificial fill 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. Additionally, as identified in Project Feature PF-GEO-1, soil and groundwater conditions along the proposed Project corridor would be evaluated through a site-specific investigation as part of the engineering design of the Build Alternatives. The results of this investigation would inform the final engineering design of the Build Alternatives. Design and construction of the proposed improvements would adhere to the Caltrans *Highway Design Manual* (HDM) and

other required standards, as well as recommendations from the Structure Foundation Report and the Geotechnical Design Report, as included in Project Feature PF-GEO-1. Therefore, impacts to the Project Area related to liquefaction would be less than significant.

a) iv) Less than Significant Impact. There is no clustering or alignment of earthquakes in proximity to the Project Area. There are fewer earthquakes in the Tustin Plain-Western Santa Ana Mountains region than anywhere else in the Los Angeles Basin area. This apparent lack of earthquake activity suggests that the Project Area is tectonically stable and suggests that there are no unrecognized active faults at the site. In addition, the Project Area has shown to not be located within a zone that is susceptible to seismically induced landslides. Geologic hazards such as landslides or falling rocks are typical in areas of steep slopes. The Project Area is generally flat with gentle slopes; and therefore, landslides or falling rocks are unlikely to occur in the Project Area. Therefore, impacts related to landslides would remain less than significant.

b) Less Than Significant Impact. Construction of the Build Alternatives would temporarily disturb a total of 2.60 acres, 9.03 acres, and 24.61 acres of surface area within the Project Area, respectively. Construction activities including grading, excavation, and clearing and grubbing would expose and disturb soil, increasing the potential for soil erosion during construction compared to existing conditions. Additionally, during a storm event, soil erosion could occur at an accelerated rate. During all construction activities for the Build Alternatives the construction contractor would be required to adhere to the requirements of the General Construction Permit and to implement erosion and sediment control best management practices (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. Erosion impacts related to water quality due to construction are specifically evaluated in Section 2.9, Water Quality, in this EIR/EA. Appropriate BMPs have been incorporated into the design to address potential soil erosion during operation of the Build Alternatives. With implementation of Project Features PF-WQ-1 through PF-WQ-7 (as identified in Section 2.9.3.1, potential soil erosion impacts would be less than significant. No mitigation is required.

c) Less Than Significant Impact. Soil subsidence occurs when large amounts of groundwater have been withdrawn from certain types or rocks, such as fine-grained sediments. When water is withdrawn, the rock falls in on itself and over large areas

can result in occurrences such as sinkholes. In general, none of the affected Study Area cities call out areas within their respective jurisdictions' General Plans that are specifically subject to soil subsidence. Therefore, soil subsidence is unlikely to occur in the Project Area.

Lateral spreading, the horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face (unsupported vertical slope face), is typically associated with liquefaction of subsurface layer(s) near the bottom of an exposed slope. The Project Area is located in a relatively flat area and no open faces were identified near the Project Area in the Geotechnical Investigation. Therefore, the potential for impacts related to lateral spreading is less than significant. No mitigation is required.

As previously discussed, the Project Area has shown to not be located within a zone that is susceptible to landslides. As indicated in the response for 3.1.7 (a)(iii), about half of the total Project Area is mapped by the California Geological Survey as being in a zone that is susceptible to liquefaction. However, implementation of Project Feature PF-GEO-1 would address the effects of liquefaction and seismic settlement on the Build Alternatives. Therefore, with implementation of Project Feature PF-GEO-1, which requires the evaluation of soil and groundwater conditions along the proposed Project corridor through a site-specific investigation, impacts related to unstable soil or an unstable geologic unit would be less than significant. No mitigation is required.

d) Less Than Significant Impact. The Log-of-Test-Borings completed as part of the *Preliminary Geologic Study* indicate that soils on-site consist of interlayered clay and silty sand with interspersed gravel lenses. The clayey surficial soils are expected to expand when wet and crack upon drying. However, as identified in Project Feature PF-GEO-1, soil conditions along the proposed Project corridor would be evaluated through a site-specific investigation as part of the engineering design of the Build Alternatives. The results of this investigation would inform the final engineering design of the Build Alternatives. Design and construction of the proposed improvements would adhere to the Caltrans *Highway Design Manual* (HDM) and other required standards, as well as recommendations from the Structure Foundation Report and the Geotechnical Design Report, as included in Project Feature PF-GEO-1. Therefore, impacts to the Project Area related to expansive soils would be less than significant. No mitigation is required.

e) No Impact. The Build Alternatives would not use septic tanks or alternative methods for disposal of wastewater into subsurface soils, and would not connect to existing public wastewater infrastructure. Therefore, the Build Alternatives would not result in impacts related to septic tanks or alternative wastewater disposal methods.

f) Less Than Significant With Mitigation Incorporated. Geologic mapping indicates the Project Area contains Very Young Wash Deposits; Young Alluvium, Unit 2; Young Alluvial Fan Deposits; and Young Axial Channel Deposits. Although not mapped, Artificial Fill is likely also present at the surface of the Project Area from the prior construction of Interstate (I) 5 and other roads. While Artificial Fill may contain fossils, these fossils have been removed from their original location and are thus out of stratigraphic context. Therefore, they are not considered important for scientific study. As such, Artificial Fill has no paleontological sensitivity. Very Young Wash Deposits are mapped within the Project Area where the proposed Project crosses the Santa Ana River. Although these Very Young Wash Deposits can contain remains of plants and animals, not enough time has passed for the remains to have become fossilized. Therefore, the Very Young Wash Deposits are considered to have no paleontological sensitivity. The upper 10 feet of the Young Alluvium, Unit 2; Young Alluvial Fan Deposits; and Young Axial Channel Deposits are assigned a low paleontological sensitivity above a depth of 10 feet and a high sensitivity below that mark, given the sediments of the Young Alluvium, Unit 2; Young Alluvial Fan Deposits; and Young Axial Channel Deposits below a depth of 10 feet may be old enough to contain scientifically significant paleontological resources.

Construction of the Build Alternatives would require ground disturbance, excavation, and modifications to existing freeway and local street facilities and structures. Excavation activities associated with Alternative 2 are anticipated to extend up to 5 feet below the surface and would not reach deposits with high paleontological sensitivity. However, excavation activities for Alternatives 3 and 4 are anticipated to extend up to 25 feet below the surface, and therefore, the Alternatives 2 and 3 would have the potential to impact scientifically important, nonrenewable paleontological resources. With implementation of PF-PAL-1 (as identified in Section 2.11.4) which would require that work stop if unanticipated paleontological resources are discovered during construction, and PAL-1 (as identified in Section 2.11.4), which would require preparation and implementation of a Paleontological Mitigation Plan (PMP), potential impacts to paleontological features would be reduced to a less than significant level.

Avoidance, Minimization, and/or Mitigation Measures

The following Project Features and mitigation measure would be implemented. Project Features related to Water Quality are included in Section 3.1.10.

PF-GEO-1 **Revegetation.** Prior to construction, revegetation of graded slopes should be performed to minimize erosion, and runoff should be diverted from each slope face using earthen berms and/or concrete swales at the top of each slope.

GEO-1 **Geotechnical Investigation.** During the Plans, Specifications, and Estimates (PS&E) phase, a detailed geotechnical investigation will be conducted by qualified geotechnical personnel to assess the geotechnical conditions at the Project Area.PA The geotechnical investigation will include exploratory borings to investigate site-specific soils and conditions and to collect samples of subsurface soils for laboratory testing. Those soil samples will be tested to evaluate liquefaction potential, collapsibility potential, stability, and corrosion potential. The project-specific findings and recommendations of the geotechnical investigation will be summarized in a Structure Foundation Report and a Geotechnical Design Report to be submitted to the California Department of Transportation (Caltrans) for review and approval. Those findings and recommendations will be incorporated in the final design of the Build Alternatives.

PF-PAL-1 **California Department of Transportation (Caltrans) Standard Specification 14-7.03: Discovery of Unanticipated Paleontological Resources.** If unanticipated paleontological resources are discovered, all work within 60 feet of the discovery must cease and the construction Resident Engineer will be notified. Work cannot continue near the discovery until authorized.

PAL-1 **Paleontological Mitigation Plan.** A qualified paleontologist shall prepare a Paleontological Mitigation Plan (PMP) following the guidelines in the California Department of Transportation (Caltrans) Standard Environmental Reference (SER), Environmental Handbook, Volume 1, Chapter 8 – Paleontology (June 2016 or more current) and guidelines 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. Implementation of the PMP during Construction and post-Construction will reduce impacts to potential paleontological resources to less than significant. SSP 14-7.04 for Paleontological resources mitigation.

3.1.8 Greenhouse Gas Emissions

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

CEQA Significance Determinations for Greenhouse Gas Emissions

Please refer to Section 3.2, Climate Change, for additional discussion of greenhouse gas (GHG) emissions.

Assembly Bill (AB) 32, Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006, codified the 2020 GHG emissions reduction goals as outlined in State Executive Order (EO) S-3-05, while further mandating that CARB 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 [H&SC] Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

State CEQA Guidelines Section 15064.4 states that when assessing the significance of impacts from GHG emissions on the environment, the lead agency should consider, among other factors, the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting. While comparing future Build to future No Build conditions may be useful in determining significant impacts and in establishing the extent of project-level measures to reduce GHG emissions from the Project, CEQA and the *State CEQA Guidelines* remain focused on the comparison of future conditions with the Project compared to existing conditions.

a) Less Than Significant Impact. GHG emissions emitted during both construction and operations would be unavoidable; however, as described in Section 3.2.3 of this EIR/EA, the Build Alternatives Opening Year (2035) and Future Year (2055) scenarios would all show decreases in long-term regional vehicle GHG emissions compared to the No Build Alternative. In addition, there would likely be additional long-term GHG benefits through improved operations and smoother pavement surfaces.

The results of the modeling were used to calculate the carbon dioxide (CO_2) emissions listed in Table 3.2 (in Section 3.2.3), which shows that the No Build Alternative and all three Build Alternatives would result in a net decrease in CO_2 emissions in 2035 and 2055 compared to the Existing (2022) condition. The Build Alternatives in both the opening and horizon years would result in a decrease in CO_2 emissions in the region when compared to the No Build Alternative in each year.

While the Build Alternatives would result in GHG emissions during construction, as described in Section 3.2.3, it is anticipated that the Build Alternatives would not result in any increase in operational GHG emissions. As described in Section 3.2.4, the Build Alternatives do not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Impacts would be less than significant, and no mitigation is required.

b) Less Than Significant Impact. SCAG's Connect SoCal 2020 RTP/SCS complies with the emission reduction targets established by CARB and meets the requirements of Senate Bill (SB) 375, as codified in Government Code Section 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 the targets set by CARB. 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 Build Alternatives are currently included in the future commitments section of the Connect SoCal 2020 RTP/SCS. However, the proposed Project is not captured in future regional models, and efforts to incorporate the Build Alternatives into such models are being taken. Once updated later in 2023, the 2020–2045 RTP/SCS and the FTIP will capture the Build Alternatives in regional models. The Build Alternatives would 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-identified strategies to manage congestion by maximizing the current system and ensuring it operates with maximum

efficiency and effectiveness. Therefore, the Build Alternatives would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. Impacts would be less than significant, and no mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The following avoidance, minimization, and/or mitigation measures would be implemented to ensure the proposed Project's impacts related to GHG emissions would be less than significant:

GHG-1 The contractor shall implement a sustainability construction management approach by implementing the following measures:

- Use low-emission vehicles during construction.
- Alternative fuels such as renewable diesel should be used for construction equipment.
- Limit idling to 5 minutes for delivery and dump trucks and other diesel-powered equipment.
- Schedule truck trips outside of peak morning and evening commute hours.
- Reduce construction waste and maximize the use of recycled materials (to reduce consumption of raw materials, reduce landfill waste, and encourage cost savings).
- Incorporate measures to reduce consumption of potable water.
- Maintain equipment in proper tune and working condition.
- Use the right size of equipment for the job.
- Use equipment with new technologies.
- Construction Environmental Training: Supplement existing training with information regarding methods to reduce GHG emissions related to construction.

GHG-2 Replacement of light fixtures with highly efficient light-emitting diodes (LEDs), including new safety lighting.

GHG-3 Reduce water use by planting drought-tolerant vegetation and installing smart irrigation controllers.

3.1.9 Hazards and Hazardous Materials

Would the project:

Question	CEQA Determination
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less Than Significant Impact
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?	Less Than Significant Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Less Than Significant Impact
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?	Less Than Significant Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two nautical miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less Than Significant Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	No Impact

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 *Hazardous Waste Initial Site Assessment* (ISA, January 2023), and in Section 2.12, Hazardous Waste/Materials, of this EIR/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. Through excavation, demolition, and construction activities, the Build Alternatives have the potential to encounter contaminated soil and groundwater, aerially deposited lead, polychlorinated biphenyls, pavement-marking materials, pesticides, ACMs, LBP, herbicides and pesticides, and treated wood waste.

Typical hazardous materials anticipated to be used during construction of the Build Alternatives (e.g., solvents, paints, fuels) and hazardous wastes generated during

construction would be handled in accordance with applicable federal and State regulations and Caltrans policies regarding the use, storage, handling, disposal, and transport of these materials.

During final design, aerially deposited lead studies would be conducted along the I-5 ROW within the proposed disturbance limits and electrical transformers and equipment would be evaluated for PCB content or releases as detailed in Project Features PF-HAZ-1 and PF-HAZ-2 (as identified in Section 2.12.3.1). Project Features PF-HAZ-3, PF-HAZ-4, and PF-HAZ-6 (as identified in Section 2.12.3.1) would also require Caltrans special provisions as part of final design to ensure proper removal, handling, and disposal of traffic striping waste, ACMs, and LBPs at a permitted disposal facility and proper management or disposal of treated wood waste in accordance with current Department of Toxic Substances Control (DTSC) guidance. Monitoring of soil excavation for the possible presence of unknown hazardous material sources would be required during excavation as required by PF-HAZ-5 (as identified in Section 2.12.3.1). In addition, the Build Alternatives would be required to adhere to State and federal regulations with respect to the use, generation, and disposal of hazardous waste/materials during construction and operation of the Build Alternatives. Based on an urbanized Resource Study Area (RSA) and adherence to regulatory requirements, the Build Alternatives would not result in potentially significant temporary or permanent hazardous waste/materials impacts. No mitigation is required.

b) Less Than Significant Impact. The Build Alternatives would not create a substantial hazard to the public or the environment through any reasonably foreseeable upset or accident conditions involving the release of hazardous materials. As discussed in Response 3.1.9 a) above, routine hazardous materials such as paint, solvents, and fuel would be used, handled, stored, disposed of, and transported during construction of the Build Alternatives in accordance with applicable local, State, and federal regulations. Routine maintenance activities during operation of the Build Alternatives would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Hence, operation of the Build Alternatives would not result in a potentially significant permanent impact related to transport or upset of hazardous waste and materials. No mitigation is required.

c) Less Than Significant Impact. As detailed in Table 2.3.7 of Section 2.3, Community Impacts of this EIR/EA, the following public schools are located within 0.25 mile of the alignment of the proposed Project:

- Betsy Ross Elementary School at 535 S. Walnut Street, Anaheim
- John Marshall Elementary School at 2066 W. Falmouth Avenue, Anaheim
- Orange Grove Elementary School at 1000 S. Harbor Boulevard, Anaheim
- Paul Revere Elementary School at 140 W. Guinida Lane, Anaheim
- Westmont Elementary School at 1525 W. Westmont Drive, Anaheim
- Brookhurst Junior High School at 601 N. Brookhurst St., Anaheim
- Carl E. Gilbert Elementary School at 7255 8th Street, Buena Park
- Mabel L. Pendleton Elementary School at 7101 Stanton Avenue, Buena Park
- Davis Elementary School at 1405 French Street, Santa Ana
- Tustin High School at 1171 El Camino Real, Tustin;
- Utt Middle School at 13601 Browning Avenue in Tustin.

Additionally, as detailed in Table 2.3.8 of Section 2.3 of this EIR/EA, the following private schools are located within 0.25 mile of the alignment of the proposed Project:

- digiTIES located at 1136 N. Brookhurst Street, Anaheim
- Fairmont Historic Anaheim located at 1575 W. Mabel Street, Anaheim
- Fairmont Preparatory Academy at 2200 W. Sequoia Avenue, Anaheim
- Islamic Education School at 1136 N. Brookhurst Street, Anaheim
- Buena Park Christian Learning Center at 7142 Thomas Street, Buena Park
- St. Pius V Catholic School at 7691 Orangethrope Avenue, Buena Park
- University High School of Business and Leadership International at 2130 E. 4th Street, Santa Ana
- Saint Jeanne De Lestonnac School at 16791 E. Main Street, Tustin.

No schools are known to be planned within 0.25 mile of the alignment of the proposed Project.

As discussed in Responses 3.1.9.1 (a) and (b) above, routine hazardous materials such as paint, solvents, and fuel would be used, handled, stored, disposed of, and transported during construction of the Build Alternatives in accordance with applicable local, State, and federal regulations. Also as previously discussed, operation of the Build Alternatives would not involve the reasonably foreseeable potential for release of hazardous emissions or handling of acutely hazardous

materials, as transport of hazardous materials is subject to strict regulation. Routine maintenance activities during operation of the Build Alternatives would comply with applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, operation of the Build Alternatives would result in less than significant impacts related to the emissions or handling of hazardous waste or materials near existing or proposed schools. No mitigation is required.

d) Less Than Significant Impact. A review of the EnviroStor Database dated April 25, 2022 revealed that there were 105 EnviroStor sites within 1 mile of the Project Area. A review of Geotracker's Leaking Underground Fuel Tank Report dated April 25, 2022 revealed that there are 395 Leaking Underground Fuel Tank sites within 0.5 miles of the Project Area. However, the status of the majority of these sites were listed as inactive, no further action, or case closed. Furthermore, none of the sites on these lists were areas identified for partial or full acquisition under the Build Alternatives. Monitoring of soil excavation for the possible presence of unknown hazardous material sources would be required during excavation as required by PF-HAZ-5. In addition, aerially deposited lead studies would be conducted along the I-5 ROW within the proposed disturbance limits and electrical transformers and equipment would be evaluated for PCB content or releases as detailed in Project Features PF-HAZ-1 and PF-HAZ-2. Project Features PF-HAZ-3, PF-HAZ-4, and PF-HAZ-6 would also require Caltrans special provisions as part of final design to ensure proper removal, handling, and disposal of traffic striping waste, ACMs, and LBPs at a permitted disposal facility and proper management or disposal of treated wood waste in accordance with current Department of Toxic Substances Control (DTSC) guidance. With implementation of these Project Features, potential impacts related to hazardous material sites would be less than significant. No mitigation is required.

e) No Impact. The closest public use airport to the Project Area is the Fullerton Municipal Airport, located approximately 0.6 mile northeast of the Project Area. The John Wayne Airport is located approximately 4 miles southwest of the Project Area. The proposed improvements to I-5, including HOV passenger adjustments, necessary signage/lane restriping, and two-park-and-ride facilities under Alternative 2, and the EL conversions under Alternatives 3 and 4, would not result in features that would trigger review by the Airport Land Use Commission. The improvements to I-5 under the Build Alternatives would be similar in scale and density to the existing signage and freeway features on I-5. The noise environment would be similar to the current

noise environment of I-5. No structures of significant heights that would impede aircraft safety or provide suitable rest areas for birds would occur. Therefore, the Build Alternatives would not result in an airport-related safety hazard for the people residing or working in the project area. No impact relating to this topic would occur.

f) Less Than Significant Impact. As described in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, although Alternative 2 would result in some temporary impacts to traffic circulation, Alternatives 3 and 4 would have more of an impact on traffic circulation as well as pedestrian and bicycle access in the vicinity of the Project Area. Those impacts could include on-ramp and connector closures, 55-hour weekend closures of the Northbound (NB) I-5 to NB SR-57 HOV Connector and Southbound (SB) SR-57 to SB I-5 HOV Connector, and extended long-term closures of the NB I-5 to NB SR-57 HOV Connector and SB SR-57 to SB I-5 HOV Connector. The temporary closures and detours may result in short-term effects on emergency response and evacuation along and in the vicinity of the Project Area and arterials in the vicinity of I-5. Specifically, emergency responders would need to use designated detour routes to get around freeway ramp or lane closures or lane reductions on arterials at their crossings of I-5. This could result in increased travel times for emergency service providers. Similarly, in the event evacuations are required during the temporary facility closures or lane reductions, there could be delays for traffic evacuating from the area due to the detours and/or temporary reduction in the available road capacity. However, full and partial closures would be coordinated with local jurisdictions as outlined in the Transportation Management Plan (TMP) as required by Project Feature PF-TR-1. The TMP would specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas. With implementation of this Project Feature, potential impacts related to emergency response times and plans would be less than significant. No mitigation is required.

g) No Impact. No portion of the Project Area is within or adjacent to a High or Very High Fire Hazard Severity Zone.[1] Although the Build Alternatives would not have occupants because it is not a development project, it would have frequent users as it is a roadway thoroughfare with pedestrian structures. In the event of a wildfire, the

[1] Office of the State Fire Marshal, 2023. *Fire Hazard Severity Zones in State Responsibility Area.* Website: https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/#explorefhsz (accessed May 9, 2023)

nature of the Build Alternatives, which consists of roadway improvements, would yield a less than significant impact on users.

