

Appendix E Avoidance Minimization and/or Mitigation Summary

In order to be sure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] that follows) would be implemented. During project design, avoidance, minimization, and /or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in this ECR are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. As the following ECR is a draft, some fields have not been completed, and will be filled out as each of the measures is implemented. Note that some measures may apply to more than one resource area. Duplicative or redundant measures have not been included in this ECR. An asterisk (*) denotes mitigation for a significant impact under CEQA.

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Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
					Initials	Date		Initials	Date
HUMAN ENVIRONMENT									
Land Use									
<i>Project Features</i>									
No Project Features required									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
LU-1: RTP/SCS Modeling and FTIP Coordination: Caltrans, OCTA, and SCAG will coordinate to incorporate the Build Alternatives into the future regional models for the SCAG 2020-2045 RTP/SCS and include the Project in the SCAG 2023 FTIP.	Caltrans Project Manager	Final EIR/EA	No						
Growth									
<i>Project Features</i>									
No Project Features required									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
No measures are required.									
Community Impacts									
<i>Project Features</i>									
No Project Features required									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
EQ-1: Equity Assistance Plan (EAP). Caltrans will implement an EAP as part of Alternatives 3 and 4. The EAP would provide assistance to individuals who meet certain income and demographic characteristics by providing them with free or low-cost FasTrak transponders and/or FasTrak account credits to assist with covering the cost of tolls incurred through the use of the I-5 Express Lanes. Details on the EAP (e.g., eligibility requirements, implementation, etc.) will be developed in the future phases of the Project.	Caltrans Project Manager/Planning	Operation	No						
Utilities and Emergency Services									
<i>Project Features</i>									
PF-UES-1: Caltrans Standard Specifications Section 87-1.03L: Utility Service. During final design, relocation plans for any utilities that will potentially need to be relocated, removed, or protected-in-place will be prepared in consultation with the affected utility relocation providers/owners. If relocation is necessary, the final design will focus on relocating utilities within the State right-of-way (ROW) or other existing public ROWs and/or easements. If relocation outside of existing or additional public ROWs and/or easements required for the project is necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. Prior to utility relocation activities, the Resident Engineer will coordinate with affected utility owners regarding potential utility relocations and the affected utility owners will inform affected utility users in advance of the date and timing of potential service disruptions.	Caltrans Project Engineer	During PS&E During PS&E and prior to utility relocation activities	No						
PF-UES-2 Prior to and during construction, the project engineer(s) shall ensure that the components of the utility plans provided in the project specifications are properly implemented by the contractor.	Caltrans Project Engineer	Prior to and during construction	No						
PF-UES-3 Prior to utility relocation activities, the contractor shall coordinate with affected utility providers regarding potential utility relocations and the utility owners will	Caltrans Project Engineer	Prior to and during construction							

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inform affected utility users in advance about the date and timing of potential service disruptions.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
No measures are required.									
Traffic and Transportation/Pedestrian and Bicycle Facilities									
<i>Project Features</i>									
<p>PF-TR-1 : Transportation Management Plan. Under this measure prior to approval of the final design, a final Transportation Management Plan (TMP) report will be prepared to outline strategies for reducing potential construction-related traffic conflicts, detours, and delays. A Major TMP classification is anticipated due to the complexity of the proposed Project. A qualified traffic engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during proposed Project construction. The TMP, during final design and would be incorporated into the plans, specifications, and estimates for implementation by the construction contractor. Specifically, the purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the Project. The objectives of the TMP are to:</p> <ul style="list-style-type: none"> Maintain traffic safety during construction Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction Minimize traffic delays and facilitate reduction of the overall duration of construction activities Minimize detours and impacts to pedestrians and bicyclists Foster public awareness of the project and related transportation and traffic impacts Achieve public acceptance of construction of the project and the TMP measures <p>The TMP will contain, but not be limited to, the following strategies recommended for implementation during construction activities of the proposed Project. The elements of these strategies will be refined during final design and incorporated in the TMP for implementation during Project construction.</p> <ul style="list-style-type: none"> Public Information Campaign. The purpose of the public information campaign is to disseminate information to the public about Project construction activities and associated transportation impacts. This campaign is considered an important tool for reaching target audiences with important construction Project information and is anticipated to include, but not be limited to: <ul style="list-style-type: none"> Brochures and mailers Press releases/Media alerts 	Caltrans Traffic Engineer	During PS&E and project construction	No						

