

# Summary

---

## S.1 NEPA Assignment

California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a Memorandum of Understanding pursuant to 23 USC 327 ([NEPA Assignment MOU](#)) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012, and was renewed on May 27, 2022, for a term of ten years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the [23 USC 326 CE Assignment MOU](#), projects excluded by definition, and specific project exclusions.

## S.2 Project Overview

### S.2.1 Lead Agencies and NEPA/CEQA Documentation

The Proposed Project is a joint project by the California Department of Transportation (Caltrans) and 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). Caltrans is the lead agency under NEPA and the CEQA. In addition, 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 MOU dated May 27, 2022, and executed by FHWA and Caltrans.

Some impacts determined to be significant under CEQA may not lead to a determination of significance under NEPA. Because NEPA is concerned with the significance of the project as a whole, often a “lower level” document is prepared for NEPA. One of the most common joint document types is an Environmental Impact Report/Environmental Assessment (EIR/EA).

After receiving comments from the public and reviewing agencies, a Final EIR/EA will be prepared. Caltrans may prepare additional environmental and/or engineering studies to address comments. The Final EIR/EA will include responses to comments received on the Draft EIR/EA and will identify the preferred alternative. If the decision is made to approve the project, a Notice of Determination will be published for compliance with CEQA, and Caltrans will decide whether to issue a Finding of No Significant Impact (FONSI) or require an Environmental Impact Statement (EIS) for compliance with NEPA. A Notice of Availability (NOA) of the FONSI will be sent to the affected units of federal, state, and local government, and to the State Clearinghouse in compliance with Executive Order 12372.

### **S.2.2 Project Area**

The proposed Project limits on I-5 extend in both directions from Red Hill Avenue (12-OC-5 Post Mile [PM] 28.9) to the Orange/Los Angeles County line (12-OC-5 PM 44.4) in the cities of Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, Buena Park, La Mirada, and Santa Fe Springs and include implementing associated signage (including advance signage on adjacent arterials) and tolling infrastructure.

### **S.2.3 Purpose and Need**

The purpose of the proposed Project is to improve 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 efficient movement of bus and rideshare users; and
- Applying technology to help manage traffic demand.

The need, or deficiency, of the project is the existing I-5 HOV lanes between Red Hill Avenue and the OC/LA County line experience:

- HOV lane degradation (does not meet the federal performance standards)
- Demand that exceeds existing capacity
- Operational deficiencies

## **S.2.4 Proposed Project**

### **S.2.4.1 No Build Alternative (Alternative 1)**

The No Build Alternative does not include improvements to the existing lane configurations for I-5. Under the No Build Alternative, no additional roadway improvements would occur. This alternative includes other projects on the financially constrained project list in the adopted Southern California Association of Governments (SCAG) 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) within the proposed Project limits on I-5 and the Preferred Plan in the Orange County Transportation Authority (OCTA) 2018 Long-Range Transportation Plan (LRTP) within the proposed Project limits. The No Build Alternative would not modify existing HOV lanes, convert existing HOV lanes to express lanes, or construct additional express lanes as proposed under the Build Alternatives to help address the issues identified in Section S.2.3 above.

### **S.2.4.2 Alternative 2: Modify Existing HOV 2+ Lanes to HOV 3+ Lanes**

As described above, the Proposed Project limits on I-5 extend from Red Hill Avenue (Post Mile [PM] 28.9) to the Orange County/Los Angeles (OC/LA) County line (12-ORA-5 PM 44.4) in the cities of Irvine, Tustin, Santa Ana, Orange, Anaheim, Fullerton, Buena Park, La Mirada, and Santa Fe Springs and include implementing associated signage (including advance signage on adjacent arterials) and tolling infrastructure. Alternative 2 would maintain the existing lane configurations for I-5 with a modification of the minimum HOV-lane occupancy requirement from two-plus (2+) to three-plus (3+) passengers within the current HOV system in each direction, between Red Hill Avenue and the OC/LA County line. As a result of this increase in the occupancy requirement and improved trip reliability, through the Transportation System Management/Transportation Design Management (TSM/TDM) elements, it would promote and encourage public and private transit such as Bus Rapid Transit (BRT) and ridesharing. Under this alternative, no additional roadway improvements would occur. Additionally, two proposed park-and-ride facilities are being evaluated as part of Alternative 2 and would be constructed within the existing freeway right of way. Sign replacement and pavement delineation would also be implemented to meet the latest California Manual on Uniform Traffic Control Devices (CA MUTCD) standards.

### **S.2.4.3 Alternative 3: Convert Existing HOV Lanes to Express Lanes**

Alternative 3 would convert the existing HOV lane to an Express Lane (EL) in each direction between Red Hill Avenue and State Route (SR) 55; convert two existing HOV lanes to ELs in each direction between SR-55 and SR-57; and convert the existing HOV lane to an EL in each direction from SR-57 to the OC/LA County line. The typical cross-section consists of a 12-foot-wide EL, a 2- to 4-foot buffer, 12-foot-wide general-purpose (GP) lanes, 12-foot-wide auxiliary lanes, a 4- to 26-foot-wide inside shoulder, and a 10-foot-wide outside shoulder and would be provided to accommodate the EL. One 12-foot weave lane is proposed at locations of ingress or egress. Additionally, two proposed park-and-ride facilities are being evaluated as part of Alternative 3 and would be constructed within the existing freeway right-of-way. Sign replacement and pavement delineation would also be implemented to meet the latest CA MUTCD standards.

### **S.2.4.4 Alternative 4: Convert Existing HOV Lanes to Express Lanes and Construct Additional Express Lanes**

Alternative 4 would convert the existing HOV lane to an EL in each direction between Red Hill Avenue and SR-55; convert two existing HOV lanes to ELs in each direction between SR-55 and SR-57; convert the existing HOV lane to an EL in each direction from SR-57 to the OC/LA County line; and construct an additional EL in each direction between SR-57 and SR-91. The typical cross-section consists of 12-foot-wide ELs, a 2- to 4-foot buffer, 12-foot-wide GP lanes, 12-foot-wide auxiliary lanes, a 4- to 14-foot wide inside shoulder, and a 10-foot-wide outside shoulder and would be provided to accommodate the ELs. One 12-foot weave lane is proposed at locations of ingress or egress. Additionally, two proposed park-and-ride facilities are being evaluated as part of Alternative 4 and would be constructed within the existing freeway right-of-way. Sign replacement and pavement delineation would also be implemented to meet the latest CA MUTCD standards.

## **S.3 Project Impacts**

The following sections summarize the impacts documented in the environmental analysis provided in Chapter 2.0 of this EIR/EA. The environmental commitments and measures to minimize harm are listed in each topical section of Chapter 2.0 and the Environmental Commitments Record in Appendix E. Table S.1 below summarizes the Proposed Project's impacts for the No Build and Build Alternatives. Table S.2 also summarizes the impacts of the Build Alternatives that are significant under CEQA along with associated mitigation measures.

### **S.3.1 Land Use**

#### **S.3.1.1 Compatibility/Acquisitions**

Construction of the Build Alternatives would require temporary staging areas for construction equipment. All temporary staging areas would be located within the existing I-5 ROW. No TCEs are identified for the Build Alternatives.

Construction of Alternative 2 would require staging areas for two proposed park-and-ride facilities within the I-5 right-of-way (ROW) and to allow access for potential HOV lane restriping and signage changes.

Construction of Alternative 3 would require six construction staging areas within existing State ROW for construction equipment. The locations of the parcels that would be affected by these construction staging areas are shown on Figure 2.3-3 in Section 2.3, Community Impacts. The staging areas include vacant or unused portions of land within the existing I-5 ROW, and none of the staging areas would displace existing residents or businesses.

Construction of Alternative 4 would have similar land use impacts to Alternative 3 but would result in more direct impacts due to the additional construction of ELs between SR-57 and SR-91. The same construction staging areas under Alternative 3 would be used for the construction of Alternative 4.

Construction staging activities for all Build Alternatives may result in temporary increases in dust and noise levels in the immediate vicinity, potentially affecting adjacent residential and commercial properties. However, dust and air pollution resulting from construction activities would be substantially minimized through implementation measures identified in Section 2.13 (Air Quality) and 2.14 (Noise and Vibration). Construction activities related to the Build Alternatives are not anticipated to result in any temporary conflicts with existing land uses on adjacent residential and commercial properties, and temporary impacts due to construction of the Build Alternatives are not considered to be substantial.

During construction of the Build Alternatives, road and facility closures may result in inconveniences for surrounding land uses due to construction-related delays, temporary closures, and construction equipment operations. PF-TR-1 (Section 2.5.3.1) would minimize impacts associated with full or partial road or facility closures.

No permanent property acquisitions or relocations would be required under the Build Alternatives.

### **S.3.1.2 Consistency with State, Regional, and Local Plans and Programs**

Construction activities and operation associated with the Build Alternatives would not result in inconsistencies with the majority of State, regional, or local plans and policies. 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 2.1.5) would be implemented to address the inconsistency of the Build Alternatives with the SCAG 2020-2045 RTP/SCS and the SCAG 2023 FTIP.

### **S.3.1.3 Parks and Recreation**

Construction of the Build Alternatives would not entail construction staging areas within or adjacent to any identified park or recreational facility within the Study Area. Construction of the Build Alternatives, including lane repainting, signage work, and freeway widening, may result in temporary increased 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). Pedestrian and bicycle traffic would also be maintained throughout the duration of construction in local arterial areas where advanced signage improvements are identified to occur.

The Build Alternatives would not result in any permanent use of land from parks and recreational facilities within the Study Area. Therefore, the Build Alternatives would not result in significant direct or indirect permanent impacts on any parks or recreational resources, including Section 4(f) resources.

### **S.3.2 Growth**

Although the Build Alternatives would reduce traffic congestion in the Study Area (Alternative 2), alleviate HOV lane deficiencies (Alternative 3), alleviate existing general-purpose (GP) and HOV lane deficiencies (Alternative 4) and accommodate projected future traffic volumes in the traffic Study Areas consistent with adopted local land use and transportation plans, they would not provide new transportation facilities, nor would they create new access points to areas previously not accessible. Therefore, they would not result in changes in accessibility to the transportation system in the Study Areas.

The Build Alternatives are intended to accommodate approved and planned growth in the Study Areas, and reduce congestion in the Study Areas. Alternative 2 may encourage changes in driving behavior by enticing some drivers to form carpools with other motorists who need to travel in the same direction at the same time so they can take advantage of the faster-moving HOV lanes, but it is not expected to make growth in the Study Area more attractive given the limited influence that it would have on driving habits across Orange County. Alternatives 3 and 4 on the other hand, may allow growth in the Study Areas to be more attractive. However, regardless of Build Alternative, a substantial number of development projects were proposed and approved prior to the initiation of the proposed Project, which indicates that development in the Study Areas is not dependent on completion of the Build Alternatives. Therefore, the Build Alternatives would not influence growth beyond what is currently planned.

The Build Alternatives would not change accessibility in the Study Areas as they would not create or eliminate any road connections. The Study Areas are fully developed and the Build Alternatives are not anticipated to affect the rate, type, amount, and/or location of growth in the Study Area cities beyond what is planned for the area.

The Build Alternatives would not result in any growth-related effects and, therefore, would not result in growth-related impacts on any resources of concern.

### **S.3.3 Community Impacts**

#### **S.3.3.1 Community Character and Cohesion**

Construction activities related to the Build Alternatives would result in temporary impacts associated with construction equipment noise and air emissions to businesses and residents in the Study Areas. However, compliance with Caltrans Standard Specifications Section 14-9 (PF-AQ-1) and Caltrans Standard Specifications Section 14-8.02 (Noise Control [PF-N-1]) would minimize temporary air quality and noise impacts.

Staging and construction activities associated with Build Alternatives may result in temporary access restrictions and detours that may impact nearby businesses and residents within the Study Areas or those who commute into and out of the Study Area cities for work. All access restrictions and detours would be temporary and would cease when the Project construction is complete. The TMP (PF-TR-1) for the

Build Alternatives would minimize or reduce temporary impacts related to community character and cohesion.

The improvements proposed under Alternative 2 are not anticipated to cause major disruptions to regional business patterns, as I-5 and surrounding local arterials would remain operational during the construction of Alternative 2. Alternative 2 would not cause adverse temporary impacts to the regional economy of Orange County.

Potential impacts to regional business patterns are anticipated under Alternative 3 due to the temporary ramp closures, congestion, and detours that may temporarily limit access to businesses that rely on pass-by traffic for clientele or discourage visitors to popular attractions such as Disneyland. All businesses along the freeway and affected ramp facilities identified for improvements would remain accessible via measures identified in the TMP (PF-TR-1). Regional truck transport may experience temporary congestion and delay increases during construction activities for the Alternative 4 improvements.