Additionally, the Project Area and the surrounding areas are developed in urban and suburban uses and do not primarily include brush- and grass-covered areas typically found in areas susceptible to wildfires. As a result, the Build Alternatives would not expose people or structures to a significant risk of loss, injury, or death associated with wildland fires. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The following Project Features would be implemented to ensure any impacts related to hazardous materials as part of the Build Alternatives would be reduced to levels less than significant:

PF-HAZ-1 A California Department of Transportation (Caltrans) special provision will be included as part of the Project Specifications and Estimates (PS&E) package to ensure proper removal, handling, and disposal of aerially deposited lead (ADL) containing material at a permitted disposal facility or reused per the Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils (Agreement).

PF-HAZ-2 A Caltrans special provision will be included as part of the PS&E package to ensure proper removal, handling, and disposal of the generated traffic striping waste at a permitted disposal facility.

PF-HAZ-3 A Caltrans special provision will be included as part of the PS&E package to ensure proper removal, handling, and disposal of asbestos-containing materials (ACMs) and lead-based paints (LBPs) at a permitted disposal facility.

PF-HAZ-4 During excavation, the Construction Contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the Construction Contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in

Chapter 7 of the Caltrans *Construction Manual* (February 2021). Adequate protection for construction workers will be provided with the implementation of a Health and Safety Plan and Soil Management Plan.

PF-HAZ-5 The California Department of Toxic Substances Control (DTSC) Hazardous Materials Division guidance for the Management of Treated Wood Waste will be included as part of the PS&E package to ensure proper management or disposal of treated wood waste in accordance with current DTSC guidance.

PF-TR-1 **Transportation Management Plan.** Prior to approval of the final design, a final Transportation Management Plan (TMP) report will be prepared to outline strategies for reducing potential construction-related traffic conflicts, detours, and delays. A Major TMP classification is anticipated due to the complexity of the proposed project. A qualified traffic engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during proposed Project construction. The TMP would be approved by the Orange County Transportation Authority (OCTA) and the California Department of Transportation (Caltrans) District 12 during final design and would be incorporated into the plans, specifications, and estimates for implementation by the construction Contractor. Specifically, The purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the project. The objectives of the TMP are to:

- Maintain traffic safety during construction
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction
- Minimize traffic delays and facilitate reduction of the overall duration of construction activities
- Minimize detours and impacts to pedestrians and bicyclists
- Foster public awareness of the project and related transportation and traffic impacts
- Achieve public acceptance of construction of the project and the TMP measures

The TMP will contain, but not be limited to, the following strategies recommended for implementation during construction activities of the proposed Project. The elements of these strategies will be refined during final design and incorporated in the TMP for implementation during project construction.

- **Public Information Campaign.** The primary goal of the proposed Project's public information campaign is to educate motorists, business owners and operators, residents, elected officials, and government agencies about project construction activities and associated transportation impacts. This campaign is considered an important tool for reaching target audiences with important construction project information and is anticipated to include, but not be limited to:

  - Rideshare information
  - Brochures and mailers
  - Media releases
  - Paid advertising
  - Public meetings
  - Telephone hotline
  - Notification to targeted groups
  - Commercial traffic reporters/feeds
  - Project website
  - Visual information
  - Local cable television and news
  - Internet postings

- **Traveler Information Strategies.** The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; "businesses are open" signing; and other signing and information to assist travelers in navigating through, around, and in construction areas.

- **Incident Management.** Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes, but is not limited to:

  - Caltrans Construction Zone Enhanced Enforcement Program (COZEEP)
  - Traffic Management Team
  - Traffic surveillance stations
  - Caltrans Transportation Management Center

- **Construction Strategies.** The TMP will include procedures to lessen the transportation effects of project-related construction activities and will include, but not be limited to, consideration of the following:

  - Lane Requirement Charts
  - Construction Staging
  - Traffic Handling Plans
  - Full Facility Closures
  - Connector Closures
  - Nighttime Work
  - Extended Weekend Work
  - Speed Limit Reduction
  - Coordination with Adjacent Construction Sites and Special Events

- **Demand Management.** Temporarily reducing the overall traffic volumes on the project segment of Interstate 5 (I-5) could reduce the short-term adverse effects of construction on traffic operations. The TMP will include, but not be limited to, rideshare strategies that could reduce vehicular demand in the Study Area during project construction.

- **Alternate Route Strategies.** The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to

make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize the detour and alternate routes for motorists, specifically addressing the following:

- Mainline lane closures
- Ramp/connector closures
- Local road closures
- Temporary highway or shoulder use
- Local street improvements
- Temporary detours and closures of bicycle and pedestrian facilities
- Traffic signal coordination
- The construction Contractor will implement the measures in the TMP during construction.

In addition, the following avoidance, minimization, and/or mitigation measure would be implemented to ensure any impacts related to hazardous materials as part of the Build Alternatives would be reduced to levels less than significant.

HAZ-1 Electrical transformers and equipment will be evaluated during the PS&E phase for polychlorinated biphenyl (PCB) content or releases if transformers and/or equipment will be removed or relocated as part of the project. Leaking transformers observed during construction of the project will be tested for PCBs and handled in accordance with all applicable regulations.

3.1.10 Hydrology and Water Quality

Would the project:

Question	CEQA Determination
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	Less Than Significant Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less Than Significant Impact

Question	CEQA Determination
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) result in substantial erosion or siltation on- or off-site;	Less Than Significant Impact
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	Less Than Significant Impact
(iii) 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; or	Less Than Significant Impact
(iv) impede or redirect flood flows?	Less Than Significant Impact
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	Less Than Significant Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less Than Significant Impact

CEQA Significance Determination for Hydrology and Water Quality

The potential for the Build Alternatives to adversely impact hydrology and water quality was assessed in the *Water Quality Assessment Report* (WQAR, March 2023), *Conceptual Drainage Report* (November 2022), the *Location Hydraulic Study* (December 2022), and the *Jurisdictional Delineation Report* (April 2022) prepared for the Proposed Project.

The following discussion is based on the analysis completed in Section 2.8, Hydrology and Floodplains, and Section 2.9, Water Quality and Storm Water Runoff, of this EIR/EA.

a) Less Than Significant Impact. During construction of the Build Alternatives, excavated soil would be exposed and there would be an increased potential for soil erosion compared to existing conditions. Construction of the Build Alternatives would temporarily disturb a total of 2.60 acres, 9.03 acres, and 24.61 acres of surface area within the Project Area, respectively. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), concrete-related waste, sanitary waste, and trash and debris may be spilled or leaked during construction with the potential for those pollutants of concern to be transported via storm runoff into

receiving waters. Project Features PF-WQ-2 and PF-WQ-3 (as identified in Section 2.9.3), require the design, implementation, and maintenance of construction BMPs in compliance with the Construction General Permit (CGP) that would address the potential effects of soil erosion and pollutants of concern on receiving waters. Based on compliance with Project Features PF-WQ-2 and PF-WQ-3 and the NPDES permit requirements, water quality impacts during construction of the Build Alternatives are less than significant. Additionally, dewatering may be required during construction of the Alternatives 3 and 4. If groundwater dewatering becomes necessary during construction, the Alternatives 3 and 4 would be required to comply with a groundwater dewatering permit as described in Project Feature PF-WQ-6. No mitigation is required.

The Build Alternatives would result in permanent increases in new and replaced impervious surface area by 2.10 acres, 10.69 acres, and 19.86 acres, respectively, compared to the existing freeway facility. An increase in impervious area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. Although the Build Alternatives would result in an increase in new and replaced impervious surfaces, BMPs for the Build Alternatives would treat 100 percent of the new and replaced impervious surface area, providing greater overall water quality benefits to on-site drainages and downstream receiving waters than under current conditions. As specified in Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7 (as identified in Section 2.9.3), the Build Alternatives would comply with the Caltrans NPDES Permit and would implement Caltrans-approved Treatment and Design Pollution Prevention BMPs to reduce the discharge of pollutants of concern to the maximum extent practicable. Design Pollution Prevention BMPs are features that focus on reducing or eliminating runoff and controlling sources of pollutants during operation of the project. Treatment BMPs use treatment mechanisms to remove pollutants that have entered stormwater runoff. Based on compliance with these Caltrans requirements as shown in Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7, the Build Alternatives would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. No mitigation is required.

b) Less Than Significant Impact. Dewatering may be required during construction of the Alternatives 3 and 4. If groundwater dewatering becomes necessary during construction, the Alternatives 3 and 4 would be required to comply with a groundwater dewatering permit as described in Project Feature PF-WQ-6 (as identified in Section 2.9.3), which requires monitoring the discharges from

groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface waters does not exceed surface water effluent limitations for particular pollutants. Such dewatering would be localized and temporary and would not result in the lowering of surrounding groundwater levels. Therefore, it is not anticipated that construction of Alternatives 3 and 4 would decrease groundwater supplies or impede sustainable groundwater management of the basin and the impact would be less than significant.

Operation of the Build Alternatives would not require the consumption of groundwater; however, development of the Build Alternatives would result in permanent increases in new and replaced impervious surface area by 2.10 acres, 10.69 acres, and 19.86 acres, respectively, compared to the existing freeway facility, which could reduce infiltration compared to existing conditions. As specified in Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7, the Build Alternatives would include operational BMPs that would increase infiltration to offset the increase in impervious surfaces. Therefore, operation of the Build Alternatives would not interfere with groundwater recharge.

For the reasons listed above, impacts related to the decrease of groundwater supplies or interference with groundwater recharge would be less than significant**.** No mitigation is required.

c) i) Less Than Significant Impact. During construction of the Build Alternatives, more than 1 acre of soil would be disturbed. Soil would be exposed and drainage patterns would be temporarily altered during grading and other construction activities, and there would be an increased potential for soil erosion and siltation compared to existing conditions. Additionally, during a storm event, soil erosion and siltation could occur at an accelerated rate. As required by Project Features PF-WQ-2 and PF-WQ-3, the CGP requires the preparation of a SWPPP to identify construction BMPs to be implemented as part of the Build Alternatives to address impacts on water quality during construction, including those impacts associated with soil erosion and siltation. With compliance with the requirements in the CGP and implementation of construction BMPs, construction impacts related to on- or off-site erosion or siltation would be less than significant. No mitigation is required.

After the completion of construction, the Build Alternatives would not significantly alter the existing drainage pattern of the Project Area. However, construction of the Build Alternatives would result in permanent increases in new and replaced

impervious surface area by 2.10 acres, 10.69 acres, and 19.86 acres, respectively, compared to the existing freeway facility which would result in a net increase in stormwater runoff that could lead to downstream erosion in receiving waters. However, BMPs for the Build Alternatives would treat 100 percent of the new and replaced impervious surface area, providing greater overall water quality benefits to on-site drainages and downstream receiving waters than under current conditions. As specified in Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7, the Build Alternatives would comply with the Caltrans NPDES Permit and would implement Caltrans-approved Treatment and Design Pollution Prevention BMPs to reduce the discharge of pollutants of concern to the maximum extent practicable. Therefore, operational impacts related to on- or off-site erosion or siltation would be less than significant. No mitigation is required.

c) ii) Less Than Significant Impact. Construction of the Build Alternatives would result in permanent increases in new and replaced impervious surface area by 2.10 acres, 10.69 acres, and 19.86 acres, respectively, compared to the existing freeway facility which could have the potential to increase the volume and rate of stormwater runoff discharged from the Project Area. However, design pollution prevention infiltration areas (DPPIAs) and bio infiltration swales (BSWs) would be included in the design of the Build Alternatives for stormwater control, treatment, and infiltration as stipulated by Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would be appropriately sized so that on-site flooding would not occur. Therefore, operation of the Build Alternatives would not result in potentially significant increases in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. No mitigation is required.

c) iii) Less Than Significant Impact.

Stormwater Drainage System Capacity. The Build Alternatives propose to modify an existing transportation facility. The Build Alternatives would result in permanent increases in new and replaced impervious surface area by 2.10 acres, 10.69 acres, and 19.86 acres, respectively, compared to the existing freeway facility. As discussed in Section 2.9.3, the proposed Treatment BMPs for the Build Alternatives may include DPPIAs and BSWs for stormwater control, treatment, and infiltration as stipulated by Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7. The proposed drainage facilities and BMPs needed to accommodate stormwater runoff would be appropriately sized such that drainage facility capacity would not be exceeded during

a design storm. Therefore, the Build Alternatives would not result in an exceedance of planned or existing stormwater drainage systems and impacts would be less than significant. No mitigation is required.

Polluted Runoff. As previously discussed, pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals, and each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. Drainage patterns would be temporarily altered during grading and other construction activities, and construction-related pollutants could be spilled, leaked, or transported via storm runoff into adjacent drainages and downstream receiving waters. However, as previously discussed and as detailed in Project Features PF-WQ-2 and PF-WQ-3, the Build Alternatives would be required to comply with the requirements set forth by the CGP, including preparation of a SWPPP, which would specify BMPs to be implemented to control the discharge of pollutants in stormwater runoff as a result of construction activities. Therefore, construction-related impacts would be less than significant and no mitigation is required.

Expected pollutants of concern from long-term operations include pathogens (bacteria/viruses), metals, nutrients, motor vehicle lubricants, coolants, disc brake dust, toxic organic compounds, pesticides/herbicides, sediments/total suspended solids, trash and debris, and oil and grease. As previously discussed, the treatment BMPs would target constituents of concern from transportation facilities. Furthermore, the design pollution prevention BMPs would control sources of pollutants in the Project Area, thereby reducing the amount of pollutants that would drain to downstream receiving waters. Therefore, the Build Alternatives would not 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 with inclusion of Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7. Impacts related to stormwater drainage systems or the quality of runoff are less than significant. No mitigation is required.

c) iv) Less Than Significant Impact. As detailed in Section 2.8, Hydrology and Floodplains, there are several 100-year floodplains within the Project Area. Coyote Creek, Fullerton Creek, Carbon Creek, Santa Ana River, and Santiago Creek are the five major flood control facilities that cross Interstate (I) 5 within the Project Area.

A review of the Federal Emergency Management Agency (FEMA) Federal Insurance Rate Maps (FIRMs) for Los Angeles and Orange counties indicates the I-5 bridges over Coyote Creek and Fullerton Creek (partial) are identified as Zone X, Fullerton Creek (partial) and Carbon Creek (partial) are in Zone AH, Carbon Creek (partial) and the Santa Ana River are in Zone A, and Santiago Creek is in Zone AE.

Because the Build Alternatives would only require converting the minimum occupancy of the HOV lanes (Alternative 2) or restriping of the freeway (Alternatives 3 and 4) within 100-year floodplains and would not result in any floodplain encroachments, construction activities under the Build Alternatives would not result in any temporary or permanent adverse impacts related to flood flows. No impact would occur, and no mitigation would be required.

d) Less Than Significant Impact.

Flooding. As previously discussed under Section 3.1.10c)iv), there are several 100-year floodplains within the Project Area. Coyote Creek, Fullerton Creek, Carbon Creek, Santa Ana River, and Santiago Creek are the five major flood control facilities that cross Interstate (I) 5 within the Project Area. However, the Build Alternatives would only require converting the minimum occupancy of the HOV lanes (Alternative 2) or restriping of the freeway (Alternatives 3 and 4) within 100-year flood plains and would not result in any floodplain encroachments. During construction, BMPs would be implemented to ensure that during a rain event, pollutants would be retained on site and would be prevented from reaching downstream receiving waters, as detailed in Project Features PF-WQ-2 and PF-WQ-3. During operation, the design pollution prevention BMPs would control sources of pollutants in the Project Area, thereby reducing the amount of pollutants that would drain to downstream receiving waters as stipulated by Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7. Therefore, the potential for release of pollutants due to project inundation by flooding of the Build Alternatives is less than significant. No mitigation is required.

Tsunami. The Project Area is over 10 miles northeast of the Pacific Ocean and is not located in an area mapped by the California Emergency Management Agency as

being potentially inundated by a tsunami.[1] Therefore, the Project Area would not be at risk from tsunami.

Seiches. Seiches are waves that are created in an enclosed body of water such as a bay, lake, or harbor and go up and down or oscillate and do not progress forward like standard ocean waves. There are no sizeable enclosed bodies of water in the nearby vicinity of the Project Area. Therefore, the Project Area would not be at risk from seiches.

Based on the design of the Build Alternatives, including the incorporation of Design Pollution Prevention Infiltration Area (DPPIAs) and biofiltration swales (BSWs) that would address the volume and rate of post-project stormwater flows, and because the Project Area is not within a tsunami or seiche zone, implementation of the Build Alternatives would not result in the release of pollutants from a flood, tsunami, or seiche, and impacts would be less than significant. No mitigation is required.

e) Less Than Significant Impact. The Project Area is within the jurisdiction of the Santa Ana and Los Angeles RWQCB. As discussed in Section 2.9.1 Regulatory Setting and 2.9.2 Affected Environment of this EIR/EA, the Santa Ana and Los Angeles RWQCB adopted Basin Plans that designate beneficial uses for all surface and groundwater within its jurisdiction and establishes the water quality objectives and standards necessary to protect those beneficial uses. As discussed in detail above, the Build Alternatives would comply with existing NPDES requirements and would implement construction and operational BMPs to reduce pollutants of concern in stormwater runoff as detailed in Project Features PF-WQ-1 through PF-WQ-5 and PF-WQ-7. Additionally, during construction, any dewatered groundwater would be tested and treated (if necessary) prior to discharge to surface waters (PF-WQ-6). Compliance with these regulatory requirements would ensure that Build Alternatives would not degrade or alter water quality, cause the receiving waters to exceed the water quality objectives, or impair the beneficial use of receiving waters. As such, the Build Alternatives would not result in water quality impacts that would conflict with the Santa Ana and Los Angeles RWQCB Water Quality Control Plans (Basin Plans). Construction and operational impacts related to a conflict with the Basin Plan would be less than significant, and no mitigation is required.

[1] California Department of Conservation, 2023. *Orange County Tsunami Hazard Areas*. Website: https://www.conservation.ca.gov/cgs/tsunami/maps/orange (accessed May 10, 2023).

The SGMA, which was enacted in September 2014, requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. The SGMA requires the formation of local groundwater sustainability agencies, which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. As discussed in Section 2.9.2 Affected Environment, the Project Area is within the Coastal Plain of the Orange County Groundwater Basin (Orange County Basin) and the Coastal Plain of the Los Angeles Groundwater Basin (commonly referred to as the Central Basin), which are managed by California Department of Water Resources (DWR).

The Sustainable Groundwater Management Act (SGMA), which was enacted in September 2014, requires governments and water agencies of high- and medium-priority basins to halt overdraft of groundwater basins. The SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs), which are required to adopt Groundwater Sustainability Plans to manage the sustainability of the groundwater basins. The Central Basin is identified by the California DWR as a very low priority basin. A Groundwater Sustainability Plan is not required for basins which are ranked as a very low priority. The Orange County Basin is identified by the California DWR as a medium priority basin. The Groundwater Sustainability Agency identified for the Orange County Basin is Orange County Water District (OCWD), City of La Habra, and Irvine Ranch Water District. On January 1, 2017, the Orange County Water District, city of La Habra, and Irvine Ranch Water District submitted the Basin 8-1 Alternative to the California Department of Water Resources.[1]

As previously discussed in Section 3.1.10 a), the construction and operation of the Build Alternatives would not result in a decrease of groundwater supplies or interference with groundwater recharge. Additionally, the Build Alternatives would incorporate DPPIAs and BSWs for stormwater control, treatment, and infiltration that would contribute to recharge and ensure that significant pollutants do not reach groundwater aquifers. For these reasons, the Build Alternatives would not conflict with or obstruct the implementation of a sustainable groundwater management plan. Therefore, construction and operational impacts related to conflict with or obstruction of water quality control plans or sustainable groundwater management plans would be less than significant, and no mitigation is required.

[1] Orange County Water District, City of La Habra, and Irvine Ranch Water District. 2017. *Basin 8-1 Alternative.* January 1.

Avoidance, Minimization, and/or Mitigation Measures

None required; the following Project Features would be implemented:

PF-WQ-1 The Project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2022-0033-DWQ, NPDES No. CAS000003 (Permit) and any subsequent permits in effect at the time of construction.

PF-WQ-2 The Project will comply with the provisions of the NPDES Construction General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (CGP) Order No. 2022-0057-DWQ, NPDES No. CAS000002, and any subsequent permits in effect at the time of construction.