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<ul style="list-style-type: none"> • Paid advertising • Lane Closure Systems (LCS) • Public meetings/hearings • Communications with selected stakeholders <ul style="list-style-type: none"> • Motorist Information. The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; “businesses are open” signing; and other signing and information to assist travelers in navigating through, around, and in construction areas. • Incident Management. Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes, but is not limited to: <ul style="list-style-type: none"> • Caltrans Construction Zone Enhanced Enforcement Program (COZEEP) • Traffic Management Team • Caltrans Transportation Management Center • Construction Strategies. The TMP will include procedures to lessen the transportation effects of Project-related construction activities and will include, but not be limited to, consideration of the following: <ul style="list-style-type: none"> • Lane requirement charts • Construction staging • Traffic handling plans • Full facility closures • Connector closures • Nighttime work • Extended weekend work • Speed limit reduction • Coordination with adjacent construction sites and special events • Demand Management. Temporarily reducing the overall traffic volumes on the Project segment of I-5 could reduce the short-term adverse effects of construction on traffic operations. The TMP will include, but not be limited to, rideshare strategies that could reduce vehicular demand in the Study Area during 									

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Project construction. <ul style="list-style-type: none"> Alternate Route Strategies. The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize the detour and alternate routes for motorists, specifically addressing the following: <ul style="list-style-type: none"> Mainline lane closures Ramp/connector closures Local road closures Temporary highway or shoulder use Local street improvements Temporary detours and closures of bicycle and pedestrian facilities Traffic signal coordination The construction contractor will implement the measures in the TMP during construction.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
No measures are required.									
Visual/Aesthetics									
<i>Project Features</i>									
PF-VIA-1 Replacement Plants. Removal of existing trees, shrubs, vines, or other vegetation will be avoided where feasible. Should trees, shrubs, vines, or other vegetation be removed, Project Landscape Architects will work with the District Landscape Architect and local jurisdictions to provide landscape, roadside, or urban forest designs that meet State and local requirements, where needed.	Caltrans Project Engineer, and Landscape Architect	During PS&E, post construction	No						
PF-VIA-2 Lighting Installation Guidance. Lighting should provide minimal impact to the surrounding environment; utilize downcast, cut-off type fixtures that are shielded and direct the light only toward areas requiring illumination. Install lights at the lowest allowable height and cast low-angle illumination while minimizing incidental light spill onto adjacent properties, open spaces, or backscatter into the nighttime sky.	Caltrans Project Engineer	During PS&E	Yes						
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
VIA-1 Park and Ride Coordination. Coordinate with the City of Santa Ana and the City of Anaheim to discuss the theme and aesthetic look of the park-and-ride facilities during the design phase.	Caltrans Project Engineer	During PS&E	Yes						

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Cultural Resources									
<i>Project Features</i>									
PF-CR-1: Discovery of Cultural Materials. If cultural materials are discovered during site preparation, grading, or excavation, the construction contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, coordination will be maintained with the California Department of Transportation (Caltrans) District 12 Environmental Branch Chief or the District 12 Native American Coordinator to determine an appropriate course of action. If the discovery of cultural materials occurs outside the Caltrans right-of-way, then coordination with the appropriate local agency will be conducted.	Caltrans Project Engineer, Archaeologist, and Resident Engineer	During construction and post construction (if necessary)	No						
PF-CR-2: Discovery of Human Remains. If human remains are discovered during site preparation, grading, or excavation, California State Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the Orange County Coroner shall be contacted. If the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC), which, pursuant to California Public Resources Code (PRC) Section 5097.98, will then notify the Most Likely Descendant (MLD). At that time, the persons who discovered the remains will contact the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.	Caltrans Project Engineer, Caltrans Archaeologist, and Resident Engineer	During construction and post construction (if necessary)	No						
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
No measures are required.									
PHYSICAL ENVIRONMENT									
Hydrology and Floodplains									
<i>Project Features</i>									
No Project Features required									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
No measures are required.									
Water Quality and Storm Water Runoff									
<i>Project Features</i>									
PF-WQ-1 The Project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2022-0033-DWQ, NPDES No. CAS000003 (Permit) and any subsequent permits in effect at the time of construction.	Caltrans Resident Engineer	Prior to and during construction	No						