None of the Build Alternatives would result in the temporary use of land, or would result in temporary closures of the identified community facilities. Alternative 2 would not result in any temporary impacts on community facilities. Adherence to the TMP (PF-TR-1) for Alternatives 3 and 4 would maintain pedestrian and bike traffic access throughout the duration of construction and minimize temporary delays in travel time to and from community facilities. Vehicular traffic detours are anticipated to be needed during construction around emergency access points in construction areas for Alternatives 3 and 4, which may be limited to nighttime or off-peak hours. Delays in travel time may occur during construction under Alternatives 3 and 4, however, access to nearby community facilities would be maintained via implementation of the TMP (PF-TR-1).

The Build Alternatives would not divide an existing neighborhood, create a new physical or geographic barrier between communities, and would not displace any residents or businesses. Upon completion of construction of the Build Alternatives, access to businesses would return to pre-project conditions or better. Therefore, the Build Alternatives would not result in adverse impacts to the regional economy.

Alternatives 3 and 4 would positively affect community character and cohesion in the Study Area by improving trip reliability in the I-5 HOV lanes for local residents and commuters, as well as making it easier for the public to reach community services and facilities in the Study Areas.



The Build Alternatives do not change accessibility to community facilities within the Study Areas and there would be no adverse permanent impacts on community facilities that serve the Study Areas.

### **S.3.3.2 Relocations and Real Property Acquisition**

No TCEs are identified for the Build Alternatives. Alternative 2 proposes no improvements to the roadway and would preserve the existing lane configuration along this corridor. Construction staging areas would be required for the two park-and-ride facilities under Alternative 2 within the I-5 ROW. Alternatives 3 and 4 would require six construction staging areas that include vacant or unused portions of land within the existing I-5 ROW. None of the staging areas would displace existing residents or businesses. Therefore, the Build Alternatives would not result in temporary impacts related to relocations or real property acquisitions.

No partial or full property acquisitions would occur under the Build Alternatives. Therefore, no relocations of residential or commercial properties or property or sales tax revenue losses would occur under the Build Alternatives.

### **S.3.3.3 Environmental Justice**

Temporary construction activities associated with the Build Alternatives would affect all populations traveling through the Project Area. Compliance with PF-TR-1 (TMP), Caltrans Standard Specifications Section 14-9 (PF-AQ-1), and Caltrans Standard Specifications Section 14-8.02 (Noise Control) [PF-N-1], would address these temporary construction effects. Therefore, the Build Alternatives would not result in any disproportionate temporary adverse effects on the overall populations in the Study Areas (environmental justice and non-environmental justice populations).

Alternative 2 would raise passenger minimum requirements to access the existing HOV lane facilities in the Study Area from a two-passenger minimum to three. All travelers in the Project Area would be affected by the raised passenger minimums, which would not disproportionately affect environmental justice populations in implementing Alternative 2. Individuals from environmental justice populations who continue to carpool with three passengers at minimum would not be affected by the change in passenger minimums. Individuals who are not able to travel with three occupants in a vehicle may explore other carpooling options.

Completion of Alternatives 3 and 4 would contribute to improving trip reliability and EL operation along I-5 within the Study Area and would benefit travelers who are able to procure a FasTrak transponder and utilize the ELs facilities. However, those

benefits would not extend to low-income and minority motorists under Alternatives 3 and 4 if they are unable to purchase/obtain a FasTrak transponder and maintain funding in a FasTrak account in order to use the ELs. Implementation of the Equity Assistance Plan (EAP) (Measure EQ-1, Section 2.3) 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 use of the I-5 ELs. With implementation of the EAP (Measure EQ-1, Section 2.3), Alternatives 3 and 4 would not result in any disproportionate permanent adverse effects to environmental justice populations.

### **S.3.3.4 Equity**

Construction activities associated with Alternative 2 would not result in disproportionately burdened, temporary adverse effects on underserved population groups.

Construction activities associated with Alternatives 3 and 4 would temporarily affect residents and businesses in the Study Area. Such impacts may include temporary disruption of local traffic patterns, delay times, congestion, noise levels, vibration, and dust. Compliance with PF-TR-1 (TMP), Caltrans Standard Specifications Section 14-9 (PF-AQ-1), and Caltrans Standard Specifications Section 14-8.02 (Noise Control) (PF-N-1), would address these temporary construction effects.

Under Alternative 2, the raised passenger minimums would affect current HOV lane users by requiring, at minimum, three occupants to utilize the HOV facility. Current HOV lane users who are unable to accommodate the raised passenger minimums due to work/commute schedule or other factors would not be eligible to utilize the HOV lanes, thus potentially subjecting them to increased travel times and/or reduced trip reliability. Those current HOV lane users who are able to meet the raised passenger minimums would benefit from the improved trip reliability provided by Alternative 2. The additional two park-and-ride facilities would not negatively affect current HOV users. The northern Orange County region and the southeastern Los Angeles County region would benefit from this corridor improvement as it would improve travel conditions along the I-5 corridor, which connects the two counties.

Under Alternatives 3 and 4, current HOV lane users who are able to set up a FasTrak account, obtain a transponder, and link their bank accounts would benefit from the improved trip reliability provided by these Alternatives. However, current HOV lane

users who are constrained by budget and other factors may be priced out from being able to utilize the ELs or unable to utilize the ELs to the fullest extent possible (low toll credits, violations, etc.). Certain underserved motorists may face challenges in accessing these benefits. Implementation of the EAP (Measure EQ-1) would ensure that Alternatives 3 and 4 would deliver transportation benefits to all populations, including traditionally underserved populations. The northern Orange County region and the southeastern Los Angeles County region would benefit from this corridor improvement as it would improve travel conditions for all population groups along the I-5 corridor, including underserved population groups that travel between the two counties.

### **S.3.4 Utilities and Emergency Services**

The construction of Alternative 2 would not require the relocation or construction of new utility facilities. Additionally, there would be no substantial disruption of utility services resulting in temporary adverse effects.

The construction of Alternatives 3 and 4 may affect existing surface or subsurface utility facilities, requiring protection in-place, removal, or relocation. All utility impacts would be coordinated with the affected utility service providers to ensure minimal disruptions to utility users in the area (PF-UES-1). With implementation of PF-UES-1, no substantial temporary impacts to utilities would occur. Emergency service providers may experience temporary delays during construction of Alternatives 3 and 4 as they travel within and through the Study Areas. Implementation of the TMP (PF-TR-1) would include coordination with affected emergency service providers to ensure maintenance of access for emergency responders.

All existing utility facilities are anticipated to be maintained during operation of the Build Alternatives and there would be no permanent adverse effects on utility providers or their facilities. Alternative 2 would not affect emergency service providers, as the existing lane configuration would be maintained and the modified minimum HOV-lane passenger occupancy requirement applies to the public. Alternatives 3 and 4 would improve the reliability and operation of the freeway facilities in the Study Area. These improvements would reduce traffic congestion resulting in decreased travel times and improved emergency response times within the Study Area. Therefore, the Build Alternatives would not result in adverse effects on emergency services or providers.

### **S.3.5 Traffic and Transportation/Pedestrian and Bicycle Facilities**

No roadway closures are anticipated during construction of Alternative 2.

Construction of Alternatives 3 and 4 would require temporary on-ramp, off-ramp, and connector closures. Full and partial closures would be coordinated with local jurisdictions as outlined in the TMP (PF-TR-1). Implementation of PF-TR-1 will address the potential for short-term impacts related to traffic and transportation during construction of the Build Alternatives.

Proposed improvements for the HOV segments proposed by the Build Alternatives under 2035 conditions and 2055 conditions are expected to improve traffic operations within the Study Area at several freeway segments over the No Build Alternative for both AM and PM peak hours.

Alternative 2 only proposes to modify existing HOV lane requirements with no additional roadway improvements. Therefore Alternative 2 would not involve alteration or reconfiguration of any existing intersections or ramps, and impacts to the Study Area intersections and ramps 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. 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.

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.

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. 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. Storage lengths provided on all on-ramps with minimum ramp metering rates are projected to be adequate under 2035 conditions for Alternatives 3 and 4 and there are no off-ramp intersections where the 95th percentile ramp queue exceeds the off-ramp length.

As stated above, 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. Alternatives 3 and 4 include minor modifications to existing arterials at their crossings at I-5 to accommodate the permanent improvements to I-5 and the ramps provided by Alternatives 3 and 4. 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 Alternatives 3 and 4. 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 Alternatives 3 and 4 would not affect the existing Class I bike paths in the vicinity of the Project Area.

Of the three proposed Build Alternatives, Alternative 4 is the only alternative that adds capacity to the State Highway System and is subject to a VMT analysis according to the Transportation Analysis under CEQA. Alternative 4 is anticipated to result in 98,406,000 additional vehicle miles traveled (VMT). However, with VMT reduction elements that are included in the design of Alternative 4 (park-and-ride facilities, tolling for operations, and managed lanes volume control), the amount of VMT would be reduced by 13,460,000 VMT annually. Therefore, Alternative 4 would result in 84,946,000 VMT annually that would require mitigation. Mitigation Measures T-1 through T-5 would be implemented, which 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. Refinement of these mitigation measures and policies/commitments surrounding the implementation of such measures will be further developed after public input is received from the circulation of the Draft Environmental Document.

### **S.3.6 Visual/Aesthetics**

Under the Build Alternatives, construction equipment and materials may be visible to both traveling viewers and neighbors within areas under active construction.

Construction signage, traffic control devices, flaggers, dust, and night lighting may also affect views within the Project Area. Construction of the Build Alternatives would occur in phases and would not occur along the entire length of the Project Area at any given time. Construction associated with the Build Alternatives would result in

adverse short-term visual impacts; however, these impacts would be temporary in nature.

The Build Alternatives would add visual elements to the existing highway corridor, but in most cases would not substantially change viewers visual environment. All elements of the Build Alternatives would be compatible and unified with the existing visual environment. Proposed visual changes would not substantially change viewer activities or awareness. Implementation of PF-VIA-1 would address and Measure VIA-1 would minimize potential adverse effects related to the construction of new park-and-ride facilities under the Build Alternatives.

The duration in which highway users would view the Build Alternatives would decrease as congestion eases. Existing vegetation, land cover, and topography would continue to block or obscure most views of the Build Alternatives for most highway neighbors. Replacement of existing lighting with new light-emitting diode (LED) lighting may slightly change night lighting, and additional safety lighting would be provided for new ELs under Alternatives 3 and 4. While new lighting would likely be noticeable, with implementation of Project Feature PF-VIA-2, new lighting would not substantially change existing visual conditions.

The Build Alternatives would implement Project Features PF-VIA-1 and PF-VIA-2 (Section 2.6, Visual/Aesthetics) to address visual impacts related to the Build Alternatives. In addition, Measure VIA-1 (Section 2.6, Visual/Aesthetics) would be implemented to avoid and/or minimize visual impacts potentially caused by the Build Alternatives.

### **S.3.7 Cultural Resources**

Construction of the Build Alternatives would require ground disturbance; however, there are no historic properties within the Project APE that are eligible for inclusion in the NRHP. Therefore, the construction of the Build Alternatives would not affect historic properties. There is always a potential for previously undocumented cultural materials or human remains to be unearthed during site preparation, grading, or excavation for any of the Build Alternatives. Those potential effects would be addressed through implementation of PF-CR-1 through PF-CR-3.

Because there are no historic properties within the Project APE that are eligible for inclusion in the NRHP, operation of the Build Alternatives would not affect historic properties. Furthermore, there are no cultural resources present within the APE that

would trigger the requirements for protection under Section 4(f). Therefore, the Build Alternatives would not result in long-term impacts to cultural resources.

### **S.3.8 Hydrology and Floodplains**

The proposed improvements of the Build Alternatives over the waterways along the Project limits do not include any widening; therefore, the Build Alternatives would not result in any hydraulic impacts or change in water surface elevations for any of the three Build Alternatives. The Build Alternatives would not create an adverse effect on channel hydraulics or water surface elevations.

The Build Alternatives would not result in a change in the 100-year floodplain elevations. The Build Alternatives do not constitute a significant floodplain encroachment. The combined assessed level of risk associated with risks to life and property, risks to natural and beneficial floodplain values, and risks of probable incompatible floodplain development is minimal.

During operation of the Build Alternatives, a substantial increase in pollutant load is not expected to occur, and BMPs would be included in the Build Alternatives to capture and treat stormwater runoff before it reaches drainages. Therefore, no operational impacts to channel areas are expected.

### **S.3.9 Water Quality and Storm Water Runoff**

During construction, Alternative 2 would disturb a total of 2.60 acres of surface area, Alternative 3 would disturb a total area of 9.03 acres of surface area, and Alternative 4 would disturb a total of 24.61 acres of surface area. Under all of the Build Alternatives there is the potential for construction-related pollutants to spill, leak, or to be transported via stormwater runoff into drainages adjacent to the Project Area and downstream receiving waters. Additionally, during a storm event, soil erosion of disturbed and exposed soil could occur at an accelerated rate. PF-WQ-2 and PF-WQ-3 would ensure that construction activities associated with the Build Alternatives would comply with the requirements of the construction general permit (CGP). In compliance with the CGP, preparation of a SWPPP and implementation of Construction BMPs would be required to identify sources of stormwater pollution, minimize erosion, control stormwater, and prevent spills.