PF-WQ-3 The Project will comply with the CGP by preparing and implementing a Stormwater Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level (RL). The SWPPP will identify the sources of pollutants that may affect the quality of stormwater and include Best Management Practices (BMPs) to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management, and nonstormwater BMPs. All work would conform to the Construction Site BMP requirements specified in the latest edition of the Stormwater Quality Handbooks: Construction Site Best Management Practices Manual (Caltrans 2003) to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other nonstormwater BMPs.

PF-WQ-4 Design Pollution Prevention Best Management Practices (BMPs) will be implemented such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes,

and swales, over side drains, flared end sections, and outlet protection/velocity dissipation devices.

PF-WQ-5 Caltrans-approved treatment BMPs will be implemented consistent with the requirements of NPDES Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2022-0033-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction. Treatment BMPs may include biofiltration strips, biofiltration swales, infiltration basins, detention devices, Design Pollution Prevention Infiltration Areas (DPPIA), dry-weather flow diversion, gross solids removal devices (GSRDs), media filters, bioretention, open graded friction courses, wet basins, and other BMPs.

PF-WQ-6 If dewatering is expected, the Project shall fully conform to the requirements specified in Order No. R8-2020-0006, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality or Order No. R4-2018-0125 General Waste Discharge Requirements for Discharges of Groundwater from Construction and Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties. These NPDES permits are applicable to construction dewatering wastes and dewatering wastes from subterranean seepage.

PF-WQ-7 Caltrans FTC Devices, other treatment controls, and/or institutional controls will be implemented within STGAs consistent with requirements of Attachment E of National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2022-0033-DWQ, NPDES No. CAS000003.

3.1.11 Land Use and Planning

Would the project:

Question	CEQA Determination
a) Physically divide an established community?	Less Than Significant Impact
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less Than Significant Impact

CEQA Significance Determinations for Land Use and Planning

The potential for the Build Alternatives to result in adverse impacts related to land use and planning was assessed in the *Community Impact Assessment* (CIA, May 2023) and in Sections 2.1, Land Use, and 2.3, Community Impacts, in this EIR/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. The Project Area consists of an existing freeway with interchanges/ramps, retaining walls, and other structural features. Existing land use types in the Project Area are shown on Figure 2.1-1 in Section 2.1 of this EIR/EA and include single- and multifamily residential, mobile homes and trailer parks, commercial and service, general office, mixed commercial and industrial, facilities, education, open space and recreation, transportation/communications/utilities, vacant, and water. Land uses surrounding the Project Area are predominantly residential except for clusters of commercial and industrial uses throughout the Study Area, and notable activity centers such as Westfield Mainplace, The Outlets at Orange, Anaheim Plaza, Disneyland, Disney's California Adventure Park, Angel Stadium of Anaheim, the Honda Center, the Anaheim Regional Transportation Intermodal Center (ARTIC), the University of California Irvine (UCI) Medical Center, Providence St. Joseph Hospital Orange, Children's Hospital of Orange County (CHOC), Christ Cathedral, the Santa Ana Regional Transportation Center, the Discovery Cube, the Santa Ana Zoo, and The Market Place. Land within the Study Area is zoned for specific plan, commercial, industrial, mixed use, open space, public and institutional, civic center, and residential.

The physical division of an established community typically refers to the construction of a physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community, or between a community and an outlying area. The proposed

improvements under the Build Alternatives would modify the existing HOV lanes within the proposed Project limits to address operational deficiencies. Since all of the improvements associated with the Build Alternatives would occur within existing Caltrans right-of-way, no property acquisitions or relocations or TCEs would be required under the Build Alternatives and the Build Alternatives would not divide an existing neighborhood or fragment a cohesive community. Temporary access restrictions and detours may impact nearby businesses and residents who commute into and out of the Project Area for work. However, any road or facility closure would take place primarily during off-peak, weekend, and overnight hours, minimizing delays to the traveling public and local business operations. Access to all nearby businesses and other land use types would be maintained during any freeway, ramp, and/or local street closures through the identification of detour routes on alternate freeway off-ramps and local streets. Full and partial closures would be coordinated as outlined in the Draft Transportation Management Plan (Project Feature PF-TR-1 [TMP] in Section 2.5.3.1 of this EIR/EA). Furthermore, any disruptions would be temporary and limited to the construction period. I-5 already bisects the Cities of Tustin, Santa Ana, Orange, Anaheim, Buena Park, and Santa Fe Springs and the Build Alternatives would not result in temporary or permanent adverse effects on community cohesion. Therefore, effects of the Build Alternatives on community character, division of existing land uses or existing communities, or creation barriers between existing communities are less than significant. No mitigation is required.

b) Less than Significant Impact. The Build Alternatives' consistency with State, Regional, and local plans and programs is analyzed in detail in Section 2.1, Land Use, of this EIR/EA. The Build Alternatives would not change existing land use patterns along I-5 because I-5 is an existing transportation facility in a highly developed area, and the Build Alternatives would not require property acquisition. The local land use policies consistency analysis for the Build Alternatives is provided in Table 2.1.5 in Section 2.1 of this EIR/EA and identifies whether the proposed Project is consistent with the local and regional land use plans and policies. As detailed in Table 2.1.5, the improvements included under the Build Alternatives would be consistent with the majority of the goals and policies identified. The Build Alternatives are not included in the future regional models for the SCAG 2020-2045 RTP/SCS, nor are they included in the SCAG 2023 FTIP. Measure LU-1 (as identified in Section 2.1.4.2) would be implemented to address the inconsistency of the Build Alternatives with the SCAG 2020-2045 RTP/SCS and the SCAG 2023 FTIP. Other than the amendment to the RTP/SCS and the FTIP, the Build Alternatives would not require amendment of other State, regional, or local plans and programs. Although the notification area for

Fullerton Municipal Airport (FMA) overlaps with a portion of the Study Area, the proposed improvements under the Build Alternatives do not meet the requirements for notification per the Airport Environs Land Use Plan (AELUP). With implementation of Measure LU-1, the Build Alternatives' potentially significant inconsistency with the RTP/SCS modeling and the FTIP would be reduced to less than significant.

Avoidance, Minimization, and/or Mitigation Measures

The following measure would be implemented:

LU-1 **RTP/SCS Modeling and FTIP Coordination:** Caltrans, OCTA, and SCAG will coordinate to incorporate the Build Alternatives into the future regional models for the SCAG 2020-2045 RTP/SCS and include the project in the SCAG 2023 FTIP.

3.1.12 Mineral Resources

Would the project:

Question	CEQA Determination
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	No Impact
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?	No Impact

CEQA Significance Determinations for Mineral Resources

The potential for the Build Alternatives to result in adverse impacts related to mineral resources was assessed based on information from the County of Orange and County of Los Angeles General Plans.

a) and b) No Impact. As discussed in Section 2.10, Geology/Soils/Seismic/ Topography of this EIR/EA, the California Geological Survey Map of Aggregate Sustainability in California does not identify economical resources/mineral resources in the Project Area.[1] Additionally, the County of Orange General Plan[2] and Los

[1] California Geological Survey. Map of Aggregate Sustainability in California. 2018. Website: https://www.conservation.ca.gov/cgs/Documents/Publications/Map-Sheets/MS_052_California_Aggregates_Report_201807.pdf (accessed March 1, 2023).

[2] County of Orange, 2012. *County of Orange General Plan, Resources Element.*

Angeles County General Plan Update Draft EIR[1] do not identify any mineral resources within the Project Area. As a result, the Build Alternatives would not result in impacts on known mineral resources or resource extraction activities.

Avoidance, Minimization, and/or Mitigation Measures

None required.

3.1.13 Noise

Would the project:

Question	CEQA Determination
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less Than Significant Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	Less Than Significant Impact
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two nautical 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?	No Impact

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, April 2023), *Noise Abatement Decision Report* (NADR, April 2023), and Section 2.14, Noise, in this EIR/EA. The following discussion is based on those analyses.

a) Less Than Significant Impact. As stated in Section 2.14 of this EIR/EA, since Alternative 2 does not ultimately propose changes to the physical footprint or changes in traffic capacity, Alternative 2 does not meet the criteria as a Type 1 Project. Therefore, a noise analysis to determine permanent noise impacts related to Alternative 2 was not conducted. However, Alternatives 3 and 4 do meet the criteria of a Type 1 Project and therefore, analysis of those alternatives is provided below.

[1] County of Los Angeles, 2014. *Los Angeles County General Plan Update Draft EIR.* June.

During the construction phases of the Build Alternatives, noise from construction activities may intermittently dominate the noise environment in the immediate area of construction. For Alternative 2, this intermittent noise would only occur in the immediate vicinity of the proposed park-and-ride facilities. Equipment involved in construction is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet. Noise produced by construction equipment would diminish the further away from the construction site that receptor is located. Temporary construction noise impacts would be unavoidable at areas immediately adjacent to the Project Area. Project Feature PF-N-1 requires compliance with Caltrans' Standard Specifications Section 14-8.02 (2018) and would address construction noise impacts on sensitive land uses adjacent to the Project Area. The noise level from the contractor's operations between the hours of 9:00 p.m. and 6:00 a.m. shall not exceed 86 dBA L_{max} at a distance of 50 feet.

Potential long-term noise impacts associated with the operation of Alternatives 3 and 4 are solely from traffic noise. The future worst-case traffic noise impacts at frequent outdoor human use areas within the Study Area were modeled for the No-Build Alternative and the Build Alternatives to determine appropriate noise abatement measures. However, as previously noted, Build Alternative 2 was assumed to have the same results as the No-Build Alternative as it would maintain the existing highway lane configuration. Future predicted exterior traffic noise levels vary depending on the Project segment and the Build Alternative, but generally are consistent with or higher than existing exterior traffic noise levels. Various modeled receptors would approach or exceed the NAC for Activity Categories B and C; therefore, consideration of noise abatement is required in various locations. Because of the constrained configuration and suburban location of the Project Area, abatement in the form of soundwalls was the only abatement measure analyzed. Measure N-1 requires noise abatement in the form of noise barriers and would minimize operational noise impacts on sensitive land uses adjacent to the Project Area. Therefore, long-term noise impacts as a result of the Build Alternatives are considered less than significant. More detail on the location of these noise barriers is located in Table 2.14.7 in Section 2.14 of this EIR/EA.

b) Less Than Significant Impact. As discussed in the NSR completed for the proposed Project, it is possible that certain construction activities could cause intermittent localized concern from ground-borne vibration in the Project Area. Processes such as earth moving with bulldozers, the use of vibratory compaction rollers, demolition, or crack-and-seating of rigid pavement, if done, may cause

construction-related ground-borne vibration impacts such as human annoyance, dish rattling, loosening of tiles, and crack growth in stucco or concrete surfaces. There are cases in which it may be necessary to use this type of equipment close to residential buildings. If these processes are used, pre- and post-construction surveys would be performed. Implementation of Measure N-1 would be required, which includes procedures that can be used to reduce the potential impacts from construction ground-borne vibration to less than significant levels.

Groundborne vibration from vehicles driving on the Project facilities would not result in any measurable changes in vibration levels compared to the existing conditions. Therefore, ground-borne vibration impacts associated with operation of the Build Alternatives are considered less than significant.

c) No Less than Significant Impact. There are no private airports or airstrips in the immediate vicinity of the Project Area. Although the closest public use airport to the Project Area is the Fullerton Municipal Airport (FMA), located approximately 0.6 mile northeast of the Project site. The John Wayne Airport is located approximately 4 miles southwest of the Project Area. As detailed in above in Section 3.1.13 a), the construction and operation of the Build Alternatives would not result in excessive noise levels and the Build Alternatives would not change existing land use patterns along I-5 because I-5 is an existing transportation facility in a highly developed area. Therefore, the Build Alternatives would not affect or be affected by aviation noise levels associated with private airports or airstrips. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The following Project Features and minimization measure would be implemented to ensure noise impacts associated with the Build Alternatives would be reduced to a less than significant level:

PF-N-1 The control of noise from construction activities will conform to the California Department of Transportation (Caltrans) Standard Specifications, Section 14-8.02, "Noise Control." The nighttime noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., will not exceed 86 A-weighted decibels (dBA) 1-hour A-weighted equivalent continuous sound level ($L_{eq}(h)$) at a distance of 50 feet. In addition, the Contractor would equip all internal combustion engines with a manufacturer-recommended muffler and

would not operate any internal combustion engine on the job site without the appropriate muffler.

N-1 Based on the studies completed to date, the California Department of Transportation (Caltrans) intends to incorporate noise abatement in the form of a barrier (Seg1D-SB2-A) for Alternatives 3 and 4 on the southbound side of I-5 from East 17th Street to West 20th Street, with an approximate length of 1,210 and average heights ranging from 12 to16 feet. Calculations based on preliminary design data show that the barrier will reduce noise levels by 5 to 12 dBA for approximately 12 to 22 residences at a cost of $855,000 to $1,108,000. This measure may change based on input received from the public. If conditions have substantially changed during final design, noise abatement may not be constructed. The final decision on noise abatement will be made upon completion of the project design.

3.1.14 Population and Housing

Would the project:

Question	CEQA Determination
a) Induce substantial unplanned 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)?	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact

CEQA Significance Determinations for Population and Housing

The potential for the Build Alternatives to result in significant impacts related to population and housing was assessed in the *Community Impact Assessment* (CIA, May 2023), and Sections 2.2, Growth, and 2.3, Community Impacts, in this EIR/EA. The following discussions are based on those analyses.

a) No Impact. As discussed in detail in Section 2.2, Growth, the potential growth-related impacts of the Build Alternatives were considered in the context of the first-cut screening analysis approach to assessing the potential for growth-inducing effects. That analysis determined that the Build Alternatives would:

- Not provide new transportation facilities or create new access points to areas not previously accessible and, therefore, would not result in changes in accessibility to the transportation system in the area.
- Accommodate existing, approved, and planned growth and would not influence growth beyond what is currently planned.
- Would not influence growth beyond those projects that are currently planned for the area and would not change the rate, type, or amount of growth and reasonably foreseeable growth in the any of the Study Area Cities, Los Angeles County, and Orange County.
- Would not result in growth-related impacts on any resources of concern.

Therefore, implementation of the Build Alternatives would not induce substantial unplanned population growth, either directly or indirectly. No mitigation is required.

b) No Impact. The Project Area is an existing freeway with interchanges/ramps, retaining walls, and other structural features. Existing land use types in the Project Area are shown on Figure 2.1-1 and include single- and multifamily residential, mobile homes and trailer parks, commercial and service, general office, mixed commercial and industrial, facilities, education, open space and recreation, transportation/communications/utilities, vacant, and water. The improvements proposed under the Build Alternatives would modify the existing HOV lanes within the proposed Project limits to address operational deficiencies. No property acquisitions or relocations would be required under the Build Alternatives and no TCEs would be required for any of the Build Alternatives. However, in recognition of the challenges that low-income and minority motorists may face in accessing these travel benefits offered by the proposed Project, Caltrans would implement an Equity Assistance Plan (EAP) as part of Alternatives 3 and 4 (Measure EQ-1) to provide assistance to individuals who meet certain income and demographic characteristics by providing them with free or low-cost FasTrak transponders and/or FasTrak account credits to assist with covering the cost of tolls incurred through use of the I-5 ELs. With implementation of the EAP, Alternatives 3 and 4 would not result in adverse effects to underserved communities. Therefore, because the Build Alternatives would not displace existing housing or people or require the acquisition of any residential units, there would be no impact And no mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

Based on the above discussion and analysis, Alternatives 3 and 4 may result in disproportionately high and adverse effects on any minority or low-income

populations per EO 12898. Measure EQ-1 would be implemented as part of Alternatives 3 and 4 in recognition of the challenges that low-income and minority motorists may face in accessing the benefits that Alternatives 3 and 4 would provide.

Measure EQ-1 **Equity Assistance Plan (EAP).** Caltrans will implement an EAP as part of Alternatives 3 and 4. The EAP would provide assistance to individuals who meet certain income and demographic characteristics by providing them with free or low-cost FasTrak transponders and/or FasTrak account credits to assist with covering the cost of tolls incurred through the use of the I-5 Express Lanes. Details on the EAP (e.g., eligibility requirements, implementation, etc.) will be developed in the future phases of the Project.

3.1.15 Public Services

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

Question	CEQA Determination
a) Fire protection?	Less Than Significant Impact
b) Police protection?	Less Than Significant Impact
c) Schools?	Less Than Significant Impact
d) Parks?	Less Than Significant Impact
e) Other public facilities?	Less Than Significant Impact

CEQA Significance Determinations for Public Services

The potential for the Build Alternatives to impact public services and facilities is assessed in the *Community Impact Assessment* (CIA, May 2023), and Sections 2.1, Land Use, 2.3, Community Impacts, and 2.4, Utilities and Emergency Services, in this EIR/EA. The following discussions are based on those analyses.

a) and b) Less Than Significant Impact. Study Area cities with no municipal fire departments are served by the Orange County Fire Authority (OCFA). Three OCFA divisions serve three of the seven cities within the Study Area: Operations Division 7 serves the City of Buena Park; Operations Division 4 serves the City of Tustin; and Operations Division 6 serves the City of Santa Ana. The Cities of Anaheim, Fullerton, and Orange are served by their respective municipal fire departments, but also have mutual aid agreements with OCFA and adjacent jurisdictions. Fire protection and emergency medical services (EMS) for the City of La Mirada are provided by the Los Angeles County Fire Department (LACoFD). Police protection services in the Study Area are provided by the cities of Tustin, Santa Ana, Orange, Anaheim, Fullerton, and Buena Park city police departments. The City of La Mirada contracts with the Los Angeles County Sheriff's Department for law enforcement services.

As described earlier in the Response 3.1.9 f), construction of the Build Alternatives would result in temporary impacts to traffic circulation. Temporary closures and detours may result in short-term effects on emergency response and evacuation along and in the vicinity of the Project Area and arterials in the vicinity of I-5. Specifically, emergency responders would need to use designated detour routes to get around freeway ramp or lane closures or lane reductions on arterials at their crossings of I-5. This could result in increased travel times for emergency service providers. Similarly, in the event evacuations are required during the temporary facility closures or lane reductions, there could be delays for traffic evacuating from the area due to the detours and/or temporary reduction in the available road capacity. Project Feature PF-TR-1, provided in Section 2.5, requires the preparation of a TMP during final design to be implemented during construction. The TMP would specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas. Temporary impacts to police and fire protection services during construction are considered less than significant.

In the long term, Alternatives 3 and 4 would improve the operation of the freeway facilities in the Study Area with Alternative 4 providing the most improvement. These improvements in traffic flow are likely to improve emergency response times within the project limits. Therefore, operation of the Build Alternatives would not result in adverse effects on the delivery of emergency services in the long term. No mitigation is required.

c) Less Than Significant Impact. As detailed in Table 2.3.7 in Section 2.3, Community Impacts of this EIR/EA, the public school districts that have schools located within the Study Area include Anaheim Elementary School District, Anaheim Union High School District, Buena Park School District, Santa Ana Unified School District, and Tustin Unified School District. There are no public schools in La Mirada, Orange, and Fullerton that are located within the Study Area. If any of the Build Alternatives are implemented, a TMP (PF-TR-1) would be prepared in coordination with the applicable school districts and access to all schools would be maintained during construction. The TMP would also address traffic delays, maintain traffic flow in the I-5 corridor, 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 workers and travelers.

No property acquisitions or relocations would be required under the Build Alternatives and no TCEs would be required for any of the Build Alternatives. Therefore, potential effects to schools as a result of the Build Alternatives are less than significant and no mitigation would be required.

d) Less Than Significant Impact. Construction of the Build Alternatives may result in a temporary increase in travel times for the public in accessing local parks and recreation facilities, but access would be maintained throughout the duration of construction via the transportation management strategies in PF-TR-1 (TMP).

There are 30 parks and recreation facilities within 0.5 mile of the Project Area which are listed in Table 2.1.3 and 2.1.4 of Section 2.1, Land Use, of this EIR/EA. As previously discussed, no property acquisitions or relocations would be required under the Build Alternatives and no TCEs would be required for any of the Build Alternatives. Therefore, the effects of the Build Alternatives on parks are less than significant and no mitigation would be required.

e) Less Than Significant Impact. The Build Alternatives would not result in the temporary use of land, nor would it result in temporary closures of the previously identified community facilities. The Build Alternatives may result in temporary delays in travel time to and from community facilities but would be minimized Adherence to PF-TR-1 (TMP) which would address traffic delays, maintain traffic flow in the Project Area, manage detours and temporary road, lane, and ramp closures, and provide ongoing information to the public regarding construction

activities, closures, and detours. The Build Alternatives would not result in permanent impacts to any community facilities. Therefore, impacts to other public facilities would be less than significant. No mitigation is necessary.

