

## **APPENDIX E**

# **Avoidance, Minimization, and/or Mitigation Summary**



Task and Brief Description	Responsible Branch / Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
<b>Farmland</b>					Initial	Date		Initial	Date
<b>Measure FRM-1:</b> Caltrans will comply with Government Code Section 51293(d), ensuring that the land surface disturbed for the relocation of utilities will be restored to its original conditions.	Caltrans	Construction/ Post-Construction							
<b>Community Impacts</b>									
<b>Measure CMN-1:</b> Implement a comprehensive community outreach program with affected property owners to minimize the impacts of access disruption or alterations as part of both project design and during construction. See <b>Section 2.1.5, Community Impacts</b> for more details.	Caltrans	Design Phase/ Pre-Construction/ During Construction							
<b>Utility/Emergency Services</b>									
<b>Measure UTL-1:</b> Detailed utility coordination and verification with the affected utility owner.	Caltrans	Final Design Phase							
<b>Traffic and Transportation</b>									
<b>Measure TRA-1:</b> Prepare a Traffic Management Plan (TMP) in accordance with Caltrans requirements and guidelines to minimize construction-period project impacts. The TMP should address traffic impacts from staged construction, detours, and specific traffic handling concerns during construction of the project. Traffic management strategies requiring action by the construction contractor should be presented in detail in the Build Alternative's technical specifications of the bid contract, and should be considered part of the project. In implementing the TMP, Caltrans should: • produce and disseminate press releases and other documents, as necessary, to adequately notify and inform motorists, business community groups, local entities, emergency services, and elected officials of upcoming road closures and detours; • provide advance notice to local newspapers, television and radio stations, and emergency response providers; • submit weekly information regarding the daily traffic impacts to State facilities to the Caltrans District 4 Public Information Office; and disperse Weekly Traffic Updates to all news media outlets and other interested agencies, which should include daily traffic impacts information. Refer to <b>Section 2.1.7, Traffic and Transportation/Pedestrian and Bicycle Facilities</b> for more details.	Caltrans	Final Design Phase							
<b>Visual/Aesthetics</b>									
<b>Measure VIS-1:</b> Existing landscaping and other roadside vegetation removed by the Build Alternative should be replaced where proper setback exists and where feasible per Caltrans policy. If the cost estimate for replacement planting exceeds \$200K, replacement planting would need to be accomplished as a separate contract, funded from the parent roadway contract, and must include a 3-year plant establishment period.	Caltrans/ Contractor	Final Design Phase							

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<p><b>Measure VIS-2:</b> Replacement landscaping within the designated Landscaped Freeway locations must be planted such that the criteria for the Landscaped Freeway will be maintained. In these areas, planting must be continuous (no gaps ≥ 200 feet), ornamental (not functional), a least 1,000 feet long, on at least one side of the freeway, and require reasonable maintenance. The following locations within the project limits are designated Landscaped Freeway: Santa Clara County, PM 6.5 to 9.93; Alameda County, PM 0.0 to 2.85, PM 3.23 to 4.07, and PM 5.11 to 6.62.</p>	Caltrans/ Contractor	Final Design Phase							
<p><b>Measure VIS-3:</b> To reduce the visual impact of new retaining walls and noise barriers, aesthetic treatments consisting of color, texture and/or patterning will be applied considered to reduce visual impacts. The aesthetic treatment will be context sensitive and compatible with existing walls in the area. If concrete drainage ditches are required along the top of and behind the retaining walls, the ditch should be stained to match the overall color of the wall. Aesthetic treatments will be approved by the Caltrans District Landscape Architect.</p>	Design Engineer	Final Design Phase							
<p><b>Measure VIS-4:</b> Where required, retaining wall cable safety railing should have black or brown vinyl cladding to make them less obtrusive and help them blend with the setting.</p>	Design Engineer	Final Design Phase							
<p><b>Measure VIS-5:</b> Concrete safety-shaped barriers should be sand blasted to a medium finish to minimize glare and deter graffiti. Barriers at the bottom of retaining walls should be stained to match the overall wall color if deemed appropriate by the Office of Landscape Architecture during the design phase.</p>	Design Engineer	Final Design Phase							
<p><b>Measure VIS-6:</b> Appropriate light and glare screening measures will be used at the construction staging areas including the use of downward cast lighting.</p>	Caltrans/ Contractor	During Construction							
<b>Cultural Resources</b>									
<p><b>Measure CUL-1:</b> If human remains are discovered, further disturbances and activities shall cease and around in any area suspected to overlie remains, and the County Coroner contacted (per State Health and Safety Code Section 7050.5). Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Caltrans PQS Archaeologist so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.</p>	Contractor	During Construction							