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PF-WQ-2 The Project will comply with the provisions of the NPDES Construction General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (CGP) Order No. 2022-0057-DWQ, NPDES No. CAS000002, and any subsequent permits in effect at the time of construction.	Caltrans Resident Engineer	Prior to and during construction	No						
PF-WQ-3 The Project will comply with the CGP by preparing and implementing a Stormwater Pollution Prevention Plan (SWPPP) to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate risk level (RL). The SWPPP will identify the sources of pollutants that may affect the quality of stormwater and include Best Management Practices (BMPs) to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management, and nonstormwater BMPs. All work would conform to the Construction Site BMP requirements specified in the latest edition of the Stormwater Quality Handbooks: Construction Site Best Management Practices Manual to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other nonstormwater BMPs.	Caltrans Resident Engineer	Prior to and during construction	No						
PF-WQ-4 Design Pollution Prevention Best Management Practices (BMPs) will be implemented such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization), concentrated flow conveyance systems such as ditches, berms, dikes, and swales, over side drains, flared end sections, and outlet protection/velocity dissipation devices.	Caltrans Project Engineer	Prior to and during construction	No						
PF-WQ-5 Caltrans-approved treatment BMPs will be implemented consistent with the requirements of NPDES Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2022-0033-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction. Treatment BMPs may include biofiltration strips, biofiltration swales, infiltration basins, detention devices, Design Pollution Prevention Infiltration Areas (DPPIA), dry-weather flow diversion, gross solids removal devices (GSRDs), media filters, bioretention, open graded friction courses, wet basins, and other BMPs.	Caltrans Project Engineer/ Caltrans Resident Engineer	Prior to and during construction	No						

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PF-WQ-6 If dewatering is expected for the preferred alternative, the Project shall fully conform to the requirements specified in Order No. R8-2020-0006, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimus) Threat to Water Quality or Order No. R4-2018-0125 General Waste Discharge Requirements for Discharges of Groundwater from Construction and Dewatering to Surface Waters in Coastal Watersheds of Los Angeles and Ventura Counties. These NPDES permits are applicable to construction dewatering wastes and dewatering wastes from subterranean seepage.	Caltrans Resident Engineer	Prior to construction	No						
PF-WQ-7 Caltrans FTC Devices, other treatment controls, and/or institutional controls will be implemented within STGAs consistent with requirements of Attachment E of National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for the State of California, Department of Transportation, Order No. 2022-0033-DWQ, NPDES No. CAS000003.	Caltrans Project Engineer/ Caltrans Resident Engineer	Prior to and during construction	No						
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
No measures are required.									
Geology/Soils/Seismic/Topography									
<i>Project Features</i>									
PF-GEO-1 Revegetation. Prior to construction, revegetation of graded slopes should be performed to minimize erosion, and runoff should be diverted from each slope face using earthen berms and/or concrete swales at the top of each slope. Additionally, Project Feature PF-WQ-2 from Section 2.9.3 would also apply, as it requires the Project to implement Construction Best Management Practices (BMPs) which would require erosion control for slope stabilization.	Caltrans Project Engineer	Prior to construction	No						
<i>Avoidance, Minimization, and Mitigation Measures</i>									
GEO-1 Geotechnical Investigation. Under this measure during the Plans, Specifications, and Estimates (PS&E) phase, a detailed geotechnical investigation will be conducted by qualified geotechnical personnel to assess the geotechnical conditions at the Project Area. The geotechnical investigation will include exploratory borings to investigate site-specific soils and conditions and to collect samples of subsurface soils for laboratory testing. Those soil samples will be tested to evaluate liquefaction potential, collapsibility potential, stability, and corrosion potential. The project-specific findings and recommendations of the geotechnical investigation will be summarized in a Structure Foundation Report and a Geotechnical Design Report to be submitted to the California Department of Transportation (Caltrans) for review and approval. Those findings and recommendations will be incorporated in the final design of the Build Alternatives.	Caltrans Project Engineer	During PS&E and prior to construction	No						