Avoidance, Minimization, and/or Mitigation Measures

None required; the following Project Feature would be implemented:

PF-TR-1 **Transportation Management Plan.** Prior to approval of the final design, a final Transportation Management Plan (TMP) report will be prepared to outline strategies for reducing potential construction-related traffic conflicts, detours, and delays. A Major TMP classification is anticipated due to the complexity of the proposed project. A qualified traffic engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during proposed Project construction. The TMP would be approved by the Orange County Transportation Authority (OCTA) and the California Department of Transportation (Caltrans) District 12 during final design and would be incorporated into the plans, specifications, and estimates for implementation by the construction Contractor. Specifically, The purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the project. The objectives of the TMP are to:

- Maintain traffic safety during construction
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction
- Minimize traffic delays and facilitate reduction of the overall duration of construction activities
- Minimize detours and impacts to pedestrians and bicyclists
- Foster public awareness of the project and related transportation and traffic impacts
- Achieve public acceptance of construction of the project and the TMP measures

The TMP will contain, but not be limited to, the following strategies recommended for implementation during construction activities of the proposed Project. The elements of these strategies will be refined

during final design and incorporated in the TMP for implementation during project construction.

- **Public Information Campaign.** The primary goal of the proposed Project's public information campaign is to educate motorists, business owners and operators, residents, elected officials, and government agencies about project construction activities and associated transportation impacts. This campaign is considered an important tool for reaching target audiences with important construction project information and is anticipated to include, but not be limited to:

  - Rideshare information
  - Brochures and mailers
  - Media releases
  - Paid advertising
  - Public meetings
  - Telephone hotline
  - Notification to targeted groups
  - Commercial traffic reporters/feeds
  - Project website
  - Visual information
  - Local cable television and news
  - Internet postings

- **Traveler Information Strategies.** The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; "businesses are open" signing; and other signing and information to assist travelers in navigating through, around, and in construction areas.

- **Incident Management.** Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling

public in the vicinity of work zones. Incident management includes, but is not limited to:

- Caltrans Construction Zone Enhanced Enforcement Program (COZEEP)
- Traffic Management Team
- Traffic surveillance stations
- Caltrans Transportation Management Center

- **Construction Strategies.** The TMP will include procedures to lessen the transportation effects of project-related construction activities and will include, but not be limited to, consideration of the following:

  - Lane Requirement Charts
  - Construction Staging
  - Traffic Handling Plans
  - Full Facility Closures
  - Connector Closures
  - Nighttime Work
  - Extended Weekend Work
  - Speed Limit Reduction
  - Coordination with Adjacent Construction Sites and Special Events

- **Demand Management.** Temporarily reducing the overall traffic volumes on the project segment of Interstate 5 (I-5) could reduce the short-term adverse effects of construction on traffic operations. The TMP will include, but not be limited to, rideshare strategies that could reduce vehicular demand in the Study Area during project construction.

- **Alternate Route Strategies.** The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize

the detour and alternate routes for motorists, specifically addressing the following:

- Mainline lane closures
- Ramp/connector closures
- Local road closures
- Temporary highway or shoulder use
- Local street improvements
- Temporary detours and closures of bicycle and pedestrian facilities
- Traffic signal coordination

The construction Contractor will implement the measures in the TMP during construction.

3.1.16 Recreation

Question	CEQA Determination
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?	No Impact
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?	No Impact

CEQA Significance Determinations for Recreation

The potential for the Build Alternatives to adversely impact recreation resources was assessed in the *Community Impact Assessment* (CIA, May 2023) and Section 2.1, Land Use, in this EIR/EA. The following discussions are based on the findings of that analysis.

a) No Impact. There are 30 parks and recreational facilities within 0.5 mile of the Project Area, as detailed in Table 2.1.3 and Table 2.1.4 of Section 2.1, Land Use, of this EIR/EA. As discussed in 3.1.14 above, the Build Alternatives would not influence growth beyond what is currently planned and therefore, would not result in an increase in the use of existing neighborhood and regional parks or other recreational facilities. No property acquisitions or relocations would be required under the Build Alternatives and no TCEs would be required for any of the Build

Alternatives. There are no construction activities proposed adjacent to or on parks and recreational facilities identified in the Study Area. Therefore, the Build Alternatives would not result in the physical deterioration of existing neighborhood and regional parks or other recreational facilities. No mitigation is required.

b) No Impact. The Build Alternatives do not include the construction of new recreational facilities or require the expansion of existing recreational facilities. Therefore, the Build Alternatives would have no impact related to constructing new or expanded recreation facilities. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

None required.

3.1.17 Transportation

Would the project:

Question	CEQA Determination
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Less Than Significant Impact
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Significant and Unavoidable Impact
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No Impact
d) Result in inadequate emergency access?	Less Than Significant Impact

CEQA Significance Determinations for Transportation/Traffic

The potential for the Build Alternatives to result in adverse traffic impacts was assessed in the Draft Traffic Operations Analysis Report (April 2023), the VMT Technical Memorandum (April 2023), and in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, in this EIR/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact.

Temporary Impacts

Implementation of the Build Alternatives would temporarily affect the freeway and local street traffic during the construction period. While Alternative 2 would not

require on-ramp and/or connector closures, it would require temporary closures of segments of the HOV lanes in order to replace signage and restripe pavement. Generally, on-ramp and connector closures for Alternatives 3 and 4 would occur during off-peak and overnight hours, to minimize delays to the traveling public. However, some longer closures such as 55-hour weekend closures and extended long-term closures may be necessary Full and partial closures would be coordinated with local jurisdictions as outlined in PF-TR-1TMP. The TMP would address traffic delays; maintain traffic flow in the I-5 corridor; 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 workers and travelers.

Any arterials closed temporarily and/or modified during construction would be returned to their existing cross-sections no later than the completion of construction of the improvements proposed under the Build Alternatives. Specifically, at arterial crossings where modifications to sidewalks and/or on-road marked bicycle lanes are necessary as part of the proposed improvements, those modifications would be consistent with ADA accessibility requirements. The permanent improvements proposed under the Build Alternatives would not affect the existing Class I bike paths in the Project Area.

The temporary impacts on motorists, pedestrians, and bicyclists would be avoided and/or minimized based on implementation of the TMP during construction as required in Project Feature PF-TR-1. With implementation of the TMP, short-term traffic and transportation impacts during construction would be addressed and therefore, would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. No mitigation is required.

Permanent Impacts

Build Alternative (Alternative 2)

HOV, Mainline, and Ramps

Opening Year 2035

As identified in Tables 2.5.3 and 2.5.4 in Section 2.5 of this EIR/EA, many of the freeway mainline segments are projected to operate at unacceptable LOS under Alternative 2 in 2035, creating chokepoints and causing congestion on adjacent merge/diverge areas. However, traffic operations within the Study Area are expected to improve at several freeway segments compared to the No

Build Alternative for both AM and PM peak hours as a result of the improvements to the HOV lanes under Alternative 2 compared to the 2035 No Build Alternative.

Horizon Year 2055

Additionally, as shown in Tables 2.5.9 and 2.5.10, under Alternative 2 in 2055, much like in 2035, many freeway segments are projected to operate at unacceptable LOS, creating chokepoints and causing congestion on adjacent merge and diverge areas. However, similar to 2035 conditions, improvements to the HOV segments proposed by Alternative 2 under 2055 conditions within the Study Area are forecast to improve traffic operations at several freeway segments when compared to the 2055 No Build Alternative for both AM and PM peak hours.

Intersections

Opening Year 2035

As shown in Tables 2.5.5 and 2.5.6, under Alternative 2 in 2035, a total of 14 Study Area intersections (approximately 19 percent) are projected to operate at LOS E or F in one or both peak periods. Since Alternative 2 only proposes to modify existing HOV lane requirements with no additional roadway improvements, impacts to the study area intersections would be similar to the 2035 No Build Alternative. There are seven total intersections which operate at an LOS of D or higher under the 2035 No Build Alternative which would be degraded to an LOS E or F under Alternative 2 in 2035. These include intersections: R-11, R-32, A-6, A-25, A-29, A-31, and A-32 as noted in Tables 2.5.5 and 2.5.6.

Horizon Year 2055

Tables 2.5.11 and 2.5.12 also outline the intersection operations under Alternative 2 in 2055. In 2055, a total of 23 Study Area intersections (approximately 32 percent) are projected to operate at LOS E or F in one or both peak periods. Since Alternative 2 only proposes to modify existing HOV lane requirements with no additional roadway improvements, impacts to the Study Area intersections would be similar to the 2055 No Build Alternative. There are six total intersections which operate at an LOS of D or higher under the 2055 No Build Alternative which would be degraded to an LOS E or F under Alternative 2 in 2055. These include intersections: R-36, A-6, A-21, A-25, A-28, and A-31 as noted in Tables 2.5.11 and 2.5.12.

Ramp Capacity

Alternative 2 would not involve the alteration or reconfiguration of any existing ramps. Therefore, ramp metering rates for the Study Area on-ramps are expected to stay within an acceptable range of 1800 vehicles per hour (vph), similar to existing conditions and as shown in Tables 2.5.7 and 2.5.13. Tables 2.5.8 and 2.5.14 contain a summary of off-ramp queue lengths in 2035 and 2055, respectively. It is anticipated that queue lengths provided on all on-ramps with minimum ramp metering rates would be adequate under 2035 Alternative 2 conditions. Since ramp improvements are not planned under Alternative 2, off- and on-ramp conditions in 2035 and 2055 would be similar to the 2035 and 2055 No Build Alternative. Alternative 2 would not result in adverse impacts related to ramp queuing.

Bicycle and Pedestrian Facilities

Alternative 2 does not include any modifications to the freeway mainline, ramps, or arterials and only includes a modification to the minimum requirements for the HOV lanes and construction of two park-and-ride facilities within the existing freeway right-of-way. Therefore, the permanent improvements proposed under Alternative 2 would not affect bicycle and pedestrian facilities within the Project Area. As part of Alternative 2, construction of two park-and-ride facilities within the existing freeway right-of-way (ROW) could cause potential temporary construction closures could occur at the South Anaheim Boulevard undercrossing and Grand Avenue undercrossing in order to accommodate park-and-ride construction. However, any potential closures would be temporary in nature to accommodate the construction of the park-and-ride facilities, and is not expected to result in permanent to local bicycle and pedestrian facilities. The permanent improvements proposed under Alternative 2 would not affect the existing Class I or Class II bike paths in the vicinity of the Project.

Public Transit

Alternative 2 would potentially result in temporary detours and increased travel times for local bus services that intersect with the Project Area. Refert o Section 2.5 for a full list of those services. Implementation of the TMP (PF-TR-1) will ensure coordination with OCTA, LA Metro, and Anaheim Regional Transportation (ART) to alert transit patrons of any changes prior to temporary bus stop relocations, temporary detours, increased travel times, and changes in service schedule. Intermittent roadway lane closures and detours would not

prevent the use of pedestrian and bicycle facilities and would allow unimpeded access to public transit facilities during construction activities.

Build Alternative 3

ELs, Mainline and Ramps

Opening Year 2035

As identified in Tables 2.5.3 and 2.5.4, many of the freeway mainline segments are projected to operate at unacceptable LOS under 2035 Alternative 3, creating chokepoints and causing congestion on adjacent merge/diverge areas. However, proposed improvements proposed by Alternative 3 under 2035 conditions would ultimately improve traffic operations within the Study Area at several freeway segments when compared to the 2035 No Build Alternative for both AM and PM peak hours.

Horizon Year 2055

Additionally shown in Tables 2.5.9 and 2.5.10, under Alternative 3 in 2055, much like in 2035, many freeway segments operate at unacceptable LOS, creating chokepoints and causing congestion on adjacent merge and diverge areas. Also similar to 2035 conditions, improvements proposed by Alternative 3 under 2055 conditions within the Study Area are forecast to improve traffic operations at several freeway segments when compared to the 2055 No Build Alternative for both AM and PM peak hours.

Intersections

Opening Year 2035

As shown in Tables 2.5.5 and 2.5.6, under Alternative 3 in 2035, a total of 13 Study Area intersections (approximately 19 percent) are projected to operate at LOS E or F in one or both peak periods. Per the *Draft Traffic Operations Analysis Report* (April 2023), the intersection analysis for Alternative 3 assumes the same lane configuration as the No Build Alternative. There are five total intersections which operate at an LOS of D or higher under the 2035 No Build Alternative which would be degraded to an LOS E or F under Alternative 3 in 2035. These include intersections: R-11, R-32, A-29, A-31, and A-32 as noted in Tables 2.5.5 and 2.5.6.

Horizon Year 2055

Tables 2.5.11 and 2.5.12 outline the intersection operations under Alternative 3 in 2055. In 2055, a total of 21 Study Area intersections (approximately 30 percent)

are projected to operate at LOS E or F in one or both peak periods. Per the *Traffic Operations Analysis Report* (April 2023), the intersection analysis for Alternative 3 assumes the same lane configuration as the No Build Alternative. There are four total intersections which operate at an LOS of D or higher under the 2055 No Build Alternative which would be degraded to an LOS E or F under Alternative 3 in 2055. These include intersections: R-4, A-21, A-25, and A-31 as noted in Tables 2.5.11 and 2.5.12.

Ramp Capacity

As shown in Tables 2.5.7 and 2.5.13, under Alternative 3, the peak-hour ramp volume for all of the on-ramps except one (I-5 NB Main Street) is within the acceptable maximum metering rate of 900 vehicles per hour per lane (vphpl). In the *Traffic Operations Analysis Report* (April 2023), on-ramp assessments for all Build Alternatives were assumed to have the same number of lanes at the ramp meter and locations with ramp meters as the No Build Alternative. Therefore, under all analysis scenarios, the p.m. peak hour volume for the I-5 NB Main Street on-ramp is forecasted to have a volume greater than 900 vphpl (1,800 vph). Tables 2.5.8 and 2.5.14 contain a summary of off-ramp queue lengths for Alternative 3 in 2035 and 2055, respectively. It is anticipated that queue lengths provided on all on-ramps with minimum ramp metering rates would be adequate under 2035 Alternative 3 conditions, similar to the 2035 and 2055 No Build Alternative. Therefore, Alternative 3 would not result in adverse impacts related to ramp queuing.

Bicycle and Pedestrian Facilities

Alternative 3 would involve lane modifications within existing arterials at their crossings at I-5 to accommodate the permanent improvements to I-5 and the ramps provided by Alternative 3. Any arterials closed temporarily and/or modified during construction would be returned to their existing cross-sections no later than the completion of construction of the improvements proposed under the Build Alternatives. Specifically, at arterial crossings where modifications to sidewalks and/or on-road marked bicycle lanes are necessary as part of the proposed improvements, those modifications would be consistent with ADA accessibility requirements. As part of Alternative 3, construction of two park-and-ride facilities within the existing freeway right-of-way (ROW) could cause potential temporary construction closures could occur at the South Anaheim Boulevard undercrossing and Grand Avenue undercrossing in order to accommodate park-and-ride construction. However, any potential closures would be temporary in nature to accommodate the construction of the park-and-ride facilities, and is not expected to result in permanent

to local bicycle and pedestrian facilities. The permanent improvements proposed under Alternative 3 would not affect the existing Class I and Class II bike paths in the vicinity of the Project.

Public Transit

Alternative 3 would potentially result in temporary detours and increased travel times for local bus services that intersect with the Project Area. Implementation of the TMP (PF-TR-1) will ensure coordination with OCTA, LA Metro, and ART to alert transit patrons of any changes prior to temporary bus stop relocations, temporary detours, increased travel times, and changes in service schedule. Intermittent roadway lane closures and detours would not prevent the use of pedestrian and bicycle facilities and would allow unimpeded access to public transit facilities during construction activities. Therefore, Alternative 3 would not result in adverse impacts related to public transit access.

Build Alternative 4

ELs, Mainline and Ramps

Opening Year 2035

As identified in Tables 2.5.3 and 2.5.4, many of the freeway mainline segments are projected to operate at unacceptable LOS under 2035 Alternative 4, creating chokepoints and causing congestion on adjacent merge/diverge areas. However, proposed improvements proposed by Alternative 4 under 2035 conditions would ultimately improve traffic operations within the Study Area at several freeway segments when compared to the 2035 No Build Alternative for both AM and PM peak hours.

Horizon Year 2055

Additionally shown in Tables 2.5.9 and 2.5.10, under Alternative 4 in 2055, much like in 2035, many freeway segments operate at unacceptable LOS, creating chokepoints and causing congestion on adjacent merge and diverge areas. However, similar to 2035 conditions, improvements proposed by Alternative 4 under 2055 conditions within the Study Area are proposed to improve traffic operations at several freeway segments over the 2055 No Build Alternative for both AM and PM peak hours.

Intersections

Opening Year 2035

As shown in Tables 2.5.5 and 2.5.6, under Alternative 4 in 2035, a total of 13 Study Area intersections (approximately 19 percent) are projected to operate at LOS E or F in one or both peak periods. Per the *Traffic Operations Analysis* Report (April 2023), the intersection analysis for Alternative 4 assumes the same lane configuration as the No Build Alternative. There are five total intersections which operate at an LOS of D or higher under the 2035 No Build Alternative which would be degraded to an LOS E or F under Alternative 4 in 2035. These include intersections: R-32, A-13, A-29, and A-32 as noted in Tables 2.5.5 and 2.5.6.

Horizon Year 2055

Tables 2.5.11 and 2.5.12 outline the intersection operations under Alternative 4 in 2055. In 2055, a total of 22 Study Area intersections (approximately 31 percent) are projected to operate at LOS E or F in one or both peak periods. Per the *Traffic Operations Analysis* Report (May 2023), the intersection analysis for Alternative 4 assumes the same lane configuration as the No Build Alternative. There are three total intersections which operate at an LOS of D or higher under the 2055 No Build Alternative which would be degraded to an LOS E or F under Alternative 4 in 2055. These include intersections: A-21, A-25, and A-31 as noted in Tables 2.5.11 and 2.5.12.

Ramp Capacity

As shown in Tables 2.5.7 and 2.5.13, the peak hour ramp volume for all of the on-ramps except one for Alternative 4 is within the acceptable maximum metering rate of 900 vehicles per hour per lane (vphpl). During the PM peak hour, the peak hour volume for the I-5 NB Main Street on-ramp is forecasted to have a volume greater than 900 vphpl (1,800 vehicles per hours [vph]). Tables 2.5.8 and 2.5.14 contain a summary of off-ramp storage summaries in 2035 and 2055, respectively. Storage lengths provided on all on-ramps with minimum ramp metering rates are projected to be adequate under 2035 Alternative 4 conditions. As stated in the *Draft Traffic Operations Analysis Report* (April 2023), for Alternative 4 there are no off-ramp intersections where the 95th percentile ramp queue exceeds the off-ramp length.

Bicycle and Pedestrian Facilities

Alternative 4 would involve lane modifications within existing arterials at their crossings at I-5 to accommodate the permanent improvements to I-5 and the ramps

provided by Alternative 3. Any arterials closed temporarily and/or modified during construction would be returned to their existing cross-sections no later than the completion of construction of the improvements proposed under the Build Alternatives. Specifically, at arterial crossings where modifications to sidewalks and/or on-road marked bicycle lanes are necessary as part of the proposed improvements, those modifications would be consistent with ADA accessibility requirements. As part of Alternative 4, construction of two park-and-ride facilities within the existing freeway right-of-way (ROW) could cause potential temporary construction closures could occur at the South Anaheim Boulevard undercrossing and Grand Avenue undercrossing in order to accommodate park-and-ride construction. However, any potential closures would be temporary in nature to accommodate the construction of the park-and-ride facilities, and is not expected to result in permanent to local bicycle and pedestrian facilities. The permanent improvements proposed under Alternative 4 would not affect the existing Class I and Class II bike paths in the vicinity of the Project.

Public Transit

Alternative 4 would potentially result in temporary detours and increased travel times for local bus services that intersect with the Project Area. Implementation of the TMP (PF-TR-1) will ensure coordination with OCTA, LA Metro, and ART to alert transit patrons of any changes prior to temporary bus stop relocations, temporary detours, increased travel times, and changes in service schedule. Intermittent roadway lane closures and detours would not prevent the use of pedestrian and bicycle facilities and would allow unimpeded access to public transit facilities during construction activities. Therefore, Alternative 4 would not result in permanent adverse impacts related to public transit access.

Alternative 1 (No Build Alternative)

Mainline and Ramps

Many of the freeway segments are projected to operate at unacceptable LOS under the 2035 and 2055 No Build condition, as shown in Tables 2.5.3 and 2.5.4 for 2035 and Tables 2.5.9 and 2.5.10 for 2055. In the Horizon Year 2055, demands on the system will continue to increase and operations will continue to deteriorate.