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<p><b>Measure CUL-2:</b> If unidentified cultural materials are unearthed during construction, work will be halted in that area until a qualified archaeologist can assess the significance of the find.</p>	Contractor	During Construction							
<p><b>Measure CUL-3:</b> Per the ESA and AMA Action Plan, unintentional adverse effects on archaeological resources will be avoided by establishing ESAs and AMAs around the archaeological site boundaries within the APE, and the high-sensitivity locations within the project limits. The ESA will be designated by temporary orange-mesh fencing erected to bar entry into the site.</p> <p>A summary of the ESA and AMA Action Plan tasks are outlined below.</p> <ul style="list-style-type: none"> <li>The Caltrans Archaeologist will review the final design package to ensure that the ESAs and AMAs are appropriately included in the plans and specifications, and can clearly guide construction, and will notify the appropriate Native American group.</li> <li>At least three weeks in advance, the Caltrans Resident Engineer (RE) and Archaeologist will clearly delineate and install the ESAs and AMAs as specified.</li> <li>Prior to construction workers shall be informed of the ESA, the AMAs, and monitoring methods and expectations.</li> <li>The Caltrans RE and Archaeologist will ensure that a monitor is present.</li> <li>During construction, the Caltrans Archaeologist will periodically inspect the ESAs and monitor all construction activity within the designated AMAs.</li> </ul> <p>The archaeologist will assist in any necessary post construction tasks.</p>	Caltrans Archaeologist	Pre-Construction/ During Construction							
<b>Hydrology and Floodplain</b>									
<p><b>Measure HYDR-1:</b> Construction of the Build Alternative will be planned so as to avoid adverse effects to the natural and beneficial floodplain values to the maximum extent practicable. Any impacts would be reduced with re-vegetation, storm water treatment, or other requirements as designated by the relevant permits.</p>	Design Engineer	Final Design Phase/ Pre-Construction							
<b>Water Quality and Storm Water Runoff</b>									
<p><b>Measure WQ-1:</b> A Storm Water Pollution Prevention Program (SWPPP) would be developed for the project and would comply with the Caltrans SWMP, which includes guidance for in construction contracts to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges. Water quality inspector(s) will inspect construction areas after a rain event to ensure that the storm water BMP's are adequate.</p> <p><b>Table 2.2.2-5</b> of the EIR/EA outlines temporary BMPs to be implemented, at a minimum, to protect the natural values of the waterways that cross the project limits, as well as measures to reduce adverse effects to special-status species likely to occur in the areas of proposed improvements. Implementation of design features or BMPs would be developed and incorporated into the Build Alternative design prior to project construction. Refer to <b>Section 2.2.2, Water Quality and Storm Water Runoff</b> for more detail.</p>	Caltrans/ Contractor	During Construction							