Task and Brief Description	Responsible Branch, Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
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Paleontology									
<i>Project Features</i>									
PF-PAL-1 California Department of Transportation (Caltrans) Standard Specification 14-7.03: Discovery of Unanticipated Paleontological Resources. If unanticipated paleontological resources are discovered, all work within 60 feet of the discovery must cease and the construction Resident Engineer will be notified. Work cannot continue near the discovery until authorized.	Caltrans Project Engineer, Caltrans Paleontologist, and Resident Engineer	During construction	No						
<i>Avoidance, Minimization, and Mitigation Measures</i>									
PAL-1* Paleontological Mitigation Plan. A qualified paleontologist shall prepare a Paleontological Mitigation Plan (PMP) following the guidelines in the California Department of Transportation (Caltrans) Standard Environmental Reference (SER), Environmental Handbook, Volume 1, Chapter 8 – Paleontology (June 2016 or more current) and guidelines developed by the Society of Vertebrate Paleontology (SVP; 2010). The PMP shall be prepared concurrently with final design plans during the Plans, Specifications, and Estimates (PS&E) phase. Implementation of the PMP during Construction and post-Construction will reduce impacts to potential paleontological resources to less than significant. SSP 14-7.04 for Paleontological resources mitigation.	Caltrans Paleontologist, Caltrans Project Engineer/ Office Engineer, and Resident Engineer	During PS&E, construction, and post construction (if necessary)							
Hazardous Materials									
<i>Project Features</i>									
PF-HAZ-1 A California Department of Transportation (Caltrans) special provision will be included as part of the Project Specifications and Estimates (PS&E) package to ensure proper removal, handling, and disposal of aerially deposited lead (ADL) containing material at a permitted disposal facility or reused per the Soil Management Agreement for Aerially Deposited Lead-Contaminated Soils (Agreement).	Caltrans Project Engineer/ Caltrans Resident Engineer	During PS&E and construction	No						
PF-HAZ-2 A Caltrans special provision will be included as part of the PS&E package to ensure proper removal, handling, and disposal of the generated traffic striping waste at a permitted disposal facility.	Caltrans Project Engineer/ Caltrans Resident Engineer	During PS&E and construction	No						
PF-HAZ-3 A Caltrans special provision will be included as part of the PS&E package to ensure proper removal, handling, and disposal of asbestos-containing materials (ACMs) and lead-based paints (LBPs) at a permitted disposal facility.	Caltrans Resident Engineer/ Caltrans Resident Engineer	During PS&E and construction	No						

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PF-HAZ-4 During excavation, the Construction Contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the Construction Contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 of the Caltrans <i>Construction Manual</i> (February 2021). Adequate protection for construction workers will be provided with the implementation of a Health and Safety Plan and Soil Management Plan.	Caltrans Project Engineer/ Caltrans Resident Engineer	During construction	No						
PF-HAZ-5 The California Department of Toxic Substances Control (DTSC) Hazardous Materials Division guidance for the Management of Treated Wood Waste will be included as part of the PS&E package to ensure proper management or disposal of treated wood waste in accordance with current DTSC guidance.	Caltrans Resident Engineer	During PS&E and construction	No						
<i>Avoidance, Minimization, and Mitigation Measures</i>									
HAZ-1 Electrical transformers and equipment will be evaluated during the PS&E phase for polychlorinated biphenyl (PCB) content or releases if transformers and/or equipment will be removed or relocated as part of the project. Leaking transformers observed during construction of the project will be tested for PCBs and handled in accordance with all applicable regulations.	Caltrans Project Engineer/ Caltrans Resident Engineer	During PS&E and construction	No						
Air Quality									
<i>Project Features</i>									
PF-AQ-1 The contractor shall comply with the California Department of Transportation (Caltrans) Standard Specifications in Section 14-9 (2022) for reducing impacts from construction activities. Section 14 9.02 specifically requires compliance by the contractor with all applicable air-pollution-control rules, regulations, and ordinances related to air quality, including air quality management district rules and regulations.	Caltrans Resident Engineer	During PS&E and construction	No						
<i>Avoidance and Minimization Measures</i>									
No measures are required.									
Noise									
<i>Project Features</i>									
PF-N-1 The control of noise from construction activities will conform to the California Department of Transportation (Caltrans) Standard Specifications, Section 14-8.02, "Noise Control." The nighttime noise level from the Contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., will not exceed 86 A-weighted decibels (dBA) 1-hour A weighted equivalent continuous sound level (Leq(h)) at a distance of 50 feet. In addition, the Contractor would equip all internal combustion engines with a manufacturer-recommended muffler and would not operate any internal combustion engine on the job site without the appropriate muffler.	Caltrans Resident Engineer	During PS&E and construction	No						