Intersections

Opening Year 2035

As shown in Tables 2.5.5 and 2.5.6, under the No Build Alternative in 2035, a total of nine Study Area intersections (approximately 12 percent) are projected to

operate at LOS E or F in one or both peak periods. This total represents three more Study Area intersections than the six Study Area intersections that operate at LOS E or F under 2022 Existing Conditions.

Horizon Year 2055

Tables 2.5.11 and 2.5.12 outline the intersection operations under the No Build Alternative in 2055. In 2055, a total of 19 Study Area intersections (approximately 27 percent) are projected to operate at LOS E or F in one or both peak periods. This total represents 13 more Study Area intersections than the six Study Area intersections that operate at LOS E or F under 2022 Existing Conditions.

Ramp Capacity

As indicated in Tables 2.5.7 and 2.5.13, storage lengths provided on all on-ramps with minimum ramp metering rates are projected to be adequate under both the 2035 and 2055 No Build Alternative. Similarly, all off-ramps within the project limits are projected to have adequate storage lengths under both the 2035 and 2055 No Build Alternative.

Bicycle and Pedestrian Facilities

None of the improvements proposed under the Build Alternative would be constructed under the No Build Alternative; therefore, no permanent impacts related to pedestrian or bicycle facilities would occur.

Public Transit

None of the improvements proposed under the Build Alternatives would be constructed under the No Build Alternative; therefore, no permanent impacts related to public transit would occur.

All of Build Alternatives would generally improve traffic operations and reduce congestion and would not result in any permanent impacts related to pedestrian or bicycle facilities. In addition, the Build Alternatives are consistent with the majority of the applicable General Plans and regional transportation plans to reduce congestion and improve operation within the project limits. However, the Build Alternatives are not included in the future regional models for the SCAG 2020-2045 RTP/SCS, nor are they included in the SCAG 2023 FTIP. Measure LU-1 (as identified in Section 2.1.4.2) would be implemented to address the inconsistency of the Build Alternatives with the SCAG 2020-2045 RTP/SCS and the SCAG 2023 FTIP.

With implementation of measure LU-1, the Build Alternatives would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities and impacts are reduced to less than significant.

b) Significant and Unavoidable Impact. Alternatives 1, 2, and 3 do not add capacity to the State Highway System and are consistent with CEQA Guidelines Section 1564.3, subdivision (b) and are considered to have a less than significant impact. Alternative 4 adds capacity to the State Highway System and is subject to VMT analysis under the Transportation Analysis under CEQA (TAC). Subsequent information only pertains to Alternative 4. Per the TAC guidance, the National Center for Sustainable Transportation (NCST) calculator was used to determine the induced demand of Alternative 4. The NCST calculator is an elasticity-based tool that estimates the annual induced VMT for capacity increasing projects, based on the change in lane miles with the project and an elasticity factor (defined as the ratio of the percentage change in VMT that would occur with a given percentage change of lane miles).

The VMT analysis for Alternative 4 is captured in the Traffic Operations Analysis Report (May 2023) as Appendix J.

After post-processing the raw VMT output from the NCST calculator, Alternative 4 is anticipated to result in 98,406,000 additional vehicle miles traveled (VMT). To reduce VMT further by 13,460,000 VMT annually, VMT reduction elements are included in the design of Alternative 4 such as park-and-ride facilities (applies to all Build Alternatives), tolling for operations, and managed lanes volume control (applies to Alternatives 3 and 4). This results in Alternative 4 generating 84,946,000 VMT annually and would require mitigation.

Mitigation Measures T-1 through T-5 would be implemented and would mitigate for 22,257,680 VMT annually, or roughly 26.2% of the total VMT generated by Alternative 4 and reduce the VMT to 62,688,320. However, even with implementation of measures T-1 through T-5, impacts to VMT associated with Alternative 4 would be significant and unavoidable. Implementation of VMT mitigation measures T-1 through T-5 is contingent on the availability of excess toll revenue or net toll revenue. Further refinement of mitigation measures T-1 through T-5 will continue as the Project moves forward and will include input from Caltrans, stakeholders, and the Traffic and Revenue Study. Policies, approvals, and

commitments surrounding the implementation of measures T-1 through T-5 will begin after the circulation of the Draft Environmental Document and into the design phase.

c) No Impact. The Build Alternatives would be designed, constructed, and operated consistent with the Caltrans *Highway Design Manual* (2020) and other applicable standards and specifications for freeways, ramps, arterial intersections, retaining walls, noise barriers, drainage features, and utility relocations/modifications. The Build Alternatives would not include hazardous design features. Pedestrians and bicyclists would not be allowed to operate on the I-5 mainline and ramps. Therefore, the Build Alternatives would not include any hazardous design features or incompatible uses. No mitigation is required.

d) Less Than Significant Impact. As described earlier in Responses 3.1.15 a) and b), construction of the Build Alternatives would result in temporary impacts to traffic circulation including emergency services. Those impacts would be addressed by implementation of PF-TR-1 (TMP) during construction. The TMP would specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas.

In the long term, Alternatives 3 and 4 would improve the operation of the freeway facilities in the Study Area with Alternative 4 providing the most improvement. These improvements in traffic flow are likely to improve emergency response times within the project limits. The impacts of both construction and operation of the Build Alternatives on the delivery of emergency services is less than significant. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

The following Project Feature and mitigation measure would be implemented:

PF-TR-1 **Transportation Management Plan.** Prior to approval of the final design, a final Transportation Management Plan (TMP) report will be prepared to outline strategies for reducing potential construction-related traffic conflicts, detours, and delays. A Major TMP classification is anticipated due to the complexity of the proposed project. A qualified traffic engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during proposed Project

construction. The TMP would be approved by the Orange County Transportation Authority (OCTA) and the California Department of Transportation (Caltrans) District 12 during final design and would be incorporated into the plans, specifications, and estimates for implementation by the construction Contractor. Specifically, The purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the project. The objectives of the TMP are to:

- Maintain traffic safety during construction
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction
- Minimize traffic delays and facilitate reduction of the overall duration of construction activities
- Minimize detours and impacts to pedestrians and bicyclists
- Foster public awareness of the project and related transportation and traffic impacts
- Achieve public acceptance of construction of the project and the TMP measures

The TMP will contain, but not be limited to, the following strategies recommended for implementation during construction activities of the proposed Project. The elements of these strategies will be refined during final design and incorporated in the TMP for implementation during project construction.

- **Public Information Campaign.** The primary goal of the proposed Project's public information campaign is to educate motorists, business owners and operators, residents, elected officials, and government agencies about project construction activities and associated transportation impacts. This campaign is considered an important tool for reaching target audiences with important construction project information and is anticipated to include, but not be limited to:

  - Rideshare information
  - Brochures and mailers
  - Media releases

- Paid advertising
- Public meetings
- Telephone hotline
- Notification to targeted groups
- Commercial traffic reporters/feeds
- Project website
- Visual information
- Local cable television and news
- Internet postings

- **Traveler Information Strategies.** The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; "businesses are open" signing; and other signing and information to assist travelers in navigating through, around, and in construction areas.

- **Incident Management.** Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes, but is not limited to:

  - Caltrans Construction Zone Enhanced Enforcement Program (COZEEP)
  - Traffic Management Team
  - Traffic surveillance stations
  - Caltrans Transportation Management Center

- **Construction Strategies.** The TMP will include procedures to lessen the transportation effects of project-related construction activities and will include, but not be limited to, consideration of the following:

- Lane Requirement Charts
- Construction Staging
- Traffic Handling Plans
- Full Facility Closures
- Connector Closures
- Nighttime Work
- Extended Weekend Work
- Speed Limit Reduction
- Coordination with Adjacent Construction Sites and Special Events

- **Demand Management.** Temporarily reducing the overall traffic volumes on the project segment of Interstate 5 (I-5) could reduce the short-term adverse effects of construction on traffic operations. The TMP will include, but not be limited to, rideshare strategies that could reduce vehicular demand in the Study Area during project construction.

- **Alternate Route Strategies.** The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize the detour and alternate routes for motorists, specifically addressing the following:

  - Mainline lane closures
  - Ramp/connector closures
  - Local road closures
  - Temporary highway or shoulder use
  - Local street improvements
  - Temporary detours and closures of bicycle and pedestrian facilities
  - Traffic signal coordination

The construction Contractor will implement the measures in the TMP during construction.

VMT Reduction. Should Alternative 4 be selected as the Preferred Alternative, the following mitigation measures shall be implemented to reduce VMT associated with the implementation of Alternative 4:

TR-1 **Housing Density and Affordability**. Caltrans shall contribute to affordable housing projects throughout Orange County.

TR-2 **New Transit Service (BRT, Increased Service)**. Caltrans shall contribute monies to the following routes that would benefit from increased bus services on existing routes as identified through Orange County Transportation Authority's (OCTA) Making Better Connections Study: 33 locally fixed routes, 6 community routes, 2 Intracounty express routes, 1 Metrolink Station route, 3 Intercounty express routes.

TR-3 **Transit Efficiencies (Improve Existing Service).** Caltrans shall contribute to existing transit service for improved efficiencies that would result in VMT reduction.

TR-4 **Transit Pass Subsidies.** Caltrans shall provide transit pass to encourage mode shift in transportation and reduce VMT.

TR-5 **Active Transportation (Bike-New Parallel Facilities).** Caltrans shall invest into new Class II bikeway facilities.

Below is a table that details the mitigation measures' VMT reduction potential and estimated cost.

Mitigation Measures Incorporated into Alternative 4

TR-1	Housing Density and Affordability	1,845, 288 VMT Annually	2.17% of VMT Increase	One time cost of $40,000,000
TR-2	New Transit Service (BRT, Increased Service)	17,914,260 VMT Annually	21.08% of VMT Increase	Total cost of $400,626,399
TR-3	Transit Efficiencies (Improve Existing Service)	130,312 VMT Annually	0.15% of VMT Increase	One time cost of $150,530
TR-4	Active Transportation (Bike-New Parallel Facilities)	1,983, 800 VMT Annually	2.33% of VMT Increase	One time cost of $150,530
TR-5	Transit Pass Subsidies (Bus)	384,020 VMT Annually	0.45% of VMT Increase	Annual cost of $327,638 to $655,273
	TOTAL	**22,257,680 VMT Annually**	**26.2% of VMT Increase**	**$441,708,463**

3.1.18 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:

Question	CEQA Determination
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	Less Than Significant Impact
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.	Less Than Significant Impact

CEQA Significance Determinations for Tribal Cultural Resources

The potential for the Build Alternatives to adversely impact Tribal Cultural Resources was assessed in the HPSR (May 2023), the attachments to the HPSR, Section 2.7, Cultural Resources; and by adhering to AB 52. In accordance with Public Resource Code (PRC) section 21080.3.1 and AB 52, Caltrans initiated early consultation with California Native American Tribes in July 2022, and conducted consultation in December 2022.

No initial response from the tribes was received as a result of the proposed Project notification letter. The tribes and representatives contacted include 19 Native American individuals representing the Diegueno, Gabrielino, Gabrieleño, Juaneño, Cupeño Luiseño, and Cahuilla groups. A follow-up email and calls to the tribes have been completed, but no questions or concerns about the proposed Project or additional information has been received. Further detail of the tribal coordination process subject to the requirements of AB 52 can be found in Chapter 4, Comments and Coordination and Table 4.1, Summary of Native American Consultation.

a) and b) Less Than Significant Impact. As stated in Section 2.7 of this EIR/EA, it was determined that all the State-owned resources (built environment and

archaeological resources) within the APE are exempt from evaluation because they meet the criteria set forth in the Section 106 PA Attachment 4 (Properties Exempt from Evaluation) or were previously determined not eligible for inclusion in the National Register and/or registration as a California Historical Landmark. Caltrans has determined a finding of no impact is appropriate because the 11 historical resources within the APE, do not meet the criteria outlined in the *State CEQA Guidelines* 15064.5(b)(3).

In the event that previously unknown buried cultural materials and human remains are encountered during construction, with compliance with Project Features PF-CR-1 and PF-CR-2 provided in Section 2.7, potential impacts to previously unknown cultural resources would be less than significant.

3.1.19 Utilities and Service Systems

Would the project:

Question	CEQA Determination
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Less Than Significant Impact
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Less Than Significant Impact
c) 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?	No Impact
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Less Than Significant Impact
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Less Than Significant Impact

CEQA Significance Determinations for Utilities and Service Systems

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

a) Less Than Significant Impact. The construction of Alternatives 3 and 4 may affect existing surface or subsurface utility facilities, requiring protection in-place, removal, or relocation. The utility facilities that could potentially be affected during construction of Alternatives 3 and 4 are listed in Table 2.4-1 of Section 2.4, Utilities/ Emergency Services of this EIR/EA. Should Alternative 3 or 4 be selected as the Preferred Alternative, an updated utility search would be conducted during final design of the Alternatives 3 and 4 to determine all utilities that require protection in-place, removal, or relocation. Completion of utility work may result in temporary service disruptions to some utility users in the vicinity of the Study Area. However, Project Features PF-UES-1 through PF-UES-3 have been incorporated into Alternatives 3 and 4 to address the potential temporary adverse effects of construction on utilities. All existing utility facilities are anticipated to be maintained during operation of the Build Alternatives and the Build Alternatives would not result in an increased demand for utility services or construction of new utility structures. Therefore, the effects of the Build Alternatives to utilities are less than significant. No mitigation is required.

b) Less Than Significant Impact. The use of water during construction would be limited to water trucked to the site for dust control. The amount of water used during construction would be minimal. Operation of the Build Alternatives are not expected to result in an increased demand for water used for landscape irrigation. As a result, the Build Alternatives would not require the water districts serving the Study Area to provide new or expanded facilities to meet the need for water during construction and operation of the Build Alternatives. No mitigation is required.

c) No Impact. The Build Alternatives would not generate wastewater or discharge wastewater to the area sewer system. As a result, the Build Alternatives would not exceed wastewater treatment requirements, require or result in the construction of new wastewater treatment facilities, or result in the need for a determination by a wastewater treatment provider that it has adequate capacity to serve the Project Area. No mitigation is required.

d) Less Than Significant Impact. During construction, two types of waste materials would be collected: vegetation, other plant material, and excess soils; and solid waste such as concrete, asphalt, and wood. The waste collected during construction would be properly disposed of at an existing landfill or recycled. The amount of waste that would be generated during the construction of the Build Alternatives would be limited and would occur only during the construction period. That amount of waste would be only a very small amount of the total waste disposed of or recycled at area recycling facilities and landfills, on both a daily and annual basis. Therefore, the amount of waste generated during construction of the Build Alternatives is anticipated to be accommodated by the existing recycling and landfill facilities in Orange and Los Angeles Counties.

Trash/waste removal would continue consistent with current maintenance activities with the operation. There would be similar amounts of trash/waste collected during operation of the Build Alternatives compare to existing conditions, because the Build Alternatives would consist of roadway or park-and-ride improvements within the State ROW. Therefore, the amount of waste generated during operation of the Build Alternatives is negligible and considered less than significant. No mitigation is required.

e) Less Than Significant Impact. Any hazardous waste generated during construction of the Build Alternatives, collected during normal waste collection activities, or collected as a result of an accidental release on the I-5 freeway or ramp facilities would be collected, handled, transported, and disposed of consistent with applicable federal, State, regional, and local regulations. Hazardous wastes would not be comingled with greenwaste nonhazardous trash and is considered less than significant. No mitigation is required.

Waste materials generated during construction and operation of the Build Alternatives would be disposed of in accordance with federal, State, and local regulations related to recycling, which would minimize the amount of waste material entering local landfills and is considered less than significant. No mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

None required; the following Project Features would be implemented:

PF-UES-1 During final design, the project engineer(s) shall prepare utility conflict maps in consultation with the affected utility owners for those utilities that will need to be relocated, removed, or protected in-place.

If relocation is necessary, the final design will focus on relocating utilities within the State right-of-way (ROW) or other existing public ROWs and/or easements. If relocation outside of existing or additional public ROWs and/or easements required for the project is necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. Utility relocations shall be included in the project specifications.

PF-UES-2 Prior to and during construction, the project engineer(s) shall ensure that the components of the utility plans provided in the project specifications are properly implemented by the contractor.

PF-UES-3 Prior to utility relocation activities, the utility owner shall coordinate with affected utility providers regarding potential utility relocations and inform affected utility users in advance about the date and timing of potential service disruptions.

3.1.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

Question	CEQA Determination
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	Less Than Significant Impact
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less Than Significant Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Less Than Significant Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	No Impact

CEQA Significance Determinations for Wildfire

a) Less Than Significant Impact. No portion of the Project Area is within or adjacent to a High or Very High Fire Hazard Severity Zone.[1] As described in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, and above in Section 3.1.9, Hazards and Hazardous Materials, the construction of the Build Alternatives would result in temporary impacts to traffic circulation, and pedestrian and bicycle access in the vicinity of the Project Area. Those impacts could include on-ramp and connector closures, 55-hour weekend closures of the Northbound (NB) I-5 to NB SR-57 HOV Connector and Southbound (SB) SR-57 to SB I-5 HOV Connector, and extended long-term closures of the NB I-5 to NB SR-57 HOV Connector and SB SR-57 to SB I-5 HOV Connector. The temporary closures and detours may result in short-term effects on emergency response and evacuation along and in the vicinity of the Project Area and arterials in the vicinity of I-5. Specifically, emergency responders would need to use designated detour routes to get around freeway ramp or lane closures or lane reductions on arterials at their crossings of I-5. This could result in increased travel times for emergency service providers. Similarly, in the event evacuations are required during the temporary facility closures or lane reductions, there could be delays for traffic evacuating from the area due to the detours and/or temporary reduction in the available road capacity. Project Feature PF-TR-1, provided in Section 2.5, requires the preparation of a TMP during final design to be implemented during construction. The TMP would specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas. With implementation of this Project Feature, potential impacts related to emergency response times and plans and evacuation routes would be less than significant.

b) Less Than Significant Impact. As indicated in the response to 3.1.20 (a) above, no portion of the Project Area is within or adjacent to a High or Very High Fire Hazard Severity Zone. The proposed improvements would modify the existing high-occupancy vehicle (HOV) lanes within the Project Area to address operational deficiencies. The Build Alternatives would not change existing land use patterns along I-5 because I-5 is an existing transportation facility in a highly developed area. Therefore, the Build Alternatives would not result in any changes to wildfire risks

[1] Office of the State Fire Marshal, 2023. *Op. cit.*

compared to existing conditions. Impacts would be less than significant, and no mitigation is required.

c) Less Than Significant Impact. The Build Alternatives involve roadway modifications that would improve circulation and mobility and are therefore not expected to exacerbate fire risk. Although Build Alternatives 3 and 4 may affect existing surface or subsurface utility facilities, requiring protection in-place, removal, or relocation, the Project Engineer(s) would coordinate with each utility provider to finalize the exact location of that utility's facilities, assess whether the facilities can be protected in place during construction or would require relocation, and review the Project plans for protection in place/relocation of the facility with the utility provider prior to construction as detailed in Project Features PF-UES-1 through PF-UES-3. Therefore, these utility improvements would not exacerbate wildfire risk. Furthermore, design and implementation of utility improvements would be reviewed and approved by the applicable City's Public Works Department as part of the approval process to ensure that the Build Alternatives are compliant with all applicable design standards and regulations. Therefore, impacts related to the Build Alternatives associated with exacerbation of fire impacts are less than significant, and no mitigation is required.

d) No Impact. As discussed in Response 3.1.7 (a)(iv), in Section 3.1.7, Geology and Soils, because of the generally flat terrain, slope failures and landslides do not represent a hazard to most portions of the Project Area. Although portions of the Project Area are located within the 100-year flood zone, the Build Alternatives would only require restriping of the freeway within 100-year flood plains and would not result in any floodplain encroachments. As such, the Build Alternatives would not cause an increased risk of downslope or downstream flooding or landslides as a result of runoff or post-fire slope instability. Therefore, no impacts to people or structures due to post-fire conditions would occur, and no mitigation is required.

Avoidance, Minimization, and/or Mitigation Measures

None required; Project Feature PF-TR-1 as outlined in Section3.1.17 and the Project Features listed below would be implemented.

PF-UES-1 During final design, the project engineer(s) shall prepare utility conflict maps in consultation with the affected utility owners for those utilities that will need to be relocated, removed, or protected in-place. If relocation is necessary, the final design will focus on relocating

utilities within the State right-of-way (ROW) or other existing public ROWs and/or easements. If relocation outside of existing or additional public ROWs and/or easements required for the project is necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. Utility relocations shall be included in the project specifications.

PF-UES-2 Prior to and during construction, the project engineer(s) shall ensure that the components of the utility plans provided in the project specifications are properly implemented by the contractor.

PF-UES-3 Prior to utility relocation activities, the utility owner shall coordinate with affected utility providers regarding potential utility relocations and inform affected utility users in advance about the date and timing of potential service disruptions.