Alternative 2 is anticipated to be Risk Level 2 under the CGP and, therefore, effluent monitoring for pH and turbidity levels would be required during storm events. Properly designed BMPs, with appropriate implementation and maintenance, as incorporated by PF-WQ-2 and PF-WQ-3, would retain pollutants on site and prevent

them from entering receiving waters. Therefore, no adverse water quality impacts are anticipated during construction of Alternative 2.

Construction of Alternatives 3 and 4 may include driving sheet piles for foundation support and shoring operations. During these operations, if groundwater is encountered, dewatering would be required. PF-WQ-6 ensures that construction activities associated with Alternatives 3 and 4 would comply with the requirements of Order No. R8-2020-006 or Order No. R4-2018-0125 and discharges from construction groundwater extraction waste would be monitored. With implementation of PF-WQ-6, no substantial changes to groundwater quality are anticipated.

Alternative 2 would result in a permanent net increase in impervious surface area of 2.10 acres, Alternative 3 would result in a permanent increase in impervious surface area of 10.69 acres, and Alternative 4 would result in a permanent increase in impervious surface area of 19.86 acres. BMPs for the Build Alternatives would treat 100 percent of the new and replaced impervious surface areas, providing water quality benefits to on-site drainages and downstream receiving waters.

The Build Alternatives would construct two park-and-ride facilities within the existing I-5 ROW. Therefore, under the Construction General Permit, the Build Alternatives would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and implement construction Best Management Practices (BMPs) aimed at reducing pollutants of concern in stormwater runoff. The construction BMPs would include Erosion Control, Sediment Control, and Good Housekeeping BMPs designed to minimize erosion, retain sediment on site, and prevent spills. There are no proposed construction activities in the channels crossing or under the Project Area; therefore, there is no impact to the beneficial floodplain values.

Potential pollutants associated with the implementation of the Build Alternatives during the post-construction phase include: sediment from natural erosion; nutrients; mineralized organic matter in soils; nitrite discharges from automobile exhausts and atmospheric fallout; litter; metals from the combustion of fossil fuels, the wearing of brake pads, and corrosion of galvanized structures, and trash impairments. Treatment BMPs would be implemented under the Build Alternatives to target these pollutants of concern. PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7 would ensure compliance with the Caltrans NPDES Permit and the Caltrans Statewide Trash Implementation Plan (Caltrans 2019) to reduce the discharge of pollutants of concern to the maximum extent practicable. Therefore, the Build Alternatives would not result in any adverse



impacts to water quality during operation with inclusion of Project Features PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7.

### **S.3.10 Geology/Soils/Seismic/Topography**

Construction activities could be affected by ground motion from seismic activities. Possible ground rupture, liquefaction, and slumping or slope failure 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.

The Build Alternatives would not result in permanent substantive changes to the topography in the Project Area because the improvements would generally be constructed at or close to the same grade as the existing facility and would be designed to conform to current design standards. In general, the erosion potential of soils within the Project Area is considered low to moderate. However, in the event of an earthquake, surface settlement could occur, which could damage the proposed roadway and compromise the integrity of proposed embankments, ramps, retaining walls, and other structures. 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 Measure GEO-1, to substantially reduce the geologic risks. Additionally, revegetation of graded slopes as specified in PF-GEO-1 would be performed prior to construction of the Build Alternatives to address soil erodibility.

The Project Area is located within the Los Angeles Basin, which is known to be seismically active. Depending on site-specific conditions, the Build Alternatives have the potential to also be underlain by liquefiable soil, thus potentially exposing the traveling public to hazards such as earthquakes and liquefaction. Construction of improvements under Alternative 2 would result in ground disturbance of up to 5 feet and construction of the improvements under Alternatives 3 and 4 would result in ground disturbance of up to 25 feet. With implementation of Project Feature PF-GEO-1 and measure GEO-1, Alternatives 3 and 4 would be designed to conform to Caltrans' seismic and design criteria reducing geologic risks. Therefore, the Build Alternatives would not result in substantial long-term impacts to geology, soils, seismicity, and topography.

### **S.3.11 Paleontology**

The Project Area contains geologic units that have high paleontological sensitivity. Ground disturbance associated with Alternative 2 is limited in aerial extent and depth, reaching a maximum depth of 5 feet, and would not reach deposits with high paleontological sensitivity. Therefore, Alternative 2 as proposed, would not result in permanent adverse impacts related to paleontological resources.

Construction of Alternatives 3 and 4 would require ground disturbance, excavation, and modifications to existing freeway and local street facilities and structures. Specifically, if construction of either Alternative 3 or 4 requires excavation that extends more than 10 feet below the original ground surface, those activities could result in impacts to paleontological resources. PF-PAL-1 and Mitigation Measure PAL-1 would be implemented to establish for the treatment of paleontological resources during project construction.

### **S.3.12 Hazardous Waste/Materials**

Temporary impacts related to hazardous waste/materials during construction could occur within the maximum disturbance limits for the Build Alternatives. There is the likely presence of soils with elevated concentrations of lead as a result of aerially deposited lead (ADL) on the State Highway system ROW within the limits of Alternatives 3 and 4. Additionally, there is the potential for lead contamination to exist within exposed soils along the I-5 ROW due to ADL. Project Feature PF-HAZ-1 requires that ADL studies be conducted along the I-5 ROW within the proposed disturbance limits during final design to determine whether contamination exists in association with ADL.

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 those materials. As a result, the Build Alternatives would not result in adverse impacts related to the use of hazardous materials or the generation of hazardous wastes during construction.

There may be PCBs in pad- and pole-mounted transformers within the maximum disturbance limits for the Build Alternatives. Leaking transformers were not observed during the site reconnaissance visit. No electrical transformers or equipment are anticipated to be removed or relocated under the Build Alternatives. If any leaking

transformers are noted during construction of the Build Alternatives, those leaks will be considered a PCB hazard unless tested and confirmed otherwise and must be handled accordingly. Measure HAZ-1 would minimize the effects of PCB hazards during construction of the Build Alternatives.

Yellow traffic striping and pavement-marking materials that would be removed from the I-5 mainline and ramps during construction of the Build Alternatives may contain elevated concentrations of metals such as lead chromate. PF-HAZ-2, which would require the proper removal, handling, and disposal of traffic striping waste, would address the potential effect on construction workers and the surrounding environment.

The Project Area is not generally known to contain naturally occurring asbestos (NOA) and the likelihood of encountering structural asbestos during demolition activities is low due to the nature of the demolished materials (concrete and metal piping). Prior to the commencement of construction, qualified geologists would further examine the soils and makeup of the existing structure. Should the Project geologist encounter asbestos during the analysis, proper procedures from 29 CFR Section 1926.1101 would be executed to handle the materials. Therefore, the impact from NOA during construction would be minimal to none.

Based on the construction dates of the structures within the disturbance limits, asbestos containing materials (ACMs) and lead based paints (LBP) may be present in bridges. Although no bridge structures are expected to be affected by construction of the Build Alternatives, ACMs and LBP represent a concern when they are subject to damage. Project Feature PF-HAZ-3 requires proper testing, monitoring, removal, and disposal of ACMs and LBP.

During construction of the Build Alternatives, there is the potential for discovery of unknown hazards. Project Feature PF-HAZ-4 will ensure impacts related to unknown hazards are minimal.

The Study Area could contain treated wood waste from existing and historical railroad usage, guardrail posts, and utility poles in the maximum disturbance limits. Treated wood waste, including wood railroad ties, power poles, or guardrail posts (including previously salvaged treated wood) has the potential to contain hazardous materials. Project Feature PF-HAZ-5 requires proper management or disposal of treated wood waste if removed during construction of Alternatives 3 and 4.

No soil or groundwater contamination has been identified within the Study Area. As specified in PF-WQ-4 (Section 2.9), if dewatering is required, construction site dewatering will comply with one of two orders or any subsequent orders that apply to groundwater discharges to surface waters within the Santa Ana Region, depending on the depth and quality of the groundwater. As a result, the Build Alternatives would not result in adverse impacts related to contaminated soil and/or groundwater.

With implementation of the above Project Features, construction of the Build Alternatives would not result in adverse impacts related to hazardous waste or materials.

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. Therefore, the operation of the Build Alternatives would not result in adverse impacts related to hazardous waste or materials.

### **S.3.13 Air Quality**

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment powered by gasoline and diesel engines are also anticipated. Construction activities are also expected to increase traffic congestion in the area, resulting in increases in emissions from traffic during the delays. These emissions would be temporary and limited to the immediate area surrounding the construction site. With the implementation of standard construction measures as well as Project Features PF-AQ-1, fugitive dust and exhaust emissions from construction activities associated with the Build Alternative would not result in any adverse air quality impacts.

As discussed above in Section S.1.12, soils adjacent to paved areas within the ROW may contain ADL from vehicle exhaust, and yellow pavement traffic markings (thermoplastic and paint) on I-5 and the arterials crossing I-5 may potentially contain hazardous levels of lead chromate. PF-HAZ-1 and PF-HAZ-2 would be implemented to address potential impacts related to ADL and lead chromate.

The Build Alternatives are currently included in the future commitments section of the Connect SoCal 2020–2045 RTP/SCS and in the 2023 FTIP under ID No. ORA210604 (SCAG 2021a). However, the Build Alternatives are 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 2023 FTIP on October 6, 2022, and SCAG and FHWA both approved the 2023 FTIP and determined that it conforms to the SIP on January 27, 2023.

The Project Area is within an attainment/maintenance area for federal carbon monoxide (CO) standards, a nonattainment area for federal particles of 2.5 micrometers and smaller (PM<sub>2.5</sub>) standards, and an attainment/maintenance area for federal particles of 10 micrometers or smaller (PM<sub>10</sub>) standards.

However, the Build Alternatives would be considered satisfactory under Caltrans CO Protocol, and it would not create a new, or worsen an existing PM<sub>2.5</sub> or PM<sub>10</sub> violation. Additionally, the emission effects of the Build Alternatives would be low, and emissions with the Build Alternatives would be reduced from the existing condition. Therefore, it is expected that there would be no appreciable difference in overall mobile-source air toxics (MSATs) emissions between the No Build condition and the Build Alternatives. The Build Alternatives would also have a decrease in CO and particulate matter (PM) exhaust emissions when compared to the Existing Condition levels. The Build Alternatives would not produce substantial operational air quality impacts.

### **S.3.14 Noise**

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 includes the areas around the proposed park-and-ride facilities only). Temporary construction noise impacts related to the Build Alternatives would be unavoidable to 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.

Potential long-term noise impacts associated with the Build Alternatives are solely from traffic noise. Long-term noise impacts associated with Alternative 2 were assumed to be the same as the No Build Alternative as it would maintain the existing highway lane configuration and would not increase the highway capacity.

Of the 1,742 modeled receptors, 304 receptors under Alternative 3 and 304 receptors under Alternative 4 would approach or exceed the NAC. Of the 304 impacted receptors under Alternatives 3 and 4, none of the receptors would experience a

substantial noise increase (12 dB increase in the Design Year [2055] condition from the Existing Condition). Noise abatement measures such as noise barriers were considered in order to shield receptors within the Study Area that would become or would continue to be exposed to traffic noise levels approaching or exceeding the NAC. All properties requiring abatement consideration are within Activity Categories B, C, and E (67, 67, and 72 dBA Leq NAC, respectively). Noise barriers were analyzed for each of these receptor locations. Of the 33 modeled noise barriers evaluated for Alternatives 3 and 4, 5 noise barriers were determined to be feasible. The remaining noise barriers were determined to be not feasible because the noise barriers were not capable of reducing noise levels by 5 dBA or more at impacted receptors. Of the 5 noise barriers determined to be feasible, only one (NB No. Seg1D-SB2-A) was determined to also be reasonable (refer to Appendix J). Measure N-1 requires noise abatement in the form of a noise barrier at Seg1D-SB2-A under Alternatives 3 and 4 be considered for construction. Implementation of Measure N-1 would minimize operational noise impacts on sensitive land uses adjacent to the Project Area. Noise abatement measures may change based on input received from the public. The final decision on noise abatement will be made upon completion of Project design.

### **S.3.15 Energy**

Construction of the Build Alternatives would primarily consume diesel and gasoline through operation of heavy-duty construction equipment, material deliveries, and debris hauling. 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 123,746 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. Implementation of PF-AQ-1 requiring compliance with Caltrans Standard Specifications Section 14-9 would address energy impacts resulting from construction activities. Therefore, the Build Alternatives would not result in an inefficient, wasteful, and unnecessary consumption of energy.

Operation of 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 condition and also a decrease in gasoline fuel consumption compared to the No Build and Existing (2022) condition in both the opening and future years. The Build Alternatives are expected to improve the overall movement of people and goods along this section of I-5 and reduce energy consumption. As such operation of the Build Alternatives would not result in a wasteful, inefficient, or unnecessary consumption of energy.