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Avoidance, Minimization, and/or Mitigation Measures									
N-1 Based on the studies completed to date, the California Department of Transportation (Caltrans) intends to incorporate noise abatement in the form of a barrier (Seg1D-SB2-A) for Alternatives 3 and 4 on the southbound side of I-5 from East 17th Street to West 20th Street, with an approximate length of 1,210 and average heights ranging from 12 to 16 feet. Calculations based on preliminary design data show that the barrier will reduce noise levels by 5 to 12 dBA for approximately 12 to 22 residences at a cost of \$855,000 to \$1,108,000. This measure may change based on input received from the public. If conditions have substantially changed during final design, noise abatement may not be constructed. The final decision on noise abatement will be made upon completion of the project design.	Caltrans Resident Engineer	During PS&E	No						
Energy									
Project Features									
No Project Features are required.									
Avoidance, Minimization, and/or Mitigation Measures									
GHG-2 Replacement of light fixtures with highly efficient light-emitting diodes (LEDs), including new safety lighting.	Caltrans Project Engineer	During PS&E	Yes						
BIOLOGICAL ENVIRONMENT									
Natural Communities									
Project Features									
PF-NAT-1 Delineation of Environmentally Sensitive Areas. Prior to Project activities, highly visible barriers (e.g., orange construction fencing) will be installed along the boundaries of the Project footprint/equipment access routes to designate Environmentally Sensitive Areas (ESAs) that are to be preserved. This will include ESA fencing along jurisdictional aquatic resources located adjacent to Project impact areas. No Project activity of any type will be permitted within the ESAs. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment will be operated in such a manner as to prevent accidental damage to the ESAs. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones.	Caltrans Biologist	Prior to construction	No						
PF-NAT-2 Invasive Species Control. All construction equipment accessing unpaved areas will be cleaned with water to remove dirt, seeds, vegetative material, or other debris that could contain or hold seeds of noxious weeds before arriving at and leaving the Project site.	Caltrans Resident Engineer	During PS&E and construction	No						

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PF-NAT-3 Equipment Staging Best Management Practices (BMPs). All equipment maintenance, staging, and dispensing of fuel, oil, or any other such activities will occur in developed or designated nonsensitive upland areas. The designated upland areas will be located in such a manner as to prevent any loose soil or spill runoff from entering jurisdictional waterways or adjacent sensitive vegetation communities. All construction materials will be removed from worksites following completion of Project activities.	Caltrans Project Engineer, Resident Engineer, Generalist, and Biologist	During construction	No						
PF-NAT-4 Water Quality BMPs. To avoid impacts to water quality during construction, stormwater and erosion control BMPs are recommended to prevent loose soil or pollutants associated with the Project from inadvertently entering the aquatic resources and sensitive vegetation communities located within and adjacent to the Biological Study Area (BSA). Example BMPs include silt fencing and straw wattle placed in such a manner that they are able to catch or filter sediment or other construction-related debris to prevent it from eroding into the nearby drainage channels.	Caltrans Project Engineer, Resident Engineer, Generalist, and Biologist	During construction	No						
PF-NAT-5 Erosion Control Material Sourcing. Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control. Invasive species will not be used in any landscaping palettes for the Project.	Caltrans Resident Engineer	During PS&E and construction	No						
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
NAT-1 On-Site Training. All personnel involved in on-site Project construction will be required to participate in a pre-construction environmental training program to ensure they understand the avoidance and minimization measures and environmental regulations pertinent to the Project.	Caltrans Project Engineer, Resident Engineer, and Biologist	During construction	No						
NAT-2 Vegetation. Prior to initiation of construction, a revegetation plan will be prepared for freshwater marsh and jurisdictional aquatic resources temporarily impacted by Project activities. The goal of the revegetation plan will be to restore these areas to their pre-construction condition. The revegetation plan will include the procedures to install and maintain the revegetated areas, details and timing of monitoring and maintenance activities, reporting requirements, and success criteria. The revegetation plan will be consistent with all measures identified in the jurisdictional aquatic resources permitting, including the Nationwide Permit, Streambed Alteration Agreement (SAA), and Section 401 Water Quality Certification, and will be reviewed and approved by the United States Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and Regional Water Quality Control Board (RWQCB) prior to its implementation.	Caltrans Resident Engineer	During PS&E and construction	No						