3.1.21 Mandatory Findings of Significance

Question	CEQA Determination
a) Does the project have the potential to substantially 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?	Less Than Significant with Mitigation Incorporated
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)?	Less Than Significant Impact
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	Less Than Significant Impact

CEQA Significance Determinations for Mandatory Findings of Significance

a) Less Than Significant with Mitigation Incorporated. The potential for the Build Alternatives to result in significant impacts to biological or cultural resources, specifically, is discussed in Sections 2.7, 2.11, 2.16, 2.17, 2.18, 2.19, and 2.20 in this EIR/EA. The Build Alternatives would not degrade the quality of the environment or permanently impact any animal or plant species or associated habitat. The potential for temporary construction-related impacts or permanent impacts to occur to special-status animal species that have the potential to occur in the BSA would be avoided, minimized, and/or mitigated to a level below significance with implementation of Project Features PF-NAT-1 through PF-NAT-5, PF ANS-1 through ANS-5 and Measures NAT-1, NAT-2, ANS-1 through ANS-11. The Build Alternatives would temporarily impact United States Army Corps of Engineers (USACE), CDFW, and Regional Water Quality Control Board (RWQCB) jurisdictional areas. There are no direct impacts to jurisdictional features requiring mitigation, but Project Features PF-NAT-1 through PF-NAT-7, PF-WQ-3, PF-WQ-4, and measures NAT-1, NAT-2, and WET-1 would be implemented to minimize potential indirect temporary impacts to wetlands and other waters.

Based on the results of the HPSR (May 2023) and the attachments to that report, it was determined that the cultural resources within the APE do not appear to be eligible for inclusion in the National Register, do not qualify as historical resources pursuant to CEQA, or are exempt per the Section 106 PA. In addition, it has been determined that a Finding of No Historic Properties Affected is appropriate because there are no historical resources within the APE or there are no impacts to historical resources pursuant to *State CEQA Guidelines* Section 15064.5(b)(3). However, there is the potential to encounter unknown buried cultural resources or archaeological materials within the disturbance limits during construction of the Build Alternatives. In the event that previously unknown buried cultural materials are encountered during construction, compliance with Project Feature PF-CR-1, provided in Section 2.7, would avoid and/or minimize potential impacts to previously unknown cultural resources and are less than significant.

b) Less Than Significant Impact. As discussed in Section 2.21, Cumulative Impacts, in this EIR/EA, several planned development and transportation improvement projects occur in the general vicinity of the Project Area with the potential to cumulatively affect communities in the area. Transportation improvement projects, however, occur near communities that are already freeway-adjacent

geographically, and so impacts to community cohesion are unlikely. Further, the RSA for the proposed Project is largely developed, and communities in the vicinity are also already freeway-adjacent. Therefore, the Build Alternatives would not change the fundamental nature of adjacent communities and the contribution of the Build Alternatives to cumulative impacts to community character and cohesion is minimal. Therefore, the Build Alternatives, in combination with other planned projects, would not result in substantial cumulative impacts with respect to displacements in the community.

The Build Alternatives would be required to adhere to State and federal regulations with respect to the use, generation, and disposal of hazardous waste/materials during construction and operation of the Build Alternatives. Based on an urbanized RSA and adherence to regulatory requirements, the contribution of the Build Alternatives to cumulative hazardous waste/materials impacts is not considerable. Some of the planned projects have the potential to be exposed to hazardous waste/materials through releases at adjacent or nearby properties or through renovation or demolition of buildings or other structures. These planned projects would be required to comply with State and federal regulations with respect to the use, generation, and disposal of hazardous materials/waste during construction and operation. Therefore, the Build Alternatives, in combination with other planned projects, would not result in substantial cumulative hazardous waste/materials impacts.

The Build Alternatives and other projects in the vicinity of the RSA could disturb sensitive sediments that may contain paleontological resources; thus contributing to cumulative impacts to paleontological resources. However, impacts to paleontological resources as a result of other projects would depend on the depth of excavation, if excavation is required, and the presence of sensitive sediments. The potential to encounter paleontological resources during construction activities would therefore be minimal. Therefore, the Build Alternatives, in combination with other planned projects, would not result in substantial cumulative impacts to paleontological resources. No mitigation is required.

c) Less Than Significant Impact. As discussed in Sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.9, 2.10, 2.12, 2.13, and 2.14, in this EIR/EA, the Build Alternatives would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. With implementation of PF-TR-1, traveler and emergency responder delays would be reduced, and safety during construction would be enhanced. Furthermore, the Build Alternatives would reduce traffic congestion and

travel times on the I-5 between Red Hill Avenue and the Orange County/Los Angeles County line. This would reduce traffic delay, thereby reducing travel time and improving the human environment.

Avoidance, Minimization, and/or Mitigation Measures

Project Features PF-NAT-1 through PF-NAT-5, PF-ANS-1 through PF-ANS-5, PF-WQ-1 through PF-WQ-7, PF-CR-1 and PF-CR-2, PF-GEO-1, PF-PAL-1, PF-HAZ-1 through PF-HAZ-5, PF-TR-1, PF-N-1, and PF-UES-1 through PF-UES 3 would be implemented as part of the Build Alternatives. Avoidance, minimization, and/or mitigation measures PL-1, NAT-1 and NAT-2, ANS-1 through ANS-11, WET-1, IS-1, PAL-1, GHG-1 through GHG-3, HAZ-1, LU-1, EQ-1, and N-1 would be implemented.

3.2 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth's climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to GHG emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia, or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to GHG emissions generated from the production and use of fossil fuels.

Human activities generate GHGs consisting primarily of CO_2, methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; while it is a naturally occurring and necessary component of Earth's atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2, which is the main driver of climate change. In the United States and in California, transportation is the largest source of GHG emissions, mostly CO_2.

The impacts of climate change are already being observed in the form of sea level rise, drought, more intense heat, extended and severe fire seasons, and historic flooding from changing storm patterns. Both mitigation and adaptation strategies are necessary to address these impacts. The most important mitigation strategy is to reduce GHG emissions. In the context of climate change (as distinct from CEQA and

the National Environmental Policy Act [NEPA]), "mitigation" involves actions to reduce GHG emissions or to enhance the "sinks" that store them (such as forests and soils) to lessen adverse impacts. "Adaptation" is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

3.2.1 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 United States Code [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.

The Federal Highway Administration (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 (FHWA 2022). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—"the triple bottom line of sustainability" (FHWA n.d.). 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.

The federal government has taken steps to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201), as amended by the Energy Independence and Security Act (EISA) of 2007; and Corporate Average Fuel Economy (CAFE) standards. This act established fuel

economy standards for on-road motor vehicles sold in the United States. The United States Department of Transportation's (USDOT) National Highway Traffic and Safety Administration (NHTSA) sets and enforces the CAFE standards based on each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States. The USEPA calculates average fuel economy levels for manufacturers and also sets related GHG emissions standards under the Clean Air Act. Raising CAFE standards leads automakers to create a more fuel-efficient fleet, which improves our nation's energy security, saves consumers money at the pump, and reduces GHG emissions (USDOT 2014).

The USEPA published a final rulemaking on December 30, 2021, that raised federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026, increasing in stringency each year. The updated GHG emissions standards will avoid more than 3 billion tons of GHG emissions through 2050. In April 2022, NHTSA announced corresponding new fuel economy standards for model years 2024 through 2026, which will reduce fuel use by more than 200 billion gallons through 2050 compared to the old standards and reduce fuel costs for drivers (USEPA 2022a; NHTSA 2022).

State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple SBs, ABs, and EOs, including, but not limited to, the following:

- **EO 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.
- **AB 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006:** AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05 while further mandating that CARB 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 (H&SC Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

- **SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection:** This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop an SCS that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.
- **EO B-30-15 (April 2015):** EO B-30-15 establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 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 CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). (GHGs differ in how much heat each traps in the atmosphere, which is referred to as global warming potential, or GWP. CO_2 is the most important GHG, so amounts of other gases are expressed relative to CO_2 using a metric called "carbon dioxide equivalent," or CO_2e. The GWP of CO_2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO_2.) Finally, EO B-30-15 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.
- **SB 32, Chapter 249 (2016):** SB 32 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.
- **SB 1386, Chapter 545 (2016):** This bill declared "it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state's greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands."
- **SB 743, Chapter 386 (September 2013):** This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled (VMT) in order to promote the State's goals of reducing GHG emissions and traffic-related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

- **SB 150, Chapter 150, 2017, Regional Transportation Plans:** This bill requires CARB to prepare a report that assesses progress made by each MPO in meeting its established regional GHG emission reduction targets.
- **EO B-55-18 (September 2018):** EO B-55-18 sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.
- **AB 1279, Chapter 337, 2022, The California Climate Crisis Act:** This bill mandates carbon neutrality by 2045 and establishes an emissions reduction target of 85 percent below 1990 level as part of that goal. This bill solidifies a goal included in EO B-55-18. It requires CARB to work with relevant State agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable CO_2 removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

3.2.2 Environmental Setting

The proposed Project Area on I 5 extends from Red Hill Avenue (Post Mile [PM] 28.9) to the OC/LA County line (12-OC-5 PM 44.4). The improvements related to the Build Alternatives are within the cities of Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, Buena Park, La Mirada, and Santa Fe Springs.

I-5 is a major north-south interstate freeway that traverses the western United States from Mexico to Canada. In Southern California, I-5 (also known as the Santa Ana Freeway in the Project Area) serves as a linkage connecting San Diego County, Orange County, and Los Angeles County.

I-5 currently has at least one high-occupancy vehicle (HOV) lane in each direction within the Project limits that is separated with limited ingress/egress buffer openings. In mid-2021, the construction of an additional HOV lane in each direction and removal of the existing northbound and southbound direct-access ramps (DARs) at Main Street was completed within the section of I-5 south of State Route (SR) 55 at Red Hill Avenue and SR-57.

The proposed Project is currently included in the future commitments section of the Connect SoCal 2020–2045 RTP/SCS. However, the proposed Project is not captured in future regional models, and efforts to incorporate the Build Alternatives into such models are being taken. Once updated later in 2023 the 2020–2045 RTP and the FTIP will capture the Build Alternatives in regional models. SCAG approved the 2020–

2045 RTP/SCS on September 3, 2020, and the 2023 FTIP on October 6, 2022. The FHWA approved Amendment No. 2 to the 2020–2045 RTP/SCS on December 16, 2022. The FHWA approved Amendment No. 23-01 to the 2023 FTIP and determined that it conforms to the State Implementation Plan (SIP) on January 27, 2023.

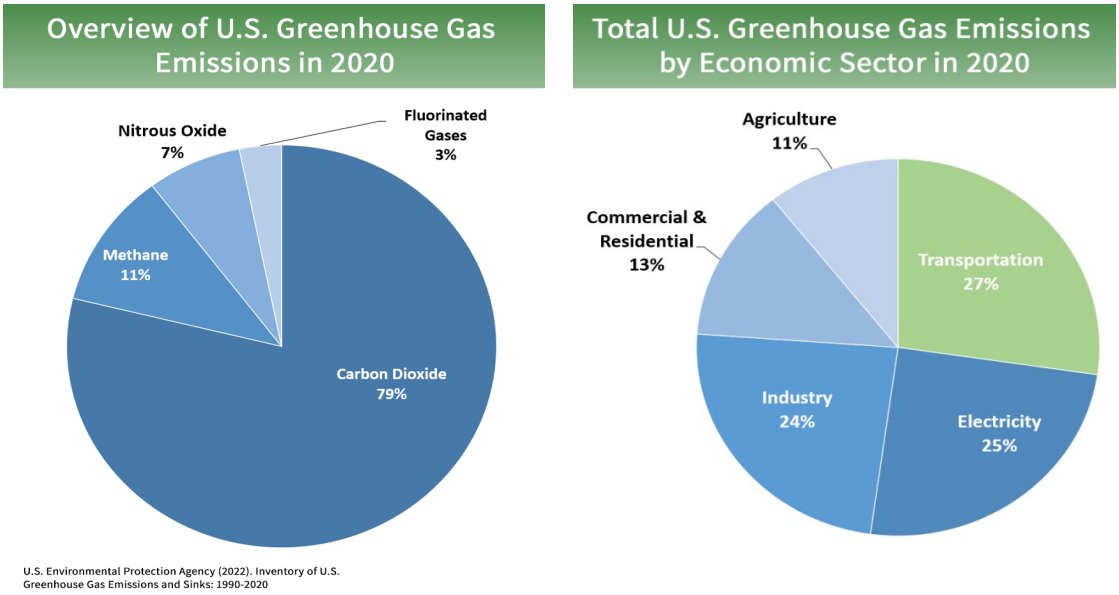
GHG Inventories

A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. The USEPA is responsible for documenting GHG emissions nationwide and CARB does so for the State, as required by H&SC Section 39607.4. Cities and other local jurisdictions may also conduct local GHG inventories to inform their GHG reduction or climate action plans.

National GHG Inventory

The annual GHG inventory submitted by the USEPA to the United Nations provides a comprehensive accounting of all human-produced sources of GHGs in the United States. Total GHG emissions from all sectors in 2020 were 5,222 million metric tons (MMT), factoring in deductions for carbon sequestration in the land sector. Of these, 79 percent were CO_2, 11 percent were CH_4, and 7 percent were N_2O; the balance consisted of fluorinated gases. Total GHGs in 2020 decreased by 21 percent from 2005 levels and 11 percent from 2019. The change from 2019 resulted primarily from less demand in the transportation sector during the COVID-19 pandemic. The transportation sector was responsible for 27 percent of total United States GHG emissions in 2020, more than any other sector (Figure 3-1), and for 36 percent of all CO_2 emissions from fossil fuel combustion. Transportation CO_2 emissions for 2020 decreased 13 percent from 2019 to 2020 but were 7 percent higher than transportation CO_2 emissions in 1990 (Figure 3-1) (USEPA 2022b).

Figure 3-1: United States 2020 Greenhouse Gas Emissions

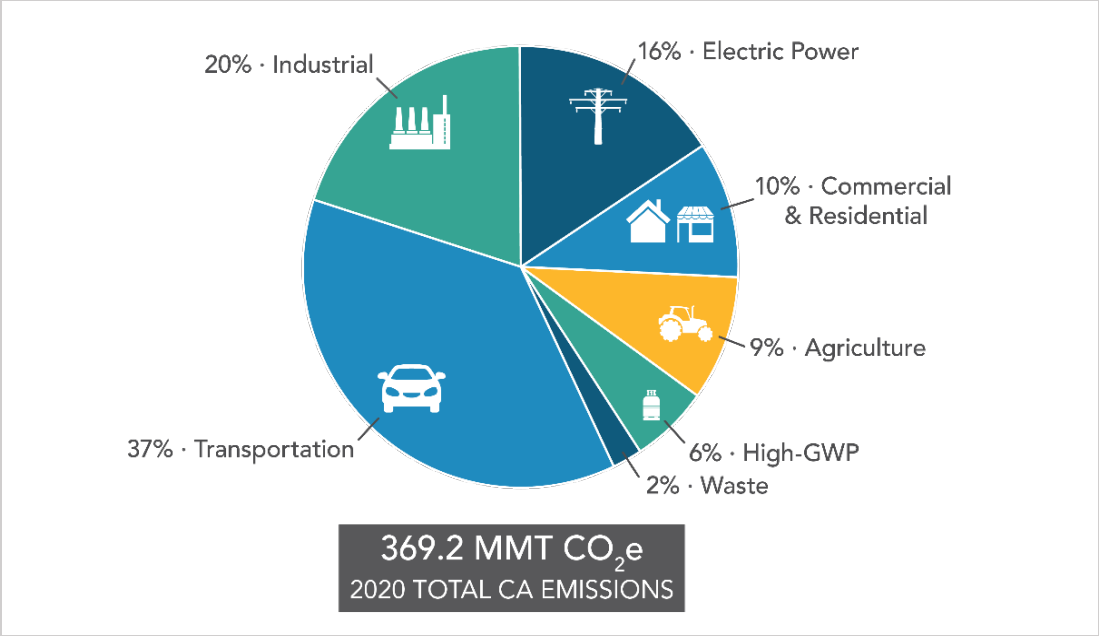


Source: USEPA 2022b.

State GHG Inventory

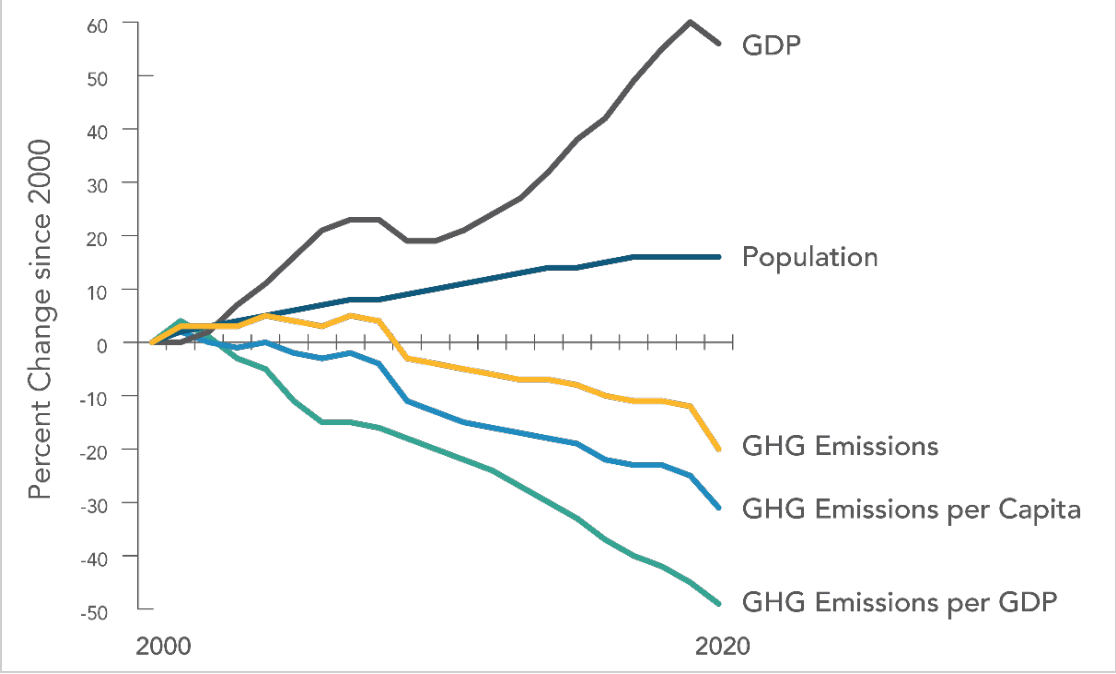
CARB collects GHG emissions data for transportation, electricity, commercial/ residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the State's progress in meeting its GHG reduction goals. The 2022 edition of the GHG emissions inventory reported emissions trends from 2000 to 2020. Total California GHG emissions in 2020 were 369.2 $MMTCO_2e$, a reduction of 35.3 $MMTCO_2e$ from 2019 and 61.8 $MMTCO_2e$ below the 2020 statewide limit of 431 $MMTCO_2e$. Much of the decrease from 2019 to 2020, however, is likely due to the effects of the COVID-19 pandemic on the transportation sector, during which VMT declined under stay-at-home orders and reductions in goods movement. Nevertheless, transportation remained the largest source of GHG emissions, accounting for 37 percent of statewide emissions (Figure 3-2). (Including upstream emissions from oil extraction, petroleum refining, and oil pipelines in California, transportation was responsible for about 47 percent of statewide emissions in 2020; however, those emissions are accounted for in the industrial sector.) California's gross domestic product (GDP) and GHG intensity (GHG emissions per unit of GDP) both declined from 2019 to 2020 (Figure 3-3). It is expected that total GHG emissions will increase as the economy recovers over the next few years (CARB 2022a).

Figure 3-2: California 2020 Greenhouse Gas Emissions by Scoping Plan Category



Source: CARB 2022a

Figure 3-3: Change in California GDP, Population, and GHG Emissions since 2000



Source: CARB 2022a

AB 32 required CARB to develop a Scoping Plan that describes the approach California will take to achieve its goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. CARB adopted the first scoping plan in 2008. 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 draft 2022 Scoping Plan Update additionally lays out a path to achieving carbon neutrality by 2045 (CARB 2022b).

Regional Plans

CARB sets regional GHG reduction targets for California's 18 MPOs to achieve through planning future projects that will cumulatively achieve those goals and reporting how they will be met in the RTP/SCS. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. The regional reduction target for SCAG is 19 percent by 2035 (CARB 2022c). Table 3.2, Regional and Local Greenhouse Gas Reduction Plans, lists these plans.