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 Build Alternatives are 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 Build Alternatives are 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 be consistent with regional, State, and local energy conservation plans. 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. Measure GHG-2 would require the use of highly efficient light-emitting diodes (LEDs), which would reduce energy consumption.

### **S.3.16 Natural Communities**

The only habitat and natural community of special concern within the biological study area (BSA) is riparian, in the form of freshwater marsh. Implementation of Alternative 2 would not result in temporary impacts to freshwater marsh. Implementation of Alternatives 3 and 4 would result in temporary impacts to the entirety (0.04 acre) of the freshwater marsh land cover within the BSA. Temporary direct impacts of Alternatives 3 and 4 would include vegetation removal, grubbing,

and/or grading. Temporary indirect impacts 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 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 would address, and measures NAT-1 and NAT-2 would minimize, potential indirect impacts to adjacent habitats resulting from general construction activities. Stormwater and litter impacts would be avoided through compliance with the Construction General Permit and implementation of Project-specific BMPs included in PF-WQ-3 and PF-WQ-4 (Section 2.9).

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, this species 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 substantial adverse temporary impacts to wildlife movement.

The Build Alternatives would not result in permanent impacts to riparian habitat in the form of freshwater marsh. Furthermore, implementation of the Build Alternatives is not expected to permanently affect wildlife movement or decrease the functionality of any wildlife crossings within the BSA. No permanent barriers would be placed within any known wildlife movement corridors.

### **S.3.17 Wetlands and Other Waters**

Construction of Alternative 2 would not result in temporary impacts to jurisdictional features as jurisdictional features are absent from the impact area.

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 and RWQCB jurisdiction. Alternative 3 would result in 3.29 acres of temporary impacts to aquatic resources subject to CDFW jurisdiction.

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 and RWQCB jurisdiction. Alternative 4 would result in 4.50 acres of temporary impacts to drainages subject to CDFW jurisdiction.



With implementation of Measure WET-1 requiring the Project to obtain the necessary regulatory permits through the USACE, RWQCB, and CDFW prior to construction, along with implementation of PF-WQ-1 (Section 2.9), and PF-NAT-1 through PF-NAT-5, along with measures NAT-1 and NAT-2 (Section 2.16), potential temporary impacts to jurisdictional areas associated with construction of Alternatives 3 and 4 would not be adverse.

There is also the potential for temporary indirect water quality impacts through sediment introduction and transport downstream during construction of the Build Alternatives. Implementation BMPs in the SWPPP (Section 2.9) would address indirect impacts to jurisdictional areas during construction of the Build Alternatives.

Implementation of the Build Alternatives would not result in permanent impacts to jurisdictional features within the BSA. Therefore, the Build Alternatives would not result in adverse permanent impacts to USACE, CDFW, or RWQCB areas in the BSA and no compensatory mitigation is required or warranted.

### **S.3.18 Plant Species**

No special-status plant species (i.e., listed, proposed for listing, or candidate species) were observed or otherwise detected in the BSA at the time of the 2022 focused surveys. The BSA does not contain, nor is it adjacent to, suitable habitat for any special-status plant species identified in the literature search, with the possible exception of 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.

The Build Alternatives are expected to have no effect on any of the federally or State-listed species identified as potentially occurring within the BSA because although suitable habitat for one listed species is present, it is not expected to occur within the BSA.

Suitable habitat for the special-status plant species listed above with potential to occur in the BSA is absent from the Alternative 2 impact area. Additionally, none of these species were observed or otherwise detected during the 2022 focused surveys. Therefore, construction of Alternative 2 would not result in temporary impacts on special-status plant species.

Special-status plant species do not appear to occur in the BSA, and Alternatives 3 and 4 would not result in temporary impacts to special-status plant species. However,

Alternatives 3 and 4 would temporarily impact marginally suitable habitat for special-status plant species but are not likely to result in temporary impacts to individuals. To minimize potential direct and indirect impacts to suitable habitat for special-status plant species, PF-NAT-1 through PF-NAT-5, PF-WQ-3, PF-WQ-4, and measures NAT-1 and NAT-2, would be implemented during construction of Alternatives 3 and 4. To further avoid temporary impacts to Gambel's watercress and other special-status species that have suitable habitat within the BSA, PL-1 requiring pre-construction clearance surveys would be implemented during construction of Alternatives 3 and 4.

Operation of the Build Alternatives would not result in permanent impacts on special-status plant species.

### **S.3.19 Animal Species**

One special-status animal species, great blue heron, was observed or otherwise detected in the BSA during the 2022 field surveys. Twenty-nine other special-status animal species have the potential to occur in the BSA. The proposed Project has been determined to have no effect on any species federally or State-listed as endangered or threatened that has been identified as potentially occurring within the vicinity of the proposed Project. Additionally, the Build Alternatives do not have any effect on non-listed special-status animal species.

Monarch butterfly is not anticipated to occur within the landscaped habitat that would be temporarily removed by construction of the Build Alternatives. Up to 1.23 acres of temporary impacts to marginally suitable habitat, in the form of landscaped areas, are anticipated to occur with construction of Alternative 2. Up to 132.43 acres and 132.48 acres of temporary impacts to marginally suitable habitat are anticipated to occur with construction of Alternatives 3 and 4, respectively.

Construction of the Build Alternatives is anticipated to temporarily impact suitable habitat for the coastal whiptail, coast horned lizard, and coast patch-nosed snake. Implementation of Measures PL-1 and IS-1 would ensure that potential temporary impacts to these species during construction of the Build Alternatives would not be adverse.

Construction of the Build Alternatives could also temporarily impact nesting birds protected under the MBTA and the California Fish and Game Code. With implementation of PF-ANS-1 through PF-ANS-5, potential temporary impacts to nesting birds during construction of the Build Alternatives would not be adverse.

Activities associated with construction of the Build Alternatives are not anticipated within suitable habitat for western ridged mussel, arroyo chub, Santa Ana speckled dace, arroyo toad, western spadefoot, western pond turtle, and two-striped garter snake. No modifications to suitable habitat are proposed, and no barriers to fish passage would be created by the Build Alternatives.

Bat roosting habitat would not be subject to direct impacts from construction activities associated with Alternative 2 but would be subject to direct impacts from construction of Alternatives 3 and 4. In addition to Project Features, implementation of Measures ANS-1 through ANS-11 would ensure that potential temporary impacts to bats and bridge- and crevice-nesting species during construction of the Build Alternatives would not be adverse.

Construction of the Build Alternatives may result in indirect temporary effects to suitable habitat for 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, and roosting bats. Implementation of PF-NAT-1 through PF-NAT-5 and measures NAT-1 and NAT-2 would ensure that indirect impacts to suitable habitat for these species are avoided and minimized. Additionally, implementation of Measures ANS-1 through ANS-11 would ensure that potential temporary impacts to bats and bridge- and crevice-nesting species during construction of the Build Alternatives would not be adverse.

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. Additionally, the Build Alternatives would not result in any permanent direct impacts on nesting birds. With implementation of PL-1, PF-ANS-1 through PF-ANS-5, and Measures ANS-1 through ANS-11, potential direct and indirect permanent impacts to these species resulting from implementation of the Build Alternatives would not be adverse.

### **S.3.20 Invasive Species**

The Build Alternatives have the potential to spread invasive species to adjacent native habitats in the BSA through the entering and exiting of contaminated construction equipment, the inclusion of invasive species in seed mixtures and mulch, and the

improper removal and disposal of invasive species causing seed to spread along the highway. With implementation of Measure IS-1 requiring compliance with Executive Order (EO) 13112, potential permanent impacts under the Build Alternatives related to invasive species would not be adverse.

### **S.3.21 Cumulative Impacts**

The cumulative impact analysis methodology utilized was based on the eight-step process set forth in the California Department of Transportation (Caltrans) *Standard Environmental Reference (SER) Guidance for Preparers of Cumulative Impact Analysis* (2005). Cumulative impacts for coastal zone, wild and scenic rivers, land use, parks and recreation, farmlands and timberlands, growth, utilities and emergency services, visual/aesthetics, cultural resources, hydrology and floodplains, geology/soils/seismic/topography, air quality, noise, natural communities, wetlands and other waters, plant species, animal species, and invasive species are either not anticipated or were already analyzed in a cumulative context. The Build Alternatives would have a similar potential contribution to cumulative impacts for community impacts, water quality, hazards and hazardous materials, and paleontology. However, Alternative 4's VMT net change would exceed respective thresholds and result in significant and unavoidable impacts. Even with implementation of the limited feasible mitigation measures discussed above, the VMT generated as a result of the Build Alternatives cannot be reduced to levels that would be less than significant. Therefore, the contribution of the Build Alternatives to cumulative transportation impacts from increases in VMT would be considerable and significant. No mitigation measures beyond the measures identified in T-1 through T-5 (Section 3.1.17) are available. Therefore, this cumulative impact would be significant and unavoidable.

During construction of the Build Alternatives, community members would still be able to use community services and facilities. However, there would be some degree of inconvenience due to construction-related delays, temporary closures, and construction equipment operation. Implementation of a TMP (PF-TR-1) would minimize or address these temporary impacts. One benefit to community character and cohesion is that construction jobs would generate temporary employment and revenues for both local and regional economies.

It is unlikely that community character and cohesion would be permanently impacted by the Build Alternatives in any of the cities within the RSA. It is also important to note that I-5 has been a prominent transportation corridor in the area since the late 1950s, and most of the communities in the RSA have been established adjacent to the

existing I-5 ROW. Changes associated with the Build Alternatives would result in minimal alterations to community character and cohesion, and no substantial adverse effects to communities would occur. The Build Alternatives would not change the fundamental nature of adjacent communities and would not contribute to a considerable cumulative impact to community character and cohesion. Mitigation would not be required. Additionally, the Build Alternatives, in combination with other planned projects, would not contribute to a considerable cumulative impact with respect to displacements in the community, and mitigation would not be required.

Construction activities associated with the Build Alternatives would temporarily affect residents and businesses in the Study Area. Those impacts would include temporary disruptions of local traffic patterns, delay times, congestion, noise levels, vibration, and dust. Implementation of PF-AQ-1, PF-TR-1, and compliance with Caltrans Standard Specifications Section 14-8.02 (PF-N-1) would address temporary impacts. Therefore, the Build Alternatives would not result in any temporary adverse effects on the overall population in the Study Area (environmental justice and non-environmental justice populations).

Completion of Alternatives 3 and 4 would contribute to improving trip reliability and Express Lane (EL) operation along I-5 within the Project Area; however, those benefits would not extend to low-income and minority motorists if they are unable to purchase/obtain a FasTrak transponder and maintain funding in a FasTrak account in order to use the ELs. Implementation of the EAP (Measure EQ-1) would ensure that Alternatives 3 and 4 would deliver transportation benefits to all populations, including traditionally underserved populations. Overall, all population groups, including underserved population groups, would benefit from reliable and predictable travel times on the I-5 ELs between Los Angeles and Orange counties. Therefore, the Build Alternatives would not result in any permanent adverse effects to environmental justice populations or underserved populations. Additionally, the Build Alternatives would not contribute to a considerable cumulative impact to environmental justice communities or underserved populations, and mitigation would not be required.

In regard to water quality, receiving waters that could be impacted by the Build Alternatives include Coyote Creek, Fullerton Creek, Carbon Creek, Lower Santiago Creek (or Santiago Creek Reach 1), Santa Ana River Reaches 1 and 2, Bolsa Chica Channel, San Diego Creek Reach 1, and Peters Canyon Wash. Receiving waters in the Study Area are not used for drinking water or water recharge. Temporary

construction-related impacts would be avoided and/or minimized by the implementation of PF-WQ-2, PF-WQ-3, and PF-WQ-6, which require compliance with the Construction General Permit and Stormwater Pollution Prevention Plan and local National Pollutant Discharge Elimination System (NPDES) permits. Therefore, construction of the Build Alternatives would not result in any temporary adverse impacts to water quality.

The Build Alternatives would result in a permanent net increase in impervious surface area. An increase in impervious surface area would increase the volume of runoff during a storm, thereby increasing the potential for more effectively transporting pollutants to receiving waters. Also, an increase in impervious surface area would increase the total amount of pollutants in stormwater runoff and nonstormwater runoff, which would increase the amount of pollutants traveling to on site drainages and downstream receiving waters. Project Features PF-WQ-1, PF WQ-4, PF-WQ-5, and PF-WQ-7 would require the implementation of Caltrans-approved Treatment BMPs, Design Pollution Prevention BMPs, and full trash capture (FTC) measures to address the discharge of pollutants of concern. BMPs would treat 100 percent of the new impervious surface area, providing water quality benefits to on-site drainages and downstream receiving waters. Therefore, operation of the Build Alternatives would not result in any permanent adverse impacts to water quality. Because the Build Alternatives and other cumulative projects would comply with applicable NPDES requirements and would include BMPs to reduce the volume of stormwater runoff and pollutants of concern in stormwater runoff, the cumulative hydrology and water quality impacts of the Build Alternatives and the related projects would be less than significant. Therefore, the Build Alternatives would not contribute to a considerable cumulative impact related to hydrology and water quality, and mitigation would not be required.