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Wetlands and Other Waters									
<i>Project Features</i>									
No Project Features are required.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
WET-1 Regulatory Permitting. Prior to initiation of construction, permits shall be obtained for the proposed Project through the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA), the State Water Resources Control Board (SWRCB) pursuant to Section 401 of the CWA, and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code.	Caltrans Biologist	During PS&E	No						
Plant Species									
<i>Project Features</i>									
No Project Features are required.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
PL-1 Pre-Construction Clearance Surveys. A qualified biologist will conduct pre-construction surveys to confirm the absence of sensitive biological resources within the work areas. The pre-construction surveys will take place no more than 24 hours prior to commencement of work activities. If listed species are observed within the work area (or areas potentially indirectly affected by Project activities, as determined by the qualified biologist) and the work cannot be postponed until the species is no longer present, the California Department of Transportation (Caltrans) will obtain written approval from the USFWS or the CDFW, as applicable, prior to completing Project work at these locations. No additional avoidance, minimization, and/or mitigation measures other than the standard Project Features are required. No compensatory mitigation is required.	Caltrans Project Engineer, Resident Engineer, and Biologist	During construction	No						
Animal Species									
<i>Project Features</i>									
PF-ANS-1 Avoidance of Breeding Season. Project activities will occur outside the nesting season (February 1–September 30) to the fullest extent practicable.	Caltrans Biologist	During PS&E and prior to construction	No						
PF-ANS-2 Pre-Construction Nesting Bird Survey. If Project activities with potential to indirectly disturb suitable avian nesting habitat within 500 feet (ft) of the work area would occur during the nesting season (as determined by a qualified biologist), a qualified biologist with experience conducting breeding bird surveys will conduct a nesting bird survey no more than 3 days prior to the initiation of Project activities to detect the presence/absence of migratory and resident bird species occurring in suitable nesting habitat. Project activities may begin no more than 3 days after the completion of the nesting bird survey in the absence of active bird nests. An additional nesting bird survey will be conducted if Project activities fail to start within 3 days of the completion of the pre construction nesting bird survey.	Caltrans Biologist	Prior to construction	No						

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PF-ANS-3 Nesting Bird Exclusionary Buffers. Should nesting birds be found during the pre construction nesting bird survey, an exclusionary buffer will be established by the qualified biologist. This buffer will be clearly marked in the field by construction personnel under the guidance of the biologist, and construction will not be conducted in this zone until the biologist determines that the young have fledged or the nest is no longer active. Work may only occur during the breeding season if nesting bird surveys indicate the absence of any active nests within the work area. Without the written approval of the CDFW and/or the USFWS, no work will occur if listed or fully protected bird species are found to be actively nesting within 500 feet of the areas subject to construction activities.	Caltrans Biologist	During PS&E and prior to construction	No						
PF-ANS-4 Trash and Waste Removal. During construction, trash and food waste will be removed from work sites on a daily basis to avoid the attraction of predators that prey on sensitive wildlife species.	Caltrans Resident Engineer and Biologist	During construction	No						
PF-ANS-5 Construction Equipment Staging. To the extent practicable, internal combustion equipment (e.g., generators and vehicles) is not to be parked or operated beneath or adjacent to the structures unless it is required for Project-related work on that structure.	Caltrans Project Engineer, Resident Engineer, Generalist, and Biologist	During construction	No						
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
ANS-1 Pre-Construction Bat Surveys. At bridge and culvert structures where construction activities would occur on or below that structure, and where there is also potential for maternity roosting, nighttime bat surveys should be performed by a qualified bat biologist during the peak period (June or July) of the bat maternity season (April 1–August 31) to confirm whether maternity colonies are present. These surveys should be performed by a qualified bat biologist at least 1 year in advance of construction so that appropriate site-specific and species-specific minimization measures can be developed in coordination with the CDFW and a qualified bat biologist.	Caltrans Biologist	During PS&E	No						
ANS-2 Avoidance of the Bat Maternity Season. Within 500 feet of structures where maternity roosting is confirmed, activities that pose adverse impacts to roosting bats through elevated noise and vibration, such as demolition and pile-driving activities, shall avoid the recognized bat maternity season (April 1–August 31) to prevent potential mortality of flightless young bats. Any such construction activities at structures housing maternity colonies shall be coordinated with a qualified bat biologist and the CDFW prior to work within the bat maternity season.	Caltrans Biologist, and Resident Engineer	During construction	No						