Table 3.2: Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
Southern California Association of Governments (SCAG) Connect SoCal 2020–2045 Regional Transportation Plan/ Sustainable Communities Strategy (adopted September 2020)	• Integrated multimodal network. • Expand the public transit network. • Strategic capacity and technology enhancements to existing highways. • Identify a list of projects that will add and enhance walking and biking facilities. • Transportation Systems Management measures. • Transportation Demand Management.
City of Irvine General Plan (adopted July 9, 2015)	**Energy Element** • Objective 1-1: Energy Conservation. Maximize energy efficiency through land use and transportation planning. • Objective 3-3: Municipal Conservation. Maximize energy efficiency of the City's facilities and operations by use of recycled materials, renewable sources, and conservation measures. **Circulation Element** • Objective B-2: Roadway Design. Develop a vehicular circulation system consistent with high standards of transportation engineering safety and with sensitivity to adjoining land uses. **Growth Management Element** • Objective M-4: Transportation Demand Management. Provide an encourage the use of a full range of alternative modes of transportation including transit systems.

Table 3.2: Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
City of Tustin General Plan (adopted November 2018)	**Circulation Element** • Policy 3.2: Support capacity and noise mitigation improvements such as high-occupancy vehicle lanes, general purpose lanes, auxiliary lanes and noise barriers on the I-5 and SR-55 freeways. **Conservation, Open Space, and Recreation Element** • Policy 1.1: Cooperate with the South Coast Air Quality Management District and the Southern California Association of Governments in their effort to implement provisions of the region's Air Quality Management Plan, as amended. • Policy 2.1: Reduce vehicle trips through incentives, regulations and/or Transportation Demand Management (TDM) programs. • Policy 2.2: Reduce total vehicle miles traveled (VMT) through incentives, regulations and/or Transportation Demand Management. • Policy 2.3: Promote and establish, where feasible, the use of incentives and regulations to reduce peak period auto travel congestion. • Policy 2.4: Participate in efforts to achieve increased designation, construction, and operation of High Occupancy Vehicle (HOV) lanes on local freeways. • Policy 2.13: Integrate air quality planning with the land use and transportation process. • Policy 3.1: Adopt incentives, regulations, and/or procedures to minimize particulate emissions from paved and unpaved roads, agricultural uses, parking lots, and building construction.
City of Santa Ana General Plan (adopted April 2022)	**Mobility Element** • Policy M-1.7 Proactive Mitigation. Proactively mitigate existing and new potential air quality, noise, congestion, safety, and other impacts from the transportation network on residents and business, especially in environmental justice communities. • Policy M-1.8 Environmental Sustainability. Consider air and water quality, noise reduction, neighborhood character, and street-level aesthetics when making improvements to travelways. • Policy M-5.6 Clean Fuels and Vehicles. Encourage the use of alternative fuel vehicles and mobility technologies through the installation of supporting infrastructure. **Conservation Element** • Policy CN-1.1 Regional Planning Efforts. Coordinate air quality planning efforts with local and regional agencies to meet or exceed State and Federal ambient air quality standards in order to educate the community on and protect all residents from the health effects of air pollution.
City of Santa Ana Climate Action Plan (adopted December 2015)	• Transportation and Land Use Measures. • Municipal Operations Energy Measures.

Table 3.2: Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
City of Orange General Plan (adopted March 2010)	**Circulation and Mobility Element** • Policy 2.3: Cooperate with and support local and regional agencies' efforts to improve regional arterials and transit in order to address increasing traffic congestion. **Growth Management Element** • Policy 1.6: Integrate land use and transportation planning to provide adequate transportation system service standards. • Policy 1.7: Promote the expansion and development of alternative methods of transportation. **Natural Resources Element** • Policy 2.1: Cooperate with the South Coast Air Quality Management District (SCAQMD) and other regional agencies to implement and enforce regional air quality management plans. • Policy 2.2: Support alternative transportation modes, alternative technologies, and bicycle- and pedestrian-friendly neighborhoods to reduce emissions related to vehicular travel.
City of Anaheim General Plan (adopted May 2004)	**Green Element** • Reduce vehicle emissions through traffic flow improvements, such as traffic signal synchronization, Intelligent Transportation Systems, the Scoot Adaptive Traffic Control System, and related capital improvements. • Regulate construction practices, including grading, dust suppression, chemical management, and encourage pre-determined construction routes that minimize dust and particulate matter pollution.
The Fullerton Plan (adopted May 1, 2012)	**Built Environment** • P5.2 Reduction of Single Occupant Vehicle Trips. Support regional and subregional efforts to increase alternatives to and infrastructure supporting reduction of single occupant vehicle trips. • P5.6 Quality Highways and Roads. Support projects, programs, policies and regulations to operate and maintain a comprehensive network of arterial highways and local roads supporting safe and efficient movement of people, goods and services to, through and within the City. • P5.16 Infrastructure for Low and Zero Emission Vehicles. Support projects, programs, policies and regulations to encourage the development of private and/or public infrastructure facilitating the use of alternative fuel vehicles. **Natural Environment** • P21.2 Transportation System. Support regional and subregional efforts to promote a transportation system coordinated with air quality improvements. • P21.6 Construction Impacts. Support projects, programs, policies and regulations to reduce impacts to air quality caused by private and public construction projects. • P22.1 Motor Vehicle-related GHG Emissions. Support regional and subregional efforts to reduce greenhouse gas emissions

Table 3.2: Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
	associated with transportation through land use strategies and policies, transportation system improvements, and transportation demand management programs.
City of Fullerton Climate Action Plan (adopted February 2012)	• Transportation and Mobility Reduction Measures. • Energy Use and Conservation Reduction Measures.
City of Buena Park 2035 General Plan (adopted December 2010)	**Conservation and Sustainability Element** • Policy CS-14.1: Ensure that construction activities follow current South Coast Air Quality Management District (SCAQMD) rules, regulations, and thresholds. • Policy CS-14.2: Ensure all applicable best management practices are used in accordance with the SCAQMD to reduce emitting criteria pollutants during construction. • Policy CS-14.3: Require all construction equipment for public and private projects comply with CARB's vehicle standards. For projects that may exceed daily construction emissions established by the SCAQMD, Best Available Control Measures will be incorporated to reduce construction emissions to below daily emission standards established by the SCAQMD. • Policy CS-14.4: Require project proponents to prepare and implement a Construction Management Plan, which will include Best Available Control Measures among others. Appropriate control measures will be determined on a project by project basis, and should be specific to the pollutant for which the daily threshold is exceeded. • Policy CS-16.1: Strive to relieve traffic congestion and improve the efficiency of the City's transportation and circulation network in an effort to improve air quality. • Policy CS-17.1: Continue to support programs which are designed to reduce air pollution within Buena Park and those sources of pollution located outside its planning boundaries which adversely affect the City. • Policy CS-17.2: Coordinate with the California Department of Transportation (Caltrans) and consider adopting Transportation Control Measures (TCM) in compliance with SCAQMD goals.
City of La Mirada General Plan (adopted March 25, 2003)	**Open Space and Conservation Element** • Policy 3.1 Participate with the South Coast Air Quality Management District and neighboring jurisdictions in collaborative efforts to improve regional air quality. • Policy 3.2 Support local and regional projects that improve mobility, reduce congestion on freeways, and improve air quality. • Policy 3.3 Promote energy conservation by the public and private sectors to reduce energy costs and improve air quality.
City of Santa Fe Springs 2040 General Plan (Public Review Draft November 2021)	**Circulation Element** • Policy C-8.1: Reducing Vehicle Miles Traveled. Integrate transportation and land use decisions to reduce vehicle miles traveled and greenhouse gas emissions. • Policy C-8.2: Transportation Management Strategies. Evaluate

Table 3.2: Regional and Local Greenhouse Gas Reduction Plans

Title	GHG Reduction Policies or Strategies
	the potential of transportation demand management strategies and intelligent transportation system applications to reduce vehicle miles traveled. • Policy C-8.7: Caltrans Consultation. Consult with Caltrans regarding freeway improvements that can affect City roadways and businesses. **Conservation and Open Space Element** • Policy COS-9.8: Air Quality and Climate Change Analyses. Require detailed air quality and climate change analyses and mitigation plans for all applications that have the potential to adversely affect air quality.

3.2.3 Project Analysis

GHG emissions from transportation projects can be divided into those produced during operation and use of the State Highway System (SHS) (operational emissions) and those produced during construction. The primary GHGs produced by the transportation sector are CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of CH_4 and N_2O. A small amount of HFC emissions related to refrigeration is also included in the transportation sector.

The *CEQA Guidelines* generally address GHG emissions as a cumulative impact due to the global nature of climate change (Public Resources Code [PRC] § 21083(b)(2)). As the California Supreme Court explained, "because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself." (*Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 512.) In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (*CEQA Guidelines* Sections 15064(h)(1) and 15130).

To make this determination, the incremental impacts of the proposed Project must be compared with the effects of past, current, and probable future projects. Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Greenhouse Gas Emissions

CO_2 from fossil fuel combustion is the largest component of United States GHG emissions, and transportation is the largest contributor of CO_2. The largest emitters of transportation CO_2 emissions in 2020 were passenger cars (38.5 percent), freight trucks (26.3 percent), and light-duty trucks (18.9 percent). The remainder came from other modes of transportation, including aircraft, ships, boats, and trains, as well as pipelines and lubricants (USEPA 2022b). Because CO_2 emissions represent the greatest percentage of GHG emissions, CO_2 has been selected as a proxy for the following analysis of potential climate change impacts.

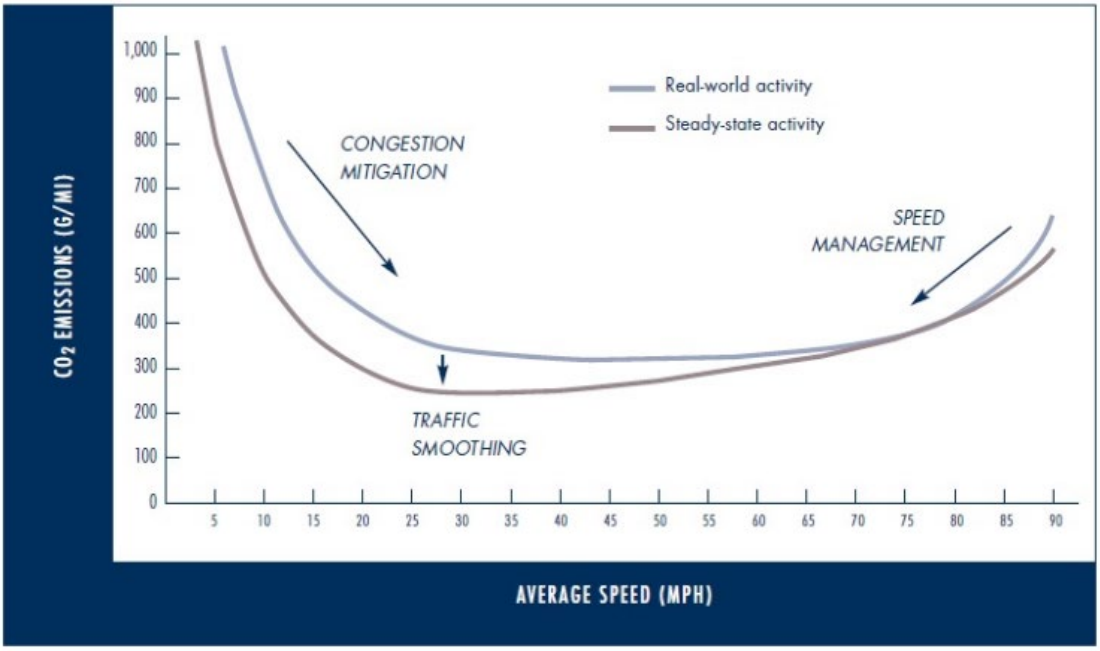
The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour [mph]) and speeds over 55 mph; the most severe emissions occur at 0–25 mph (see Figure 3-4). To the extent that a project enhances operational efficiency and improves travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced, provided that improved travel times do not induce additional VMT.

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity (e.g., VMT), (3) transitioning to lower-GHG-emitting fuels, and (4) improving vehicle technologies and efficiency. To be most effective, all four strategies should be pursued concurrently.

The Connect SoCal 2020 RTP/SCS commits $7.3 billion toward Transportation Demand Management (TDM) strategies and $13.7 billion for Transportation System Management (TSM) improvements in the region. Both TSM and TDM elements are incorporated into the Build Alternatives.

Capacity-increasing projects require a quantitative GHG emissions analysis, using the EMission FACtors (EMFAC) model or CT-EMFAC to estimate operational GHG emissions. The proposed Project includes three Build Alternatives, with only Alternative 4 increasing capacity. However, to allow comparison of the three Build Alternative effects on GHG emissions, the quantitative GHG emissions analysis below includes all three Build Alternatives.

Figure 3-4: Possible Use of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions



Source: Barth and Boriboonsomsin 2010

The regional VMT for Existing (2022) conditions, the No Build Alternative, and the Build Alternatives included in the *I-5 Managed Lanes Project (Red Hill Ave to Orange / Los Angeles County Line) Traffic Operations Analysis Report* (May 2023) along with the CT-EMFAC2017 emission rates, were used to calculate and compare the CO_2 emissions for the 2022, 2035, and 2055 regional conditions.

CARB developed the EMFAC model to facilitate preparation of statewide and regional mobile-source emissions inventories. The model generates emissions rates that can be multiplied by vehicle activity data from all motor vehicles, including passenger cars and heavy-duty trucks, operating on highways, freeways, and local roads in California. EMFAC has a rigorous scientific foundation, has been approved by the USEPA and has been vetted through multiple stakeholder reviews. Caltrans developed CT-EMFAC to apply project-specific factors to CARB's model.

EMFAC's GHG emission rates are based on tailpipe emissions test data, and the model does not account for factors such as the rate of acceleration and vehicle aerodynamics, which influence the amount of emissions generated by a vehicle. GHG emissions quantified using CT-EMFAC are therefore estimates and may not reflect actual on-road emissions. Furthermore, the model does not account for induced travel.

Modeling GHG estimates with EMFAC or CT-EMFAC nevertheless remains the most precise means of estimating future GHG emissions. While CT-EMFAC is currently the best available tool for calculating GHG emissions from mobile sources, it is important to note that the GHG results are only useful for a comparison of alternatives. Federal CAFE and GHG emissions standards continue to evolve, and models will be updated to account for regulatory changes.

Based on the *I-5 Managed Lanes Project (Red Hill Ave to Orange / Los Angeles County Line) Traffic Operations Analysis Report* (May 2023) (April 2023), and as shown in Table 3.2, with the implementation of MLs, all of the Build Alternatives would result in a net decrease in GHG emissions under both the Opening Year (2035) and Future Year (2055) scenarios compared to the Existing (2022) condition.

Table 3.2: Modeled Annual CO_2 Emissions and Vehicle Miles Traveled by Alternative

Alternative	Annual VMT[1]	Amortized Construction CO_2e Emissions (MT/yr)	CO_2 Emissions (MT/yr)	N_2O Emissions (MT/yr)	CH_4 Emissions (MT/yr)	CO_2e [2] Emissions (MT/yr)
Opening Year 2035						
Existing (2022)	1,742,990,490	--	592,273	18	23	599,708
No Build	1,830,225,725	--	466,205	15	20	472,403
Change from Existing	*87,235,235*	--	*-126,069*	*-3.11*	*-3.89*	*-127,306*
Alternative 2	1,690,134,558	2.5	434,229	14	18	440,011
Change from Existing	*-52,855,932*	--	*-158,045*	*-4.01*	*-5.22*	*-159,698*
Change from No Build	*-140,091,167*	--	*-31,976*	*-0.90*	*-1.33*	*-32,392*
Alternative 3	1,737,652,373	154	441,697	14	19	447,725
Change from Existing	*-5,338,117*	--	*-150,577*	*-4*	*-5*	*-151,983*
Change from No Build	*-92,573,352*	--	*-24,508*	*-1*	*-1*	*-24,677*
Alternative 4	1,787,640,305	172	452,410	14	19	458,598
Change from Existing	*44,649,815*	--	*-139,864*	*-4*	*-4*	*-141,110*
Change from No Build	*-42,585,420*	--	*-13,795*	*-1*	*-1*	*-13,805*
Future Year 2055						
Existing (2022)	1,742,990,490	--	592,273	18	23	599,708
No Build	1,964,437,696	--	474,417	17	22	481,299
Change from Existing	*221,447,206*	--	*-117,856*	*-1.17*	*-1.76*	*-118,409*
Alternative 2	1,784,746,094	2.5	434,178	15	20	440,458
Change from Existing	*41,755,604*	--	*-158,095*	*-2.65*	*-3.66*	*-159,251*

Table 3.2: Modeled Annual CO_2 Emissions and Vehicle Miles Traveled by Alternative

Alternative	Annual VMT[1]	Amortized Construction CO_2e Emissions (MT/yr)	CO_2 Emissions (MT/yr)	N_2O Emissions (MT/yr)	CH_4 Emissions (MT/yr)	CO_2e [2] Emissions (MT/yr)
Change from No Build	*-179,691,601*	--	*-40,239*	*-1.48*	*-1.91*	*-40,842*
Alternative 3	1,852,783,427	154	448,608	16	20	455,254
Change from Existing	*109,792,937*	--	*-143,665*	*-2*	*-3*	*-144,455*
Change from No Build	*-111,654,269*	--	*-25,809*	*-1*	*-1*	*-26,046*
Alternative 4	1,907,536,046	172	458,021	16	21	464,818
Change from Existing	*164,545,556*	--	*-134,252*	*-2*	*-3*	*-134,890*
Change from No Build	*-56,901,650*	--	*-16,396*	*-1*	*-1*	*-16,481*

Source: *Energy Analysis Report* (April 2023).

[1] Annual VMT values derived from Daily VMT values multiplied by 347, per CARB methodology (CARB 2008).

[2] Total CO_2e emission is the sum of CO_2 emissions × GWP of 1, CH_4 emissions × GWP of 25, and N_2O emissions × GWP of 298 (i.e., CO_2e = {CO_2} + {CH_4 × 25} + {N_2O × 298}).

CARB = California Air Resources Board
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GWP = global warming potential
MT/yr = metric tons per year
N_2O = nitrous oxide
VMT = vehicle miles traveled

Under the Opening Year (2035) and Future Year (2055) conditions for Alternative 1 (No Build Alternative), traffic operations within the Study Area are projected to worsen slightly for both the weekday a.m. and p.m. peak hours. With the addition of the ML improvements under the Build Alternatives for both the Opening Year (2035) and Future Year (2055) scenarios, traffic operations within the Study Area are projected to improve at many segments for both the weekday a.m. and p.m. peak-hour conditions.

Construction GHG emissions would be temporary and unavoidable. SCAQMD staff recommends that construction emissions be amortized over a 30-year project lifetime so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies.

SCAG's Connect SoCal 2020–2045 RTP/SCS complies with the emissions reduction targets established by CARB and meets the requirements of SB 375, as codified in Government Code Section 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 the targets set by CARB.

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 Build Alternatives are currently included in the future commitments section of the Connect SoCal 2020 RTP/SCS. However, the proposed Project is not captured in future regional models, and efforts to incorporate the Build Alternatives into such models are being taken. Once updated later in 2023, the 2020–2045 RTP/SCS and the FTIP will capture the Build Alternatives in regional models. The Build Alternatives would assist the region with its overall goals of reducing vehicle-related GHGs by relieving congestion and improving traffic flow, thereby reducing emissions. This is consistent with the RTP/SCS-identified strategies to manage congestion by maximizing the current system and ensuring it operates with maximum efficiency and effectiveness.

Construction Emissions

Construction GHG emissions would result from material processing and transportation, 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.

Use of long-life pavement, improved traffic management plans, and changes in materials can also help offset GHG emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

As with the criteria pollutant analysis described in Section 2.13.3.1 of this EIR/EA, the construction emissions were estimated for the Build Alternatives using CAL-CET2020, Version 1.0. The CAL-CET2020 results were used to quantify GHG emissions generated by construction of the Build Alternatives and are presented in Table 3.3, Table 3.4, and Table 3.5.

Table 3.3: Alternative 2 Construction Greenhouse Gas Emissions

Construction Phase	CO_2 (tons/phase)	CH_4 (tons/phase)	N_2O (tons/phase)	CO_2e (MT/phase)
Land Clearing/Grubbing	2	0.00	0.00	2
Roadway Excavation and Removal	18	0.00	0.00	17
Structural Excavation and Removal	1	0.00	0.00	1
Base/Subbase/Imported Borrow	13	0.00	0.00	12
Structure Concrete	3	0.00	0.00	3
Paving	6	0.00	0.00	6
Drainage/Environment/Landscaping	26	0.00	0.00	24
Traffic Signalization/Signage/Striping/Painting	12	0.00	0.00	11
Other Operation	0	0.00	0.00	0
Total (tons/construction project)	**82**	**0.00**	**0.00**	**75**

Source: Compiled by LSA using CAL-CET2020 (February 2023).
Note: Total CO_2e emission is the sum of CO_2 emissions × GWP of 1, CH_4 emissions × GWP of 25, and N_2O emissions × GWP of 298 (i.e., CO_2e = {CO_2} + {CH_4 × 25} + {N_2O × 298}).
1 MT = 1.1 ton.