In regard to hazards and hazardous materials, potential sources of hazardous materials within the Project Area include the presence of residual hazardous waste/materials from Recognized Environmental Condition (REC) sites, herbicides and pesticides used in former agricultural properties, and potential asbestos-containing materials (ACM) and lead-based paint (LBP). 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. Implementation of PF-HAZ-1 through PF-HAZ-5 along with measure HAZ-1, in addition to adherence 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 would address and avoid and/or minimize impacts related to hazardous waste/materials. Therefore, the Build Alternatives would not result in any temporary or permanent adverse hazardous waste/materials impacts. Similar to the Build Alternatives, cumulative 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 cumulative planned projects, would not result in substantial cumulative hazardous waste/materials impacts, and mitigation would not be required.

### **S.3.22 SB 743**

Per SB 743, Chapter 386 (September 2013), the metric of consideration for transportation impacts pursuant to CEQA has changed from a focus on automobile delay to alternative methods focused on VMT, to promote the State's goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

Please refer to the discussion in Section S.1.5 regarding the Build Alternatives' impacts related to VMT.

### **S.3.23 Climate Change**

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 the emissions of GHGs. Implementation of GHG-reduction measures GHG-1 through GHG-3, would address GHG emissions and potential climate change impacts from the Build Alternatives.

In addition, the three Build Alternatives do not exacerbate the risk factors associated with Climate Change for the Project Area and its facilities.

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Land Use	<ul style="list-style-type: none"> <li>No temporary or permanent impacts to existing or planned land uses or land use compatibility would occur.</li> <li>Consistent with the goals and policies of State, regional, and local plans and programs.</li> <li>No temporary or permanent adverse effects related to parks and recreation facilities or Section 4(f) resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would require staging areas for two proposed park-and-ride facilities within the I-5 ROW and to allow access for potential HOV lane restriping and signage changes.</li> <li>Dust and air pollution resulting from construction activities would be addressed through implementation of PF-AQ-1. Temporary impacts due to construction of the Alternative 2 are not considered to be substantial.</li> <li>PF-AQ-1 and PF-N-1 would apply to address temporary impacts to land use on construction staging areas.</li> <li>PF-TR-1 would apply to address temporary impacts during full or partial road and facility closures.</li> <li>No permanent property acquisitions or relocations would be required.</li> <li>With implementation of Measure LU-1, Alternative 2 would not result in any inconsistencies with State, regional, or local plans and policies.</li> <li>Construction of Alternative 2 would not entail construction staging areas within or adjacent to any identified park or recreational facility within the Study Area. Alternative 2 would not result in any permanent use of land from parks and recreational facilities within the Study Area.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would require six construction staging areas within existing State ROW that would be utilized for staging of construction equipment.</li> <li>Dust and air pollution resulting from construction activities would be addressed through implementation of PF-AQ-1. Temporary impacts due to construction of Alternative 3 are not considered to be substantial.</li> <li>PF-AQ-1 and PF-N-1 would apply to address temporary impacts to land use on construction staging areas.</li> <li>PF-TR-1 would apply to address temporary impacts during full or partial road and facility closures.</li> <li>No permanent property acquisitions or relocations would be required.</li> <li>With implementation of Measure LU-1, Alternative 3 would not result in any inconsistencies with State, regional, or local plans and policies.</li> <li>Construction of Alternative 3 would not entail construction staging areas within or adjacent to any identified park or recreational facility within the Study Area. Alternative 3 would not result in any permanent use of land from parks and recreational facilities within the Study Area.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would require six construction staging areas within existing State ROW that would be utilized for staging of construction equipment.</li> <li>Dust and air pollution resulting from construction activities would be addressed through implementation of PF-AQ-1. Temporary impacts due to construction of Alternative 4 are not considered to be substantial.</li> <li>PF-AQ-1 and PF-N-1 would apply to address temporary impacts to land use on construction staging areas.</li> <li>PF-TR-1 would apply to minimize temporary impacts during full or partial road and facility closures.</li> <li>No permanent property acquisitions or relocations would be required.</li> <li>With implementation of Measure LU-1, Alternative 4 would not result in any inconsistencies with State, regional, or local plans and policies.</li> <li>Construction of Alternative 4 would not entail construction staging areas within or adjacent to any identified park or recreational facility within the Study Area. Alternative 4 would not result in any permanent use of land from parks and recreational facilities within the Study Area.</li> </ul>