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ANS-3 Humane Eviction and Exclusion. Direct impacts to bats and bat-roosting habitat are not anticipated from the proposed Project. If direct impacts to bat-roosting habitat are anticipated, humane evictions and exclusions of roosting bats should be performed under the supervision of a qualified bat biologist in the fall (September or October) prior to any work activities that would result in direct impacts or direct mortality to roosting bats. This action will be performed in coordination with the CDFW. To avoid potential mortality of flightless juvenile bats, evictions and exclusions of bats cannot be performed during the maternity season (April 1–August 31). Winter months are also inappropriate for bat eviction because not all individuals in a roost will emerge on any given night. In addition, long-distance movements to other roost sites are more difficult during the winter, when prey availability is scarce, resulting in high mortality rates of evicted bats.	Caltrans Biologist	During PS&E	No						
ANS-4 Night Work Lighting. If night work (i.e., between dusk and dawn) is anticipated within 100 feet of structures where bat roosting is confirmed, night lighting shall be used only in areas of active work and shall be focused on the direct area(s) of work and away from the culvert entrances to the greatest extent practicable.	Caltrans Biologist, and Resident Engineer	During PS&E and construction	Yes						
ANS-5 Obstruction of Bat Roosting Features. Airspace access to and from the roost features of the structures shall not be obstructed except in direct work areas, and construction personnel shall not be present in non-active areas beneath the structures or near the entrances to the structures.	Caltrans Biologist, and Resident Engineer	During PS&E and construction	Yes						
ANS-6 Construction Equipment Staging. To the extent practicable, internal combustion equipment (e.g., generators and vehicles) is not to be parked or operated beneath or adjacent to the structures unless it is required for Project-related work on that structure.	Caltrans Project Engineer, Resident Engineer, and Biologist	During construction	No						
ANS-7 Replacement Lighting Locations. The proposed Project includes the replacement of lighting in various areas. Siting of these lights should avoid overspill into bat-roosting sites, and light shields should be installed for lights adjacent to suitable foraging habitat to avoid permanent impacts to roosting and foraging bats.	Caltrans Biologist, and Resident Engineer	During PS&E and construction	Yes						
ANS-8 Swallow Nest Removal. If swallow nests are removed to prevent swallows from nesting in the Project area during construction activities, the nests should be inspected for roosting bats by a CDFW-approved bat biologist and removed in the fall (September or October) in a manner that ensures they do not fall to the ground before lack of occupancy has been established.	Caltrans Biologist	During construction	No						

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ANS-9 Tree Trimming and Removal. To the greatest extent feasible, tree trimming/removal activities shall be performed outside the bat maternity season (April 1– August 31) to avoid direct impacts to nonvolant (flightless) young that may roost in trees within the study area. This period also coincides with the typical bird nesting season. If trimming or removal of trees during the bat maternity season cannot be avoided, a qualified biologist shall monitor tree trimming and removal activities.	Caltrans Biologist, and Resident Engineer	During construction	No						
ANS-10 Compensation for Direct Impacts to Bats. If permanent, direct impacts to bat-roosting habitat are anticipated and/or a humane eviction/exclusion is performed, alternate roosting habitat shall be provided to ensure no net loss of bat-roosting habitat. The design, numbers, and locations of these roost structures should be determined in consultation with a qualified bat biologist. This action shall be coordinated with Caltrans, the CDFW, and a qualified bat biologist to ensure that the installed habitat will provide adequate mitigation for impacts.	Caltrans Biologist	During PS&E	No						
ANS-11 Construction Night Lighting. All lighting used at night for Project construction will be of the lowest illumination necessary for human safety and will be selectively placed and directed at the immediate work area and away from adjacent habitats. Light glare shields will be used to reduce the extent of illumination into habitats.	Caltrans Biologist, and Resident Engineer	During PS&E and construction	Yes						
Invasive Species									
<i>Project Features</i>									
No Project Features are required.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
IS-1 Weed Abatement Program. In compliance with Executive Order 13112, and guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control plans included in the project will not use species listed as invasive. A weed abatement program shall be developed for the proposed project and incorporated into the Plans, Specifications, and Estimates (PS&E) package to avoid and/or minimize the importation of nonnative plant material during and after construction. At a minimum, the program shall include the following measures: <ul style="list-style-type: none"> • During construction, invasive plant material will be removed from the proposed project work area. All removed invasive plant material will be disposed of properly in a landfill or other suitable facility. • During construction, the Construction Contractor shall inspect and clean construction equipment at the beginning of each day and prior to transporting equipment from project location to another. • During construction, soil and vegetation disturbances will be minimized to the greatest extent feasible. • During construction, the Construction Contractor shall ensure that all active portions of the 	Caltrans Resident Engineer	During PS&E and construction	No						