CAL-CET2020 = Caltrans California Construction Emissions Tools 2020
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GWP = global warming potential
MT/phase = metric tons per phase
N_2O = nitrous oxide
tons/phase = tons per phase

Table 3.4: Alternative 3 Construction Greenhouse Gas Emissions

Construction Phase	CO_2 (tons/phase)	CH_4 (tons/phase)	N_2O (tons/phase)	CO_2e (MT/phase)
Land Clearing/Grubbing	187	0.01	0.01	172
Roadway Excavation and Removal	1,538	0.05	0.05	1,412
Structural Excavation and Removal	96	0.00	0.01	89
Base/Subbase/Imported Borrow	1,410	0.05	0.04	1,293
Structure Concrete	363	0.01	0.01	332
Paving	553	0.02	0.01	506
Drainage/Environment/Landscaping	419	0.02	0.01	384
Traffic Signalization/Signage/Striping/Painting	478	0.02	0.02	439
Other Operation	0	0.00	0.00	0
Total (tons/construction project)	**5,043**	**0.18**	**0.14**	**4,625**

Source: Compiled by LSA using CAL-CET2020 (February 2023).
Note: Total CO_2e emission is the sum of CO_2 emissions × GWP of 1, CH_4 emissions × GWP of 25, and N_2O emissions × GWP of 298 (i.e., $CO_2e = \{CO_2\} + \{CH_4 \times 25\} + \{N_2O \times 298\}$). 1 MT = 1.1 ton.

CAL-CET2020 = Caltrans California Construction Emissions Tools 2020
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GWP = global warming potential
MT/phase = metric tons per phase
N_2O = nitrous oxide
tons/phase = tons per phase

Table 3.5: Alternative 4 Construction Greenhouse Gas Emissions

Construction Phase	CO_2 (tons/phase)	CH_4 (tons/phase)	N_2O (tons/phase)	CO_2e (MT/phase)
Land Clearing/Grubbing	209	0.01	0.01	172
Roadway Excavation and Removal	1,717	0.06	0.05	1,412
Structural Excavation and Removal	107	0.00	0.01	89
Base/Subbase/Imported Borrow	1,574	0.06	0.04	1,293
Structure Concrete	405	0.02	0.01	332
Paving	617	0.02	0.01	506
Drainage/Environment/Landscaping	468	0.02	0.01	384
Traffic Signalization/Signage/Striping/Painting	533	0.02	0.02	439
Other Operation	0	0.00	0.00	0
Total (tons/construction project)	**5,629**	**0.20**	**0.15**	**5,164**

Source: Compiled by LSA using CAL-CET2020 (February 2023).
Note: Total CO_2e emission is the sum of CO_2 emissions × GWP of 1, CH_4 emissions × GWP of 25, and N_2O emissions × GWP of 298 (i.e., $CO_2e = \{CO_2\} + \{CH_4 \times 25\} + \{N_2O \times 298\}$).
1 MT = 1.1 ton.

CAL-CET2020 = Caltrans California Construction Emissions Tools 2020
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GWP = global warming potential
MT/phase = metric tons per phase
N_2O = nitrous oxide
tons/phase = tons per phase

All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7 1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all CARB emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce construction vehicle emissions also help reduce GHG emissions.

3.2.4 CEQA Conclusion

While the Build Alternatives would result in GHG emissions during construction, it is anticipated that the Build Alternatives would not result in any increase in operational GHG emissions. The Build Alternatives do not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs. With implementation of the GHG-reduction measures listed above in Section 3.1.8, the impact would be less than significant.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies

Statewide Efforts

In response to AB 32, California is implementing measures to achieve emission reductions of GHGs that cause climate change. Climate change programs in California are effectively reducing GHG emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors to take California into a sustainable, low-carbon and cleaner future while maintaining a robust economy (CARB 2022d).

Major sectors of the California economy, including transportation, will need to reduce emissions to meet 2030 and 2050 GHG emissions targets. The Governor's Office of Planning and Research (OPR) identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the State's energy mix to at least 50 percent by 2030; (2) reducing petroleum use by up to 50 percent by 2030; (3) increasing the energy efficiency of existing buildings by 50 percent by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store

carbon, are resilient, and enhance other environmental benefits (OPR 2015). OPR later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with EO B-55-18 and AB 1279 (OPR 2022).

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the State build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of VMT. Reducing today's petroleum use in cars and trucks by 50 percent is a key State goal for reducing GHG emissions by 2030 (California Environmental Protection Agency 2015).

In addition, SB 1386 (Wolk 2016) established as State policy the protection and management of natural and working lands and requires State agencies to consider that policy in their own decision making. Trees and vegetation in forests and on rangelands, farms, and wetlands remove CO_2 from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

Subsequently, Governor Gavin Newsom issued EO N-82-20 to combat the crises in climate change and biodiversity. It instructs State agencies to use existing authorities and resources to identify and implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in California's forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities, particularly low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2022a) released *Natural and Working Lands Climate Smart Strategy*, with a focus on nature-based solutions.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as CARB 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 an 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.

Climate Action Plan for Transportation Infrastructure

The *California Action Plan for Transportation Infrastructure* (CAPTI) builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing GHG emissions in transportation, which account for more than 40 percent of all

polluting emissions, to reach the State's climate goals. Under CAPTI, where feasible and within existing funding program structures, the State will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

California Transportation Plan (CTP 2050)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet California's future mobility needs and reduce GHG emissions. It serves as an umbrella document for all the other statewide transportation planning documents. CTP 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide GHG emissions reduction targets and increase resilience to climate change. It demonstrates how GHG emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

Caltrans Strategic Plan

The *Caltrans 2020–2024 Strategic Plan* includes goals of stewardship, climate action, and equity. Climate action strategies include developing and implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a VMT monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021b).

Caltrans Policy Directives and Other Initiatives

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) established a Department policy to ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities. *Caltrans Greenhouse Gas Emissions and Mitigation Report* (Caltrans 2020) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce GHG emissions and identifies additional opportunities for further reducing GHG emissions from Department-controlled emission sources, in support of Caltrans and State goals.

Project-Level GHG Reduction Strategies

The following Project Features and measures would be implemented in the Build Alternatives to reduce GHG emissions and potential climate change impacts from the Build Alternatives. Additionally, PF-AQ-1 has aspects that would reduce GHG emissions as well as air quality emissions.

GHG-1 The contractor shall implement a sustainability construction management approach by implementing the following measures:

- Use low-emission vehicles during construction.
- Alternative fuels such as renewable diesel should be used for construction equipment.
- Limit idling to 5 minutes for delivery and dump trucks and other diesel-powered equipment.
- Schedule truck trips outside of peak morning and evening commute hours.
- Reduce construction waste and maximize the use of recycled materials (to reduce consumption of raw materials, reduce landfill waste, and encourage cost savings).
- Incorporate measures to reduce consumption of potable water.
- Maintain equipment in proper tune and working condition.
- Use the right size of equipment for the job.
- Use equipment with new technologies.
- Construction Environmental Training: Supplement existing training with information regarding methods to reduce GHG emissions related to construction.

GHG-2 Replacement of light fixtures with highly efficient light-emitting diodes (LEDs), including new safety lighting.

GHG-3 Reduce water use by planting drought-tolerant vegetation and installing smart irrigation controllers.

PF-AQ-1 The Contractor shall comply with the California Department of Transportation (Caltrans)' Standard Specifications in Section 14-9 (2022) for reducing impacts from construction activities. Section 14-9.02 specifically requires compliance by the contractor with all applicable air-pollution-control rules, regulations, and ordinances

related to air quality, including air quality management district rules and regulations.

Adaptation

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the State's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and changes in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads, longer periods of intense heat can buckle pavement and railroad tracks, and storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA Assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The USDOT Policy Statement on Climate Adaptation of June 2011 committed USDOT 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" (USDOT 2011). The USDOT Climate Action Plan of August 2021 followed up with a statement of policy to "accelerate reductions in greenhouse gas emissions from the transportation sector and make our transportation infrastructure more climate change resilient now and in the future," following this set of guiding principles (USDOT 2021):

- Use best-available science
- Prioritize the most vulnerable
- Preserve ecosystems
- Build community relationships
- Engage globally

The USDOT developed its climate action plan pursuant to federal EO 14008, *Tackling the Climate Crisis at Home and Abroad* (January 27, 2021). EO 14008 recognized the threats of climate change to national security and ordered federal government agencies to prioritize actions on climate adaptation and resilience in their programs and investments (White House 2021).

FHWA Order 5520 (Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events [December 15, 2014]) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, State, and local levels (FHWA 2019).

State Efforts

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of State policies and tools have been developed to guide adaptation efforts.

California's Fourth Climate Change Assessment (Fourth Assessment) (2018) is the State's effort to "translate the state of climate science into useful information for action." It provides information that will help decision makers across sectors and at state, regional, and local scales protect and build the resilience of the State's people, infrastructure, natural systems, working lands, and waters. The State's approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce GHG emissions by 2021 or sooner, the State is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77 percent increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67 percent of Southern California's beaches and

inundation of billions of dollars' worth of residential and commercial buildings due to sea level rise (State of California 2018).

Sea level rise is a particular concern for transportation infrastructure in the coastal zone. Major urban airports will be at risk of flooding from sea level rise combined with storm surge as early as 2040; San Francisco International Airport is already at risk. Miles of coastal highways vulnerable to flooding in a 100-year storm event will triple to 370 by 2100, and 3,750 miles will be exposed to temporary flooding. The Fourth Assessment's findings highlight the need for proactive action to address these current and future impacts of climate change.

In 2008, then-governor Arnold Schwarzenegger recognized the need when he issued EO S-13-08, focused on sea level rise. Technical reports on the latest sea level rise science were first published in 2010 and updated in 2013 and 2017. The 2017 projections of sea level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018. This EO also gave rise to the California Climate Adaptation Strategy (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan), which addressed the full range of climate change impacts and recommended adaptation strategies. The Safeguarding California Plan was updated in 2018 and again in 2021 as the *California Climate Adaptation Strategy*, incorporating key elements of the latest sector-specific plans such as the *Natural and Working Lands Climate Smart Strategy, Wildfire and Forest Resilience Action Plan, Water Resilience Portfolio* and the CAPTI (described above). Priorities in the 2021 California Climate Adaptation Strategy include acting in partnership with California Native American Tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, nature-based climate solutions, use of best available climate science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2022b).

EO B-30-15, signed in April 2015, requires State agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change in addition to sea level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017 to encourage a uniform and systematic approach.

AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe Infrastructure Working Group to help actors throughout the State address the findings of the Fourth Assessment. It released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*, in 2018. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how State agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts (Climate Change Infrastructure Working Group 2018).

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

Caltrans conducted climate change vulnerability assessments to identify segments of the SHS vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and sea level rise.

The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, State, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide analysis of at-risk assets and development of adaptation plans to reduce the likelihood of damage to the SHS, allowing Caltrans to both reduce the costs of storm damage and provide and maintain transportation that meets the needs of all Californians.

Project Adaptation Analysis

The Project adaptation analysis demonstrates how the Build Alternatives will be adapted or resilient to climate change effects. EO B-30-15 requires that all projects consider future climate conditions in the planning and design decisions. Caltrans published the Caltrans Adaption Priorities Report – District 12 in September 2020. This report determined which assets are most likely to be adversely impacted by climate change in each Caltrans district. The report then prioritized these assets by considering, among other things, the timing of the climate impacts, their severity and extensiveness, the condition of each asset (a measure of the sensitivity of the asset to damage), the number of system users affected, and the level of network redundancy in the area. Prioritization scores were generated for each potentially exposed asset based on these factors and combined in a Cross-Hazard Prioritization Score to provide a better view of the collective threats faced by each asset and a better basis for prioritization. Within the proposed Project limits, several bridges and culverts have been identified as potentially vulnerable to enhanced riverine flooding

associated with climate change. Some I-5 roadway segments have been identified as potentially exposed to pavement-degrading temperature changes associated with climate change. Table 3.6 lists the affected features within the Project limits. A carriageway or roadway consists of a width of road on which a vehicle is not restricted by any physical barriers or separation to move laterally. A carriageway generally consists of a number of traffic lanes together with any associated shoulder, but it may be a sole lane in width (for example, a highway off-ramp).

Table 3.6: Caltrans Adaptation Priority List

Priority	Bridge Number	County	Route	Feature Crossed	Post Mile	Cross-Hazard Prioritization Score
3	55 1046L	ORA	Interstate 5 Southbound	Santiago Creek	33.39	21.29
3	55 0811	ORA	Interstate 5	Santa Ana River	34.47	21.34
5	55 1073L	ORA	Interstate 5 Southbound	Fullerton Creek	42.98	5.16
1	55 0910	ORA	Interstate 5	Carbon Creek	40.2	39.18

Priority	Route	Carriageway[1]	From County and Post Mile / To County and Post Mile	Average Cross-Hazard Prioritization Score[2]
1	5	P	ORA 5 34.008 / ORA 5 34.998	39.86
1	5	P	ORA 5 37.643 / ORA 5 39.183	39.86
1	5	P	ORA 5 42.93 / ORA 5 43.437	39.86
1	5	P	ORA 5 R27.253 / ORA 5 33.849	39.86
1	5	S	ORA 5 27.46 / ORA 5 33.869	39.85
1	5	S	ORA 5 34.036 / ORA 5 35.028	39.85
1	5	S	ORA 5 37.671 / ORA 5 39.045	39.85
1	5	S	ORA 5 42.8 / ORA 5 43.424	39.85
2	5	S	ORA 5 35.028 / ORA 5 35.217	38.18
2	5	S	ORA 5 35.76 / ORA 5 37.671	38.18
2	5	S	ORA 5 39.045 / ORA 5 40.95	38.18
2	5	P	ORA 5 34.998 / ORA 5 35.217	38.08
2	5	P	ORA 5 35.951 / ORA 5 37.643	38.08
2	5	P	ORA 5 39.183 / ORA 5 40.833	38.08
3	5	P	ORA 5 33.849 / ORA 5 34.008	32.63
3	5	P	ORA 5 35.217 / ORA 5 35.951	32.63
3	5	P	ORA 5 40.833 / ORA 5 42.93	32.63

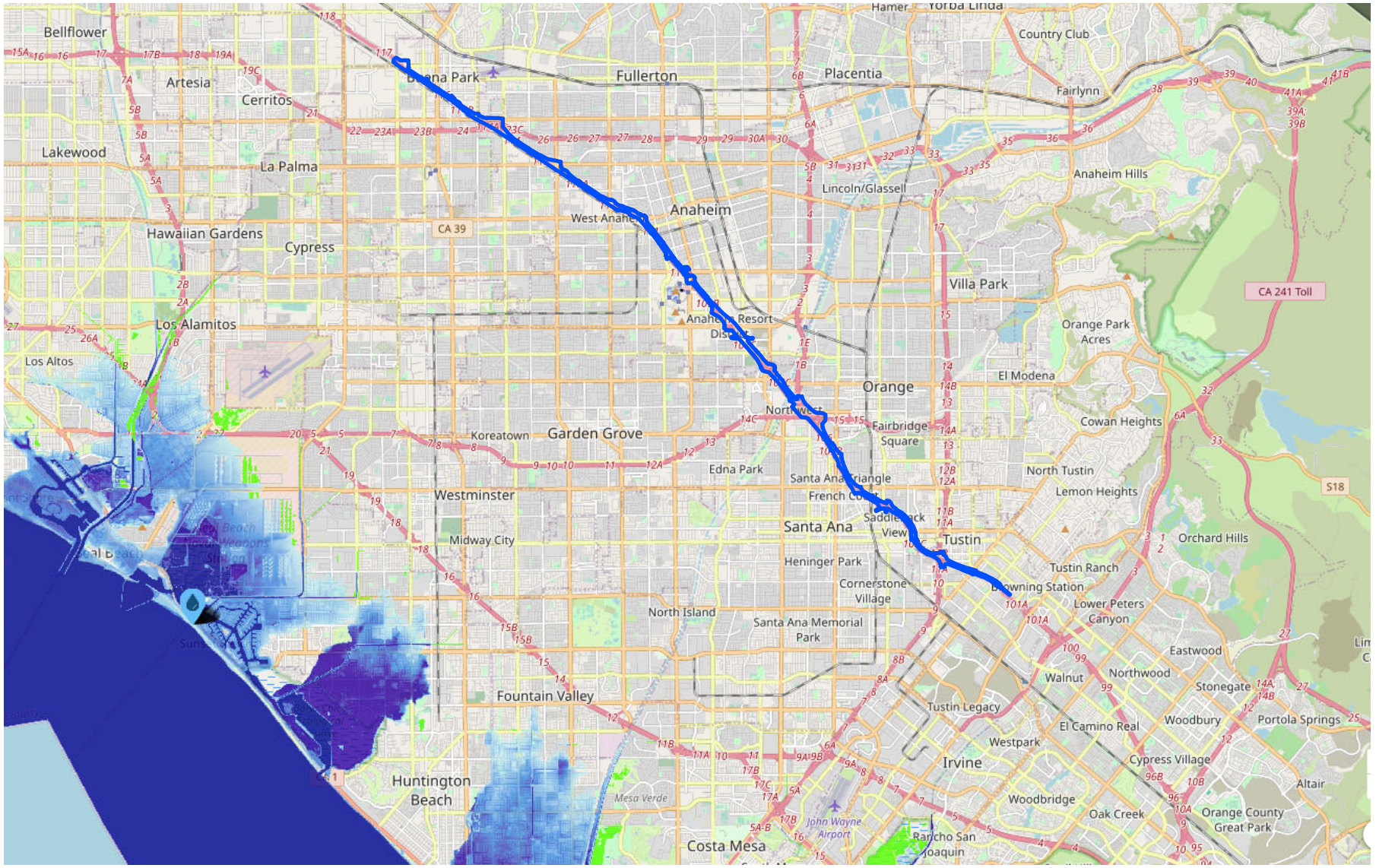
Priority	Route	Carriageway[1]	From County and Post Mile / To County and Post Mile	Average Cross-Hazard Prioritization Score[2]
3	5	P	ORA 5 43.437 / LA 5 0	32.63
3	5	S	ORA 5 33.869 / ORA 5 34.036	32.62
3	5	S	ORA 5 35.217 / ORA 5 35.76	32.62
3	5	S	ORA 5 40.95 / ORA 5 42.8	32.62
3	5	S	ORA 5 43.424 / ORA 5 44.376	32.62

Source: Caltrans Adaptation Priorities Report. September 2020.

[1] Caltrans' alignment codes designate the carriageway on divided roadways: "P" always represents northbound or eastbound carriageways, whereas "S" always represents southbound or westbound carriageways. Undivided roadways are always indicated with a "P."

[2] These values represent the average of the cross-hazard prioritization scores among all the abutting small segments on the same route sharing a common priority level that were aggregated to form the longer segments listed in this table.

ORA = Orange County



LEGEND

- Project Area
- Water Depth (Maximum 10 ft Sea-level Rise)
- Low-lying Areas

FIGURE 3-5

NO SCALE

SOURCE: coast.noaa.gov

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I-5 Managed Lanes Project
(Red Hill Avenue to Orange County/Los Angeles County Line)

Sea Level Rise Risk

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Sea Level Rise

The proposed Project is outside the coastal zone and not in an area subject to sea level rise. Standard design will allow the bridges and culverts to handle sea level rise effects. Accordingly, direct impacts to transportation facilities due to projected sea level rise are not expected (see Figure 3-5).

Precipitation and Flooding

There are several 100-year floodplains within the Study Area. Coyote Creek, Fullerton Creek, Carbon Creek, Santa Ana River, and Santiago Creek are the five major flood control facilities that cross I-5 within the Proposed Area. There are no physical improvements proposed at these locations; therefore, the Build Alternatives will not result in any floodplain encroachments. Section 2.8, Hydrology and Floodplains, contains a more detailed discussion of flood risk.

Wildfire

The proposed Project does not traverse any Fire Hazard Severity Zones, as designated by the California Department of Forestry and Fire Protection (CalFire n.d.).

Temperature

The Caltrans Climate Change Vulnerability Assessment looked at how high temperatures could impact Caltrans' selection of pavement binder grade. Binder is the "glue" used to bind asphalt together. Thus, the selection of binder is important because the asphalt in locations with anticipated high temperatures would need a high-temperature-rating binder. The entirety of Orange County is subject to increasing high temperatures and high 7-day averages. However, the Climate Change Vulnerability Assessment does not indicate temperature changes during the Project's design life that would require adaptive changes in pavement design or maintenance practices.

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