**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Growth	<ul style="list-style-type: none"> <li>The No Build Alternative would maintain the existing I-5 facility and the current configuration of ramps, auxiliary lanes, overcrossing and undercrossings, and signage in the Project Area. The No Build Alternative would not influence the rate, type, or amount of growth, and would not result in unplanned growth in the Study Area.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would not provide new transportation facilities, nor would it create new access points to areas previously not accessible, and would therefore not result in changes in accessibility to the transportation system in the Study Area.</li> <li>Alternative 2 is intended to accommodate approved and planned growth in the Study Area. Alternative 2 may make growth in the Study Area more attractive; however, a substantial number of development projects were proposed and approved prior to the initiation of the proposed Project, which would not influence growth beyond what is currently planned.</li> <li>Alternative 2 would not influence the rate, type, amount, and/or location of growth in the Study Area cities beyond what is currently approved and planned for the area, and it would not result in any growth-related effects.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would not provide new transportation facilities, nor would it create new access points to areas previously not accessible, and would therefore not result in changes in accessibility to the transportation system in the Study Area.</li> <li>Alternative 3 is intended to accommodate approved and planned growth in the Study Area. Alternative 3 may make growth in the Study Area more attractive; however, a substantial number of development projects were proposed and approved prior to the initiation of the proposed Project, which would not influence growth beyond what is currently planned.</li> <li>Alternative 3 would not influence the rate, type, amount, and/or location of growth in the Study Area cities beyond what is currently approved and planned for the area, and it would not result in any growth-related effects.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would not provide new transportation facilities, nor would it create new access points to areas previously not accessible, and would therefore not result in changes in accessibility to the transportation system in the Study Area.</li> <li>Alternative 4 is intended to accommodate approved and planned growth in the Study Area. Alternative 4 may make growth in the Study Area more attractive; however, a substantial number of development projects were proposed and approved prior to the initiation of the proposed Project, which would not influence growth beyond what is currently planned.</li> <li>Alternative 4 would not influence the rate, type, amount, and/or location of growth in the Study Area cities beyond what is currently approved and planned for the area, and it would not result in any growth-related effects.</li> </ul>
Community Impacts	<p>Community Character and Cohesion:</p> <ul style="list-style-type: none"> <li>The continuance or worsening of HOV degradation and congestion levels along I-5 could negatively affect the ability of the public to travel easily within Orange and Los Angeles counties and may result in other permanent impacts to community</li> </ul>	<p>Community Character and Cohesion:</p> <ul style="list-style-type: none"> <li>Temporary impacts associated with construction activities would be addressed with implementation of Caltrans Standard Specifications Section 14-9 (PF-AQ-1), Caltrans Standard Specifications Section 14-8.02 (PF-N-1), and PF-TR-1 (TMP).</li> <li>No temporary or permanent impacts to existing pedestrian and bicycle facilities are anticipated.</li> <li>Would improve traffic safety and could</li> </ul>	<p>Community Character and Cohesion:</p> <ul style="list-style-type: none"> <li>Temporary impacts to the community related to short-term closures of local ramps. Access to the freeway may be limited intermittently during construction due to improvements to on- and off-ramps in the Project Area.</li> <li>Temporary impacts associated with construction activities would be addressed with implementation of Caltrans Standard Specifications</li> </ul>	<p>Community Character and Cohesion:</p> <ul style="list-style-type: none"> <li>Temporary impacts to the community related to 55-hour weekend closures of the SR-57 HOV connectors as well as short-term closures of local ramps. Access to the freeway may be limited intermittently during construction due to improvements to on- and off-ramps in the Project Area.</li> <li>Temporary impacts associated with construction activities would be</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
	<p>character and cohesion factors.</p> <p>Acquisitions:</p> <ul style="list-style-type: none"> <li>The No Build Alternative would not result in any right of way acquisitions (e.g., full acquisition, partial acquisition, aerial easements, temporary construction easements).</li> </ul> <p>Environmental Justice:</p> <ul style="list-style-type: none"> <li>Existing operation and capacity constraints on the current I-5 mainline and its HOV lanes would remain, which may affect the overall population in the Study Area, including environmental justice populations.</li> </ul> <p>Equity:</p> <ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary adverse effects on the overall population in the Study Area (including underserved population groups).</li> </ul>	<p>reduce congestion and HOV lane degradation along the I-5 corridor within the Study Area.</p> <ul style="list-style-type: none"> <li>Would not create a physical or geographic barrier between communities.</li> </ul> <p>Acquisitions:</p> <ul style="list-style-type: none"> <li>Alternative 2 is not anticipated to require additional right of way (e.g., full acquisition, partial acquisition, aerial easements, temporary construction easements).</li> </ul> <p>Environmental Justice:</p> <ul style="list-style-type: none"> <li>Study Area census tracts immediately adjacent to I-5 currently experience poorer air quality; however, compliance with Caltrans Standard Specifications, and PF-TR-1 (TMP) would ensure that low-income and minority populations would not be disproportionately adversely affected. Emissions from Alternative 2 are less than both the existing scenario and the corresponding No Build Alternative.</li> <li>Low-income and minority populations would not be disproportionately adversely affected.</li> </ul> <p>Equity:</p> <ul style="list-style-type: none"> <li>Construction activities associated with Alternative 2 would not result in disproportionately burdened, temporary adverse effects on underserved population groups.</li> <li>There would be potential impacts to</li> </ul>	<p>Section 14-9 (PF-AQ-1), Caltrans Standard Specifications Section 14-8.02 (PF-N-1), and PF-TR-1 (TMP).</p> <ul style="list-style-type: none"> <li>No permanent impacts to existing pedestrian and bicycle facilities are anticipated.</li> <li>Would address HOV lane degradation along I-5 within the Study Area.</li> <li>Alternative 3 would positively affect community character and cohesion in the Study Area by reducing travel times on I-5 and improving trip reliability on I-5 for local residents, as well as making it easier for local residents to reach community services and facilities.</li> </ul> <p>Acquisitions:</p> <ul style="list-style-type: none"> <li>Alternative 3 is not anticipated to require additional right of way (e.g., full acquisition, partial acquisition, aerial easements, temporary construction easements).</li> </ul> <p>Environmental Justice:</p> <ul style="list-style-type: none"> <li>Study Area census tracts immediately adjacent to I 5 currently experience poorer air quality. However, compliance with Caltrans Standard Specifications and implementation of PF-TR-1 (TMP) and an Equity Assistance Plan (EAP) (Measure EQ-1) that would provide assistance to individuals who meet certain income and demographic characteristics would ensure that</li> </ul>	<p>addressed with implementation of Caltrans Standard Specifications Section 14-9 (PF-AQ-1), Caltrans Standard Specifications Section 14-8.02 (PF-N-1), and PF-TR-1 (TMP).</p> <ul style="list-style-type: none"> <li>No permanent impacts to existing pedestrian and bicycle facilities are anticipated.</li> <li>Would address HOV lane degradation along I-5 within the Study Area.</li> <li>Alternative 4 would positively affect community character and cohesion in the Study Area by reducing travel times and improving trip reliability on I-5 for local residents, as well as making it easier for local community residents to reach community services and facilities. The addition of ELs would improve public accessibility to community services and facilities in the Study Area.</li> </ul> <p>Acquisitions:</p> <ul style="list-style-type: none"> <li>Alternative 4 is not anticipated to require additional right of way (e.g., full acquisition, partial acquisition, aerial easements, temporary construction easements).</li> </ul> <p>Environmental Justice:</p> <ul style="list-style-type: none"> <li>Study Area census tracts immediately adjacent to I 5 currently experience poorer air quality. However, compliance with Caltrans Standard Specifications and implementation of PF-TR-1 (TMP) and an EAP (Measure EQ-1) that</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
		<p>underserved population groups who are unable to have the minimum three vehicle occupants to use the HOV lanes. Those current HOV lane users who are able to meet the raised passenger minimums would benefit from the improved trip reliability provided by Alternative 2.</p>	<p>low-income and minority populations would not be disproportionately adversely affected.</p> <ul style="list-style-type: none"> <li>Low-income and minority populations would not be disproportionately adversely affected.</li> </ul> <p>Equity:</p> <ul style="list-style-type: none"> <li>Temporarily affects to residents and businesses in the Study Area associated with construction activities would be addressed with implementation of Caltrans Standard Specification and PF-TR-1 (TMP).</li> <li>There would be potential impacts to underserved population groups related to income or language barriers in acquiring a FastTrak account/transponder and/or maintaining adequate toll funds. Implementation of the EAP (Measure EQ-1) would ensure that Alternative 3 deliver transportation benefits to all populations, including traditionally underserved populations.</li> </ul>	<p>would provide assistance to individuals who meet certain income and demographic characteristics would ensure that low-income and minority populations would not be disproportionately adversely affected.</p> <ul style="list-style-type: none"> <li>Low-income and minority populations would not be disproportionately adversely affected.</li> </ul> <p>Equity:</p> <ul style="list-style-type: none"> <li>Temporarily affects to residents and businesses in the Study Area associated with construction activities would be addressed with implementation of Caltrans Standard Specification and PF-TR-1 (TMP).</li> <li>There would be potential impacts to underserved population groups related to income or language barriers in acquiring a FastTrak account/transponder and/or maintaining adequate toll funds. Implementation of the EAP (Measure EQ-1) would ensure that Alternative 4 would deliver transportation benefits to all populations, including traditionally underserved populations.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Utilities/ Emergency Services	<ul style="list-style-type: none"> <li>No temporary or permanent impacts associated with existing or future utilities or emergency services.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would not require the relocation or construction of new utility facilities. Additionally, there would be no substantial disruption of utility services resulting in temporary adverse effects.</li> <li>There are no expected permanent adverse effects on utility facilities and providers.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 may affect existing surface or subsurface utility facilities requiring protection in-place.</li> <li>Completion of utility work may result in temporary service disruptions to some utility users in the vicinity of the Study Area.</li> <li>Implementation of PF-UES-1 and PF-TR-1 would address temporary impacts to utility users and emergency service providers during construction.</li> <li>During operation, improvements in traffic flow of the ELs are likely to improve emergency response times within the Study Area.</li> <li>There are no expected permanent adverse effects on utility facilities and providers.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 may affect existing surface or subsurface utility facilities requiring protection in-place.</li> <li>Completion of utility work may result in temporary service disruptions to some utility users in the vicinity of the Study Area.</li> <li>Implementation of PF-UES-1 and PF-TR-1 would address temporary impacts to utility users and emergency service providers during construction.</li> <li>During operation, improvements in traffic flow of the ELs are likely to improve emergency response times within the Study Area.</li> <li>There are no expected permanent adverse effects on utility facilities and providers.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Traffic and Transportation/ Pedestrian and Bicycle Facilities	<ul style="list-style-type: none"> <li>The No Build Alternative would maintain the existing lane configurations for I-5, and the proposed improvements under the Build Alternatives would not occur.</li> <li>Traffic operations within the Study Area are expected to improve in the NB direction during the a.m. and p.m. peak hours in 2035 and 2055 at several HOV segments compared to existing conditions but would worsen in the SB direction during the a.m. and p.m. peak hours compared to existing conditions.</li> <li>There are six total intersections wherein operations under the 2035 No Build Alternative would be degraded to an LOS E or F when compared to 2022 Existing Baseline conditions.</li> </ul>	<ul style="list-style-type: none"> <li>No roadway closures are anticipated during construction of Alternative 2. No temporary or permanent impacts to existing pedestrian and bicycle facilities are anticipated.</li> <li>Proposed improvements for the HOV segments proposed by Alternative 2 under 2035 conditions and 2055 conditions are expected to improve traffic operations within the Study Area at several freeway segments over the No Build Alternative for both AM and PM peak hours.</li> <li>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.</li> <li>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.</li> <li>Alternative 2 would not result in adverse impacts related to ramp queuing.</li> <li>Alternative 2 would not add capacity to the State Highway System.</li> </ul>	<ul style="list-style-type: none"> <li>Construction of Alternative 3 would require temporary on-ramp, off-ramp, and connector closures. Implementation of PF-TR-1 will address the potential for short-term impacts related to traffic and transportation during construction.</li> <li>No permanent impacts to existing pedestrian and bicycle facilities are anticipated.</li> <li>Proposed improvements for the HOV segments proposed by Alternative 3 under 2035 conditions and 2055 conditions are expected to improve traffic operations within the Study Area at several freeway segments over the No Build Alternative for both AM and PM peak hours.</li> <li>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.</li> <li>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.</li> <li>Storage lengths provided on all on-ramps with minimum ramp metering rates are projected to be adequate under 2035 conditions for Alternative 3 and there are no off-ramp intersections where the 95th percentile ramp queue exceeds the</li> </ul>	<ul style="list-style-type: none"> <li>Construction of Alternative 4 would require temporary on-ramp, off-ramp, and connector closures. Implementation of PF-TR-1 will address the potential for short-term impacts related to traffic and transportation during construction.</li> <li>Temporary effects to freeway and local street traffic during construction.</li> <li>No permanent impacts to existing pedestrian and bicycle facilities are anticipated.</li> <li>Proposed improvements for the HOV segments proposed by Alternative 4 under 2035 conditions and 2055 conditions are expected to improve traffic operations within the Study Area at several freeway segments over the No Build Alternative for both AM and PM peak hours.</li> <li>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.</li> <li>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.</li> <li>Storage lengths provided on all on-ramps with minimum ramp metering rates are projected to be adequate under 2035 conditions for Alternative</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
			off-ramp length. <ul style="list-style-type: none"> <li>Alternative 3 would not add capacity to the State Highway System.</li> </ul>	3 and there are no off-ramp intersections where the 95th percentile ramp queue exceeds the off-ramp length. <ul style="list-style-type: none"> <li>Alternative 4 would add capacity to the State Highway System. [With implementation of Mitigation Measures T-1 through T-5, Alternative 4 would result in unmitigated 62,688,320 VMT annually. This is considered a significant and unavoidable impact under CEQA.</li> </ul>
Visual/Aesthetics	<ul style="list-style-type: none"> <li>The visual character and quality of the project site and vicinity would remain similar to the existing conditions.</li> <li>The No Build Alternative would not result in short-term visual impacts on and in the vicinity of the Project segment of I-5.</li> <li>The No Build Alternative would not result in temporary or permanent impacts associated with visual/aesthetic resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would result in temporary impacts to visual/aesthetic resources during construction.</li> <li>Implementation of PF-VIA-1 would address, and Measure VIA-1 would minimize, potential adverse effects related to the construction of new park-and-ride facilities under the Build Alternatives.</li> <li>Alternative 2 would add visual elements to the existing highway corridor but in most cases would not substantially change viewer exposure, quantity, or duration. All proposed elements would be compatible and unified with the existing visual environment.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would result in temporary impacts to visual/aesthetic resources during construction.</li> <li>Implementation of PF-VIA-1 would address, and measure VIA-1 would minimize, potential adverse effects related to the construction of new park-and-ride facilities under the Build Alternatives.</li> <li>Implementation of PF-VIA-2 would address impacts associated with new LED and safety lighting provided for HOV lanes converted to ELs.</li> <li>Alternative 3 would add visual elements to the existing highway corridor but in most cases would not substantially change viewer exposure, quantity, or duration. All proposed elements would be compatible and unified with the existing visual environment.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would result in temporary impacts to visual/aesthetic resources during construction.</li> <li>Implementation of PF-VIA-1 would address, and measure VIA-1 would minimize, potential adverse effects related to the construction of new park-and-ride facilities under the Build Alternatives.</li> <li>Implementation of PF-VIA-2 would address impacts associated with new LED and safety lighting provided for HOV lanes converted to ELs and the new ELs between SR-57 and SR-91.</li> <li>Alternative 4 would add visual elements to the existing highway corridor but in most cases would not substantially change viewer exposure, quantity, or duration. All proposed elements would be compatible and unified with the existing visual environment.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Cultural Resources	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts associated with cultural resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would have the potential to encounter unknown cultural resources during construction. Those potential effects would be addressed through implementation of PF-CR-1 through PF-CR-3.</li> <li>Alternative 2 would not result in long-term impacts to cultural resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would have the potential to encounter unknown cultural resources during construction. Those potential effects would be addressed through implementation of PF-CR-1 through PF-CR-3.</li> <li>Alternative 3 would not result in long-term impacts to cultural resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would have the potential to encounter unknown cultural resources during construction. Those potential effects would be addressed through implementation of PF-CR-1 through PF-CR-3.</li> <li>Alternative 4 would not result in long-term impacts to cultural resources.</li> </ul>
Hydrology and Floodplain	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary impacts to hydrology and floodplains in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would construct two park-and-ride facilities; therefore, under the CGP, preparation of a SWPPP and implementation of construction BMPs would be required.</li> <li>Alternative 2 would have no impact on beneficial floodplain values or result in changes to 100-year floodplains.</li> <li>Alternative 2 would not impact channel hydraulics or water surface elevations.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would construct two park-and-ride facilities; therefore, under the CGP, preparation of a SWPPP and implementation of construction BMPs would be required.</li> <li>Alternative 3 would have no impact on beneficial floodplain values or result in changes to 100-year floodplains.</li> <li>Alternative 3 would not impact channel hydraulics or water surface elevations.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would construct two park-and-ride facilities; therefore, under the CGP, preparation of a SWPPP and implementation of construction BMPs would be required.</li> <li>Alternative 4 would have no impact on beneficial floodplain values or result in changes to 100-year floodplains.</li> <li>Alternative 4 would not impact channel hydraulics or water surface elevations.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Water Quality and Storm Water Runoff	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts associated with water quality resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would disturb a total of 2.60 acres of surface area.</li> <li>Temporary impacts from construction activities would be addressed with implementation of PF-WQ-2 and PF-WQ-3.</li> <li>No adverse water quality impacts are anticipated during construction of Alternative 2.</li> <li>Alternative 2 would not result in adverse long-term impacts to water quality during operation.</li> <li>Alternative 2 would result in a permanent increase of 2.1 acres of impervious surface area that would increase the volume of stormwater runoff.</li> <li>Permanent BMPs in the form of pollution prevention, treatment, full trash capture, and maintenance will be implemented to manage and treat stormwater runoff from impervious surfaces (PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7).</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would disturb a total area of 9.03 acres.</li> <li>Temporary impacts from construction activities would be addressed with implementation of PF-WQ-2 and PF-WQ-3.</li> <li>Construction of Alternative 3 may include driving sheet piles for foundation support and shoring operations. During these operations, if groundwater is encountered, dewatering would be required. PF-WQ-6 ensures that construction activities would comply with the requirements of Order No. R8-2020-006 or Order No. R4-2018-0125 and discharges from construction groundwater extraction waste would be monitored.</li> <li>No adverse water quality impacts are anticipated during construction of Alternative 3.</li> <li>Alternative 3 would not result in adverse long-term impacts to water quality during operation.</li> <li>Alternative 3 would result in a permanent increase of 10.69 acres of impervious surface area that would increase stormwater runoff.</li> <li>Alternative 3 would implement permanent BMPs similar to those described under Alternative 2 (PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7).</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would disturb a total of 24.61 acres of surface area.</li> <li>Temporary impacts from construction activities would be addressed with implementation of PF-WQ-2 and PF-WQ-3.</li> <li>Construction of Alternative 3 may include driving sheet piles for foundation support and shoring operations. During these operations, if groundwater is encountered, dewatering would be required. PF-WQ-6 ensures that construction activities would comply with the requirements of Order No. R8-2020-006 or Order No. R4-2018-0125 and discharges from construction groundwater extraction waste would be monitored.</li> <li>No adverse water quality impacts are anticipated during construction of Alternative 4.</li> <li>Alternative 4 would not result in adverse long-term impacts to water quality during operation.</li> <li>Alternative 4 would result in a permanent increase of 19.86 acres of impervious surface area that would increase stormwater runoff.</li> <li>Alternative 4 would implement permanent BMPs similar to those described under Alternative 2 (PF-WQ-1, PF-WQ-4, PF-WQ-5, and PF-WQ-7).</li> </ul>