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<p>construction site are watered a minimum of twice daily, or more often when needed, due to dry or windy conditions, to prevent excessive amounts of dust.</p> <ul style="list-style-type: none"> • During construction, the Construction Contractor shall ensure that all material stockpiled is sufficiently water or covered to prevent excessive amounts of dust. • During construction, soil, gravel, and rock will be obtained from weed-free sources. • Only certified weed-free straw, mulch, and/or fiber rolls will be used for erosion control. • After construction, affected areas adjacent to native vegetation will be revegetation with plant species that are native to the vicinity as approved by the District Biologist. • After construction, all revegetated areas will avoid the use of species listed on the California Invasive Plant Council (CAL-IPC) California Invasive Plant Inventory that have a High or Moderate rating. • Erosion control and/or revegetation sites will be monitored after construction to detect and control the introduction/invasion of nonnative species. The monitoring period will be determined in consultation with resource agencies. • Eradication procedures (e.g., spraying and/or hand weeding) will be outlined should an infestation occur; the use of herbicides will be prohibited within and adjacent to native vegetation, except as specifically authorized and monitored by the District Biologist. • All woody invasive species will be removed from the proposed project limits. 									

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Greenhouse Gas Emissions									
<i>Project Features</i>									
No Project Features are required.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
GHG-1: The contractor shall implement a sustainability construction management approach by implementing the following measures: <ul style="list-style-type: none"> Use low-emission vehicles during construction. Alternative fuels such as renewable diesel should be used for construction equipment. Limit idling to 5 minutes for delivery and dump trucks and other diesel-powered equipment. Schedule truck trips outside of peak morning and evening commute hours. Reduce construction waste and maximize the use of recycled materials (to reduce consumption of raw materials, reduce landfill waste, and encourage cost savings). Incorporate measures to reduce consumption of potable water. Maintain equipment in proper tune and working condition. Use the right size of equipment for the job. Use equipment with new technologies. Construction Environmental Training: Supplement existing training with information regarding methods to reduce GHG emissions related to construction. 	Caltrans Resident Engineer	During construction	Yes						
GHG-2: Replacement of light fixtures with highly efficient light-emitting diodes (LEDs), including new safety lighting.	Caltrans Project Engineer/Caltrans Resident Engineer	During PS&E/Construction	Yes						
GHG-3: Reduce water use by planting drought-tolerant vegetation and installing smart irrigation controllers.	Caltrans Project Engineer	During PS&E and during construction	Yes						
VMT Reduction									
<i>Project Features</i>									
No Project Features are required.									
<i>Avoidance, Minimization, and/or Mitigation Measures</i>									
TR-1*: Housing Density and Affordability. Caltrans shall contribute to affordable housing projects throughout Orange County.	Caltrans Project Engineer/Generalist/Caltrans Project Manager/Caltrans Traffic Engineer	During PS&E	Yes						
TR-2*: New Transit Service (BRT, Increased Service). Caltrans shall contribute monies to the following routes that would benefit from increased bus services on existing routes as identified through Orange County Transportation Authority's (OCTA) Making Better Connections Study: 33 locally fixed routes, 6 community routes, 2 Intracounty express routes, 1 Metrolink Station route, 3 Intercounty express routes.	Caltrans Project Engineer/Generalist/Caltrans Project Manager/ Caltrans Traffic Engineer	During PS&E	Yes						
TR-3*: Transit Efficiencies (Improve Existing Service). Caltrans shall contribute to existing transit service for improved efficiencies that would result in VMT reduction.	Caltrans Project Engineer/Generalist/Caltrans Project Manager/ Caltrans Traffic Engineer	During PS&E	Yes						

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TR-4*: Transit Pass Subsidies. Caltrans shall provide transit pass to encourage mode shift in transportation and reduce VMT.	Caltrans Project Engineer/ Generalist/Caltrans Project Manager/ Caltrans Traffic Engineer	During PS&E	Yes						
TR-5*: Active Transportation (Bike-New Parallel Facilities). Caltrans shall invest into new Class II bikeway facilities.	Caltrans Project Engineer/ Generalist/Caltrans Project Manager/ Caltrans Traffic Engineer	During PS&E	Yes						