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<p><b>Measure WQ-2:</b> The drainage and landscape elements listed below can be utilized as design pollution prevention BMPs for the Build Alternative, as specified by the Design Engineer. The following elements would be considered during the final design phase:</p> <ul style="list-style-type: none"> <li>• Consideration of downstream effects related to increased flow: The Build Alternative would discharge into unlined ditches; therefore, necessary erosion control would be applied to the ditches to minimize erosion downstream from increased discharge.</li> <li>• Preservation of existing vegetation: Preserving existing vegetation is beneficial. The Build Alternative would avoid any disturbance beyond what will be necessary to widen the existing transportation facilities.</li> <li>• Concentrated flow conveyance systems: The Build Alternative has the potential to create water gullies, create and modify existing ditches, dikes, and berms, and require the concentration of surface flows. If necessary, flow attenuating devices would be implemented (e.g., flared-end-section, outlet protection/velocity dissipation devices).</li> <li>• Slope/Surface Protection Systems: The Build Alternative would create or modify existing slopes. Necessary erosion control features would be incorporated for work along steep grades. When practicable, slope stability and erosion concerns would be reduced by maintaining or matching existing slopes.</li> <li>• Hydromodification: In order to manage hydromodification, volume-reduction elements may be proposed during the design phase to match, or closely match, the pre- and post-construction hydrographs. Measures to address hydromodification impacts can include structural measures, such as underground detention, and non-structural measures, through the modification of proposed treatment BMPs (see below). The proposed measures must be designed to show that storm water runoff discharge rates and durations match the pre-project conditions within a certain percentage of the peak flow rates during storm events.</li> </ul>	Design Engineer	Final Design Phase							
<p><b>Measure WQ-3:</b> Typical permanent treatment BMPs may include infiltration device such as vegetated basins and/or swales along the roadways that collect storm water runoff. Caltrans has an approved list of treatment BMPs that have been studied and verified to remove targeted design constituents and provide general pollutant removal. The San Francisco RWQCB suggests infiltration and retention devices for pollutant removal or reduction while promoting the effort to mimic predevelopment hydrology by reducing flow rates and velocity and allowing for groundwater recharge. Although retention devices are not currently approved Caltrans BMPs devices, the feasibility and determination of preferred treatment BMPs type would be coordinated to ensure both Caltrans and regional requirements are met. Existing treatment BMPs removed by the project must be replaced.</p>	Design Engineer	Final Design Phase							

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<b>Geology/Soils/Seismic/Topography</b>								
<p><b>Measure GEO-1:</b> Geotechnical design reports must incorporate results of additional subsurface field work and laboratory testing. Subsurface soil conditions, slope stabilities, and groundwater conditions within the Build Alternative area will be verified during the preparation of these reports. Site specific soil conditions will be used to determine appropriate final design for foundations and footings for proposed Build Alternative improvements. Proposed structures will consider seismically-induced liquefaction and settlement during the final design phase and comply with Caltrans seismic risk guidelines and standards.</p> <p>The final design phase will also include the evaluation of the Design Response Spectrum, which measures the ground motion or acceleration caused by the input of a vibration from an earthquake at a specific location. This will help to better understand how structures would respond to earthquakes in a given place. Refer to <b>Section 2.2.3, Geology/Soils/Seismic/Topography</b> for more details.</p>	Design Engineer	Final Design Phase						
<p><b>Measure GEO-2:</b> Pursuant to Section 5(a) (1) of Occupational Health and Safety Administration (OSHA), employers must provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.</p>	Contractor	During Construction						
<b>Paleontology</b>								
<p><b>Mitigation Measure PAL-A:</b> A qualified professional paleontologist (as defined by Caltrans SER) will be retained to both design and implement a monitoring and mitigation program, and implement the program during project-related excavation and earth disturbance activities. The paleontological resource monitoring and mitigation program would include: preconstruction coordination, construction monitoring, emergency discovery procedures, sampling and data recovery, if needed, preparation, identification, and analysis of the significance of fossil specimens salvaged, if any, museum storage of any specimens and data recovered, and reporting.</p> <p>The professional paleontologist will conduct a field survey of exposures of sensitive stratigraphic units that would be disturbed during construction. Earth-moving construction activities will be monitored and inspected for the presence of potentially fossiliferous sediments. Such activities will only require paleontological mitigation if they will impact a geologic unit of high potential to produce significant fossils either at the surface or at depth of planned excavation.</p> <p>Prior to the start of construction, construction personnel involved with earth-moving activities would be informed that fossils could be discovered during excavation, and that these fossils are protected. Worker training would include a summary of the appearance of common fossils, and proper notification procedures should fossils be discovered. This worker training would be prepared and presented by a qualified professional paleontologist. Refer to <b>Section 2.2.4, Paleontology</b> for more details.</p>	Professional Paleontologist/ Contractor	Pre-Construction/ During Construction						