**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Geology/Soils/ Seismic/ Topography	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary and permanent impacts because there would be no construction of project improvements in the Project Area.</li> </ul>	<ul style="list-style-type: none"> <li>Impacts during construction resulting in liquefaction are considered long-term and permanent. Alternative 2 has the potential to result in long-term impacts related to liquefaction due to the construction of the proposed park-and-ride facilities since half of the total Project limits are mapped by the California Geological Survey as being in a zone that is susceptible to earthquake-induced liquefaction.</li> <li>Implementation of Measure GEO-1 would minimize geologic risks and implementation of PF-GEO-1 would address soil erodibility.</li> <li>Alternative 2 would not result in substantial long-term impacts to geology, soils, seismicity, and topography since proposed Project features will be designed to current standards.</li> </ul>	<ul style="list-style-type: none"> <li>Impacts during construction resulting in liquefaction are considered long-term and permanent. Alternative 3 has the potential to result in long-term impacts related to liquefaction due to construction since half of the total Project limits are mapped by the California Geological Survey as being in a zone that is susceptible to earthquake-induced liquefaction.</li> <li>Implementation of Measure GEO-1 would minimize geologic risks and implementation of PF-GEO-1 would address soil erodibility.</li> <li>Alternative 3 would not result in substantial long-term impacts to geology, soils, seismicity, and topography since proposed Project features will be designed to current standards.</li> </ul>	<ul style="list-style-type: none"> <li>Impacts during construction resulting in liquefaction are considered long-term and permanent. Alternative 4 has the potential to result in long-term impacts related to liquefaction due to construction since half of the total Project limits are mapped by the California Geological Survey as being in a zone that is susceptible to earthquake-induced liquefaction.</li> <li>Implementation of Measure GEO-1 would minimize geologic risks and implementation of PF-GEO-1 would address soil erodibility.</li> <li>Alternative 4 would not result in substantial long-term impacts to geology, soils, seismicity, and topography since proposed Project features will be designed to current standards.</li> </ul>
Paleontology	<ul style="list-style-type: none"> <li>None of the proposed improvements to I-5 would be constructed under the No Build Alternative. Therefore, the No Build Alternative would not result in temporary or permanent adverse impacts related to paleontological resources.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 has no potential to impact paleontological resources during construction because ground disturbance associated with Alternative 2 is limited in aerial extent and to a depth of 5 feet, which would not reach deposits with high paleontological sensitivity.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would have the potential to encounter unknown paleontological resources during construction because the depth of excavation could be more than 25 feet in some locations.</li> <li>PF-PAL-1 and measure PAL-1 would be implemented to establish for the treatment of paleontological resources during construction of Alternative 3.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would have the potential to encounter unknown paleontological resources during construction because the depth of excavation could be more than 25 feet in some locations.</li> <li>PF-PAL-1 and measure PAL-1 would be implemented to establish for the treatment of paleontological resources during construction of Alternative 4.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Hazardous Waste/ Materials	<ul style="list-style-type: none"> <li>The No Build Alternative would not change the existing physical environment, and would not result in temporary or permanent impacts related to hazardous waste and materials.</li> </ul>	<ul style="list-style-type: none"> <li>Ground disturbance associated with Alternative 2 (park-and-ride facilities) could result in potential effects related to unknown hazardous materials and wastes.</li> <li>Implementation of Project Features PF-HAZ-1, PF-HAZ-3 would address, and implementation of Measure HAZ-1 would minimize, potential impacts associated with ADL, lead chromate, ACMs, LBPs, and PCB hazards during construction.</li> <li>Implementation of PF-HAZ-4 will address the potential for unknown hazards during construction.</li> <li>Operation would not result in adverse permanent impacts related to hazardous wastes or materials.</li> </ul>	<ul style="list-style-type: none"> <li>Ground disturbance associated with Alternative 3 could result in potential effects related to unknown hazardous materials and wastes.</li> <li>Implementation of Project Features PF-HAZ-1, PF-HAZ-3 would address, and implementation of Measure HAZ-1 would minimize, potential impacts associated with ADL, lead chromate, ACMs, LBPs, and PCB hazards during construction.</li> <li>Implementation of PF-HAZ-4 will address the potential for unknown hazards during construction.</li> <li>PF-HAZ-5 requires proper management or disposal of treated wood waste if removed during construction of Alternative 3.</li> <li>If dewatering is required, PF-WQ-4 would be implemented to address impacts related to contaminated soil and/or groundwater.</li> <li>Operation would not result in adverse permanent impacts related to hazardous wastes or materials.</li> </ul>	<ul style="list-style-type: none"> <li>Ground disturbance associated with Alternative 4 could result in potential effects related to unknown hazardous materials and wastes.</li> <li>Implementation of Project Features PF-HAZ-1, PF-HAZ-3 would address, and implementation of Measure HAZ-1 would minimize, potential impacts associated with ADL, lead chromate, ACMs, LBPs, and PCB hazards during construction.</li> <li>Implementation of PF-HAZ-4 will address the potential for unknown hazards during construction.</li> <li>PF-HAZ-5 requires proper management or disposal of treated wood waste if removed during construction of Alternative 4.</li> <li>If dewatering is required, PF-WQ-4 would be implemented to address impacts related to contaminated soil and/or groundwater.</li> <li>Operation would not result in adverse permanent impacts related to hazardous wastes or materials.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Air Quality	<ul style="list-style-type: none"> <li>The air quality improvements realized under the Build Alternatives would not occur under the No Build Alternative.</li> </ul>	<ul style="list-style-type: none"> <li>During construction, emissions from construction equipment include CO, NOX, VOCs, directly emitted particulate matter (PM10 and PM2.5), diesel exhaust particulate matter (PM10 and PM2.5), soot particulates (PM10 and PM2.5), SO2, dust, and odor.</li> <li>Emissions of CO, ROG, NOx, PM10, and PM2.5 from Alternative 2 are less than both the existing scenario and the corresponding No Build Alternative.</li> <li>With implementation of standard construction measures and PF-AQ-1, fugitive dust and exhaust emissions from construction activities would not result in adverse air quality impacts.</li> <li>PF-HAZ-1 and PF-HAZ-2 would be implemented to address potential impacts related to ADL and lead chromate.</li> <li>Alternative 2 is not a project of air quality concern under 40 CFR 93.123(b)(1).</li> </ul>	<ul style="list-style-type: none"> <li>During construction, emissions from construction equipment include CO, NOX, VOCs, directly emitted particulate matter (PM10 and PM2.5), diesel exhaust particulate matter (PM10 and PM2.5), soot particulates (PM10 and PM2.5), SO2, dust, and odor.</li> <li>Emissions of CO, ROG, NOx, PM10, and PM2.5 from Alternative 3 are less than both the existing scenario and the corresponding No Build Alternative.</li> <li>With implementation of standard construction measures and PF-AQ-1, fugitive dust and exhaust emissions from construction activities would not result in adverse air quality impacts.</li> <li>PF-HAZ-1 and PF-HAZ-2 would be implemented to address potential impacts related to ADL and lead chromate.</li> <li>Alternative 3 is not a project of air quality concern under 40 CFR 93.123(b)(1).</li> </ul>	<ul style="list-style-type: none"> <li>During construction, emissions from construction equipment include CO, NOX, VOCs, directly emitted particulate matter (PM10 and PM2.5), diesel exhaust particulate matter (PM10 and PM2.5), soot particulates (PM10 and PM2.5), SO2, dust, and odor.</li> <li>Emissions of CO, ROG, NOx, PM10, and PM2.5 from Alternative 4 are less than both the existing scenario and the corresponding No Build Alternative.</li> <li>With implementation of standard construction measures and PF-AQ-1, fugitive dust and exhaust emissions from construction activities would not result in adverse air quality impacts.</li> <li>PF-HAZ-1 and PF-HAZ-2 would be implemented to address potential impacts related to ADL and lead chromate.</li> <li>Alternative 4 is not a project of air quality concern under 40 CFR 93.123(b)(1).</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Noise and Vibration	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in any temporary or permanent impacts associated with noise and vibration.</li> </ul>	<ul style="list-style-type: none"> <li>Temporary construction noise impacts would be unavoidable at areas immediately adjacent to the Project Area.</li> <li>Temporary increases in vibration would likely occur in some locations.</li> <li>PF-N-1 requiring compliance with Caltrans Standard Specifications Section 14-8.02 would address construction noise impacts on sensitive land uses adjacent to the Project Area.</li> <li>No permanent impacts associated with noise and vibration.</li> </ul>	<ul style="list-style-type: none"> <li>Temporary construction noise impacts would be unavoidable at areas immediately adjacent to the Project Area.</li> <li>Temporary increases in vibration would likely occur in some locations.</li> <li>PF-N-1 requiring compliance with Caltrans Standard Specifications Section 14-8.02 would address construction noise impacts on sensitive land uses adjacent to the Project Area.</li> <li>Measure N-1 requires noise abatement in the form of a noise barrier at Seg1D-SB2-A be considered for construction under Alternative 3.</li> <li>Future predicted traffic noise levels would approach or exceed the NAC for Activity Categories B and C at four locations within the Project Area under Alternative 3; therefore, consideration of noise abatement is required.</li> </ul>	<ul style="list-style-type: none"> <li>Temporary construction noise impacts would be unavoidable at areas immediately adjacent to the Project Area.</li> <li>Temporary increases in vibration would likely occur in some locations.</li> <li>PF-N-1 requiring compliance with Caltrans Standard Specifications Section 14-8.02 would address construction noise impacts on sensitive land uses adjacent to the Project Area.</li> <li>Measure N-1 requires noise abatement in the form of a noise barrier at Seg1D-SB2-A be considered for construction under Alternative 4.</li> <li>Future predicted traffic noise levels would approach or exceed the NAC for Activity Categories B and C at four locations within the Project Area under Alternative 4; therefore, consideration of noise abatement is required.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Energy	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary impacts to energy.</li> <li>Annual diesel fuel consumption for the No Build Alternative would be higher than existing conditions and would result in an increase in diesel fuel consumption compared to the Build Alternatives and an increase in gasoline fuel consumption compared to the Existing (2022) condition and Build Alternatives in both opening and future years.</li> <li>No Build Alternative would not result in permanent adverse energy impacts.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Implementation of PF-AQ-1 would address energy impacts resulting from construction activities.</li> <li>Operation of Alternative 2 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 condition and also a decrease in gasoline fuel consumption compared to the No Build and Existing (2022) condition in both the opening and future years.</li> <li>Measure GHG-2 would require the use of highly efficient LEDs, which would address energy consumption.</li> <li>Alternative 2 is expected to improve the overall movement of people and goods along this section of I-5 and reduce energy consumption.</li> <li>Alternative 2 would not result in an inefficient, wasteful, and unnecessary consumption of energy.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Implementation of PF-AQ-1 would address energy impacts resulting from construction activities.</li> <li>Operation of Alternative 3 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 condition and also a decrease in gasoline fuel consumption compared to the No Build and Existing (2022) condition in both the opening and future years.</li> <li>Measure GHG-2 would require the use of highly efficient LEDs, which would address energy consumption.</li> <li>Alternative 3 is expected to improve the overall movement of people and goods along this section of I-5 and reduce energy consumption.</li> <li>Alternative 3 would not result in an inefficient, wasteful, and unnecessary consumption of energy.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 is estimated to result in the short-term consumption of 485,284 gallons from diesel-powered equipment and 123,746 gallons from gasoline-powered equipment.</li> <li>Implementation of PF-AQ-1 would address energy impacts resulting from construction activities.</li> <li>Operation of Alternative 4 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 condition and also a decrease in gasoline fuel consumption compared to the No Build and Existing (2022) condition in both the opening and future years.</li> <li>Measure GHG-2 would require the use of highly efficient LEDs, which would address energy consumption.</li> <li>Alternative 4 is expected to improve the overall movement of people and goods along this section of I-5 and reduce energy consumption.</li> <li>Alternative 4 would not result in an inefficient, wasteful, and unnecessary consumption of energy.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Natural Communities	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts to natural communities or wildlife movement.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would not result in temporary impacts to natural communities during construction.</li> <li>Alternative 2 would not result in permanent impacts to riparian habitat in the form of freshwater marsh, and no permanent barriers would be placed within any known wildlife movement corridors.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would result in temporary impacts to the entirety (0.04 acre) of the freshwater marsh land cover.</li> <li>Implementation of PF-NAT-1 through PF-NAT-5 would address, and Measures NAT-1 and NAT-2 would minimize, potential indirect impacts to adjacent habitats resulting from general construction activities.</li> <li>Stormwater and litter impacts would be addressed through compliance with the Construction General Permit and implementation of Project-specific BMPs included in PF-WQ-3 and PF-WQ-4.</li> <li>Alternative 3 would not result in permanent impacts to riparian habitat in the form of freshwater marsh, and no permanent barriers would be placed within any known wildlife movement corridors.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would result in temporary impacts to the entirety (0.04 acre) of the freshwater marsh land cover.</li> <li>Implementation of PF-NAT-1 through PF-NAT-5 would address, and Measures NAT-1 and NAT-2 would minimize, potential indirect impacts to adjacent habitats resulting from general construction activities.</li> <li>Stormwater and litter impacts would be addressed through compliance with the Construction General Permit and implementation of Project-specific BMPs included in PF-WQ-3 and PF-WQ-4.</li> <li>Alternative 4 would not result in permanent impacts to riparian habitat in the form of freshwater marsh, and no permanent barriers would be placed within any known wildlife movement corridors.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Wetlands and Other Waters	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts associated with wetlands and other waters.</li> </ul>	<ul style="list-style-type: none"> <li>Construction of Alternative 2 would not result in temporary or permanent impacts to jurisdictional features as jurisdictional features are absent from the impact area.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would result in 2.02 acres of temporary impacts to nonwetland waters and 0.22 acre of wetland waters subject to USACE and RWQCB jurisdiction.</li> <li>Alternative 3 would result in 3.29 acres of temporary impacts to aquatic resources subject to CDFW jurisdiction.</li> <li>Project Features PF-WQ-1 and PF-NAT-1 through PF-NAT-5 would address, and Measures WET-1, NAT-1, and NAT-2 would minimize, potential temporary impacts to jurisdictional areas associated with construction of Alternative 3.</li> <li>Alternative 3 would not result in permanent impacts wetland or other waters subject to USACE, RWQCB, or CDFW jurisdiction.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would result in 2.24 acres of temporary impacts to nonwetland waters and 0.22 acre of wetland waters subject to USACE and RWQCB jurisdiction.</li> <li>Alternative 4 would result in 4.50 acres of temporary impacts to aquatic resources subject to CDFW jurisdiction.</li> <li>Project Features PF-WQ-1 and PF-NAT-1 through PF-NAT-5 would address, and Measures WET-1, NAT-1, and NAT-2 would minimize, potential temporary impacts to jurisdictional areas associated with construction of Alternative 4.</li> <li>Alternative 4 would not result in permanent impacts wetland or other waters subject to USACE, RWQCB, or CDFW jurisdiction.</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
Plant Species	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts associated with special-status plant species.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would not result in temporary or permanent impacts on special-status plant species.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would temporarily impact marginally suitable habitat for 10 special-status plant species. However, Alternative 3 is not likely to result in temporary impacts to individuals.</li> <li>Implementation of Project Features PF-NAT-1 through PF-NAT-5, PF-WQ-3, PF-WQ-4 would address, and Measures NAT-1, NAT-2, and PL-1 would minimize, potential direct and indirect impacts to suitable habitat for special-status plant species during construction of Alternative 3.</li> <li>Alternative 3 would not result in permanent impacts on special-status plant species.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would temporarily impact marginally suitable habitat for 10 special-status plant species. However, Alternative 4 is not likely to result in temporary impacts to individuals.</li> <li>Implementation of Project Features PF-NAT-1 through PF-NAT-5, PF-WQ-3, PF-WQ-4 would address, and measures NAT-1, NAT-2, and PL-1 would minimize, potential direct and indirect impacts to suitable habitat for special-status plant species during construction of Alternative 4.</li> <li>Alternative 4 would not result in permanent impacts on special-status plant species.</li> </ul>
Animal Species	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts associated with special-status animal species.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would have no effect on any species federally or State-listed as endangered or threatened that has been identified as potentially occurring within the vicinity of the proposed Project.</li> <li>Alternative 2 would result in up to 1.23 acres of temporary impacts to marginally suitable habitat for monarch butterfly, in the form of landscaped areas.</li> <li>Implementation of PF-NAT-1 through PF-NAT-5, and PF-ANS-1 through PF-ANS-5 would address, and Measures NAT-1, NAT-2, PL-1, IS-1, and ANS-1 through ANS-11 would avoid and/or minimize, direct and indirect impacts to special-status animal species.</li> <li>Alternative 2 would not result in</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would have no effect on any species federally or State-listed as endangered or threatened that has been identified as potentially occurring within the vicinity of the proposed Project.</li> <li>Alternative 3 would result in up to 132.43 acres of temporary impacts to marginally suitable habitat for monarch butterfly.</li> <li>Implementation of PF-NAT-1 through PF-NAT-5, and PF-ANS-1 through PF-ANS-5 would address, and Measures NAT-1, NAT-2, PL-1, IS-1, and ANS-1 through ANS-11 would avoid and/or minimize, direct and indirect impacts to special-status animal species.</li> <li>Alternative 3 would not result in adverse effects to special-status</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would have no effect on any species federally or State-listed as endangered or threatened that has been identified as potentially occurring within the vicinity of the proposed Project.</li> <li>Alternative 4 would result in up to 132.48 acres of temporary impacts to marginally suitable habitat for monarch butterfly.</li> <li>Implementation of PF-NAT-1 through PF-NAT-5, and PF-ANS-1 through PF-ANS-5 would address, and Measures NAT-1, NAT-2, PL-1, IS-1, and ANS-1 through ANS-11 would avoid and/or minimize direct and indirect impacts to special-status animal species.</li> <li>Alternative 4 would not result in adverse effects to special-status</li> </ul>



**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
		adverse effects to special-status animal species.	animal species.	animal species.
Invasive Species	<ul style="list-style-type: none"> <li>The No Build Alternative would not result in temporary or permanent impacts related to invasive species.</li> </ul>	<ul style="list-style-type: none"> <li>With implementation of Measure IS-1 requiring compliance with Executive Order 13112, Alternative 2 would not result in adverse impacts related to invasive species.</li> </ul>	<ul style="list-style-type: none"> <li>With implementation of Measure IS-1 requiring compliance with Executive Order 13112, Alternative 3 would not result in adverse impacts related to invasive species.</li> </ul>	<ul style="list-style-type: none"> <li>With implementation of Measure IS-1 requiring compliance with Executive Order 13112, Alternative 4 would not result in adverse impacts related to invasive species.</li> </ul>
Cumulative Impacts	<ul style="list-style-type: none"> <li>No impact.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of PF-TR-1, PF-AQ-1, and PF-N-1 would address temporary construction-related impacts on the overall population in the Study Area.</li> <li>In addition to adherence to State and federal regulations, implementation of PF-HAZ-1 through PF-HAZ-5 would address, and Measure HAZ-1, would avoid and/or minimize, impacts related to hazardous waste/materials during construction and operation of Alternative 2.</li> <li>Current or planned projects would be subject to discretionary environmental review to ensure that individual traffic, public service impacts, and other environmental concerns would not be compounded with the Build Alternatives. The I-5 Irvine Tustin Project, located immediately south of the Project limits and currently in the PS&amp;E phase, may coincide with this Project's construction timeframe. However, construction under Alternative 2 is considered minor and would not contribute to a temporary cumulative impact.</li> <li>Implementation of PF-WQ-1 through PF-WQ-7 would address the discharge of pollutants of concern during operation.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of PF-TR-1, PF-AQ-1, and PF-N-1 would address temporary construction-related impacts on the overall population in the Study Area.</li> <li>In addition to adherence to State and federal regulations, implementation of PF-HAZ-1 through PF-HAZ-5 would address, and Measure HAZ-1 would avoid and/or minimize, impacts related to hazardous waste/materials during construction and operation of Alternative 3.</li> <li>Current or planned projects would be subject to discretionary environmental review to ensure that individual traffic, public service impacts, and other environmental concerns would not be compounded with the Build Alternatives. The I-5 Irvine Tustin Project, located immediately south of the Project limits and currently in the PS&amp;E phase, may coincide with this Project's construction timeframe, which may result in possible cumulative but temporary effects.</li> <li>Implementation of PF-WQ-1 through PF-WQ-7 would address</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of PF-TR-1, PF-AQ-1, and PF-N-1 would address temporary construction-related impacts on the overall population in the Study Area.</li> <li>In addition to adherence to State and federal regulations, implementation of PF-HAZ-1 through PF-HAZ-5 would address, and Measure HAZ-1 would avoid and/or minimize impacts related to hazardous waste/materials during construction and operation of Alternative 4.</li> <li>Current or planned projects would be subject to discretionary environmental review to ensure that individual traffic, public service impacts, and other environmental concerns would not be compounded with the Build Alternatives. The I-5 Irvine Tustin Project, located immediately south of the Project limits and currently in the PS&amp;E phase, may coincide with this Project's construction timeframe, which may result in possible cumulative but temporary effects.</li> <li>Implementation of PF-WQ-1 through PF-WQ-7 would address the discharge of pollutants of concern</li> </ul>

**Table S.1: Proposed Project Impacts**

Environmental Issue	No Build Alternative (Alternative 1) Impacts	Build Alternative 2 Impacts	Build Alternative 3 Impacts	Build Alternative 4 Impacts
			the discharge of pollutants of concern during operation. <ul style="list-style-type: none"> <li>Implementation of Measure EQ-1 would ensure that Alternative 3 would deliver transportation benefits to all populations in the Study Area.</li> </ul>	during operation. <ul style="list-style-type: none"> <li>Implementation of Measure EQ-1 would ensure that Alternative 4 would deliver transportation benefits to all populations in the Study Area.</li> <li>Even with implementation of Mitigation Measures T-1 through T-5, impacts to VMT associated with Alternative 4 would be considered significant and unavoidable.</li> </ul>
Climate Change	<ul style="list-style-type: none"> <li>The No Build Alternative would result in a net decrease in CO<sub>2</sub> emissions in 2035 and 2055 compared to the existing (2022) condition.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 2 would result in GHG emissions during construction.</li> <li>Implementation of Measures GHG-1 through GHG-3 would minimize GHG emissions and potential climate change impacts from Alternative 2.</li> <li>Alternative 2 would result in reduced GHG emissions under both the Opening Year (2035) and Future Year (2055) scenarios compared to the No Build Alternative.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 3 would result in GHG emissions during construction.</li> <li>Implementation of Measures GHG-1 through GHG-3 would minimize GHG emissions and potential climate change impacts from Alternative 3.</li> <li>Alternative 3 would result in reduced GHG emissions under both the Opening Year (2035) and Future Year (2055) scenarios compared to the No Build Alternative.</li> </ul>	<ul style="list-style-type: none"> <li>Alternative 4 would result in GHG emissions during construction.</li> <li>Implementation of Measures GHG-1 through GHG-3 would minimize GHG emissions and potential climate change impacts from Alternative 4.</li> <li>Alternative 4 would result in reduced GHG emissions under both the Opening Year (2035) and Future Year (2055) scenarios compared to the No Build Alternative.</li> </ul>

BMPs = best management practices  
 CDFW = California Department of Fish and Wildlife  
 CFR = Code of Federal Regulations  
 CGP = Construction General Permit  
 CO = carbon monoxide  
 CO<sub>2</sub> = carbon dioxide  
 GP = general purpose  
 HOV = high-occupancy vehicle  
 I = Interstate  
 LOS = level(s) of service  
 NAC = noise abatement criteria  
 NB = northbound  
 NO<sub>x</sub> = nitrogen oxides  
 PM<sub>10</sub> = particulate matter less than 10 microns in size

PM<sub>2.5</sub> = particulate matter less than 2.5 microns in size  
 PS&E = plans, specifications, & estimates  
 ROG = reactive organic gases  
 RTP/SCS = 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability, and High Quality of Life  
 RWQCB = Regional Water Quality Control Board  
 SB = southbound  
 SO<sub>2</sub> = sulfur dioxide  
 SWPPP = Stormwater Pollution Prevention Plan  
 USACE = United States Army Corps of Engineers  
 VHD = vehicle hours delay  
 VMT = vehicle miles traveled  
 VOCs = volatile organic compounds

**Table S.2: CEQA Significant Impacts from the Build Alternatives**

Environmental Issue	Impact	CEQA Determination	Avoidance, Minimization, and/or Mitigation Measures
Geology and Soils	Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<b>Less Than Significant With Mitigation Incorporated.</b> With excavation activities anticipated to extend up to 100 feet below the surface, the Build Alternatives have the potential to impact scientifically important, nonrenewable paleontological resources.	<b>Mitigation Measure</b> <b>PAL-1 Paleontological Mitigation Plan.</b> 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.
Transportation	Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<b>Significant and Unavoidable Impact.</b> Alternative 4 would add capacity to the State Highway System. With VMT reduction elements that are included in the design of Alternative 4 (park-and-ride facilities, tolling for operations, and managed lanes volume control), Alternative 4 would result in 84,946,000 VMT annually that would require mitigation. Measures T-1 through T-5 would be implemented, which 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 Build Alternative 4 would be significant and unavoidable.  Alternatives 3 and 4 would not add capacity to the State Highway System and therefore would result in less than significant impacts to VMT, and no mitigation would be required.	<b>Mitigation Measures</b> <b>VMT Reduction.</b> If Build Alternative 4 is chosen as the preferred project, the following mitigation measures shall be implemented to reduce VMT associated with the implementation of Build Alternative 4:  <b>TR-1 Housing Density and Affordability –</b> Caltrans shall contribute to affordable housing projects throughout Orange County.  <b>TR-2 New Transit Service (BRT, Increased Service) –</b> 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 Intra-county express routes, 1 Metrolink Station route, 3 Inter-county express routes.  <b>TR-3 Transit Efficiencies (Improve existing service) –</b> Caltrans shall contribute to existing transit service for improved efficiencies that would result in VMT reduction.

**Table S.2: CEQA Significant Impacts from the Build Alternatives**

Environmental Issue	Impact	CEQA Determination	Avoidance, Minimization, and/or Mitigation Measures
			<p><b>TR-4 Transit Pass Subsidies</b> – Caltrans shall provide transit pass subsidies to encourage mode shift in transportation and reduce VMT.</p> <p><b>TR-5 Active Transportation (Bike-New Parallel Facilities)</b> – Caltrans shall invest into new Class II bikeway facilities</p>

## **S.4 Coordination with Public and Other Agencies**

Table 1.18 in Chapter 1.0 lists the permits, licenses, agreements, and certifications required for construction of the Build Alternatives. Permit applications would be submitted during the design phase.

Early and continuing coordination between the general public and public agencies has been and will continue to be an essential part of the environmental process in order to determine the scope of environmental documentation, the level of analysis, any potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this Project have been accomplished through a variety of formal and informal methods, public scoping meetings and interagency coordination meetings. Notable issues of concern raised during these meetings include traffic impacts, impacts related to underserved and environmental justice communities, and the construction of proposed park-and-ride facilities. Chapter 4.0 summarizes the results of the efforts by Caltrans to fully identify, address, and resolve project-related issues through early and continuing coordination.

**This page intentionally left blank**