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<b>Hazardous Waste/Materials</b>								
<p><b>Measure HAZ-1:</b> During the final design phase, a Preliminary Site Investigation will be performed to investigate hazardous materials concerns related to soil, groundwater, and construction materials within the project limits, as identified in the ISA. A work plan for the Preliminary Site Investigation will be submitted to Caltrans for review and approval. Additional investigation may be required if concerns are identified during the Preliminary Site Investigation. These investigations will be provided to project contractors, so findings may be incorporated into health and Safety and Hazard Communication Programs. At a minimum, groundwater from dewatering of excavations, if any, will be stored in Baker tank(s) during construction activities and the water will be characterized prior to disposal or recycling. Refer to <b>Section 2.2.5, Hazardous Waste/Materials</b> for more details.</p>	Design Engineer	Pre-Construction						
<p><b>Measure HAZ-2:</b> A Site Safety Plan will be prepared and implemented prior to any construction/development activities to reduce potential health and safety hazards to workers and the public. Per Caltrans' Standard Special Provision 07-330, the contractor would be required to prepare a Lead Compliance Plan to prevent or minimize worker exposure.</p>	Design Engineer	Pre-Construction						
<p><b>Measure HAZ-3:</b> Hazardous building materials surveys will be conducted by a qualified professional for structures proposed for renovation as part of the Build Alternative. Lead-based paint and asbestos-containing material shall be included in these building surveys, and all loose and peeling lead-based paint and asbestos-containing material removed by a certified contractor(s) in accordance with local, state, and federal requirements. All other hazardous materials will be removed from structures in accordance with California OSHA regulations.</p>	Certified Contractor/ Professional	Pre-Construction/ During Construction						
<p><b>Measure HAZ-4:</b> Yellow thermoplastic and yellow paint striping and markings on existing roadways would be analyzed for lead chromate prior to disturbance or removal in accordance with Chapter 7 of Caltrans' Construction Manual. Yellow stripe and pavement markings would also be managed as an assumed hazardous waste by implementing a Lead Compliance Plan and testing the residues for hazardous-waste classification prior to off-site disposal (per Caltrans Standard Special Provision 14 001). Asphalt-concrete and Portland cement concrete grindings will be reused in accordance with San Francisco Bay RWQCB guidelines.</p>	Contractor	Pre-Construction/ During Construction						
<p><b>Measure HAZ-5:</b> Representative soil and/or groundwater sampling will be conducted by a licensed professional to evaluate the potential presence of hazardous materials in soil and groundwater in accordance with a work plan that has been reviewed and approved by Caltrans. Soil samples will be analyzed for total lead and soluble lead to evaluate whether the Department of Toxic Substances Control's variance issued to Caltrans could apply. Soil and groundwater results would also be screened against the San Francisco Bay RWQCB's Environmental Screening Levels to determine appropriate actions that will ensure the protection of construction workers, future site users, and the environment, and against hazardous waste thresholds to determine soil management options.</p>	Certified Contractor/ Professional	Pre-Construction/ During Construction						

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<b>Air Quality</b>							
<p><b>Measure AIR-1:</b> Construction contractor must comply with Caltrans' Standard Specifications in Section 14-9 (2010) to reduce air quality impacts resulting from construction activities (refer to <b>Section 2.2.6, Air Quality</b> for more details):</p> <ul style="list-style-type: none"> <li>• Section 14-9-02; compliance by the contractor with all applicable laws and regulations related to air quality</li> <li>• Section 14-9.03; dust control measures</li> </ul>	Contractor	During Construction					
<p><b>Measure AIR-2:</b> Water or dust palliative will be applied to the site and equipment as often as necessary to control fugitive dust emissions, which generally must meet a "no visible dust" criterion either at the point of emissions or at the ROW line depending on local regulations.</p>	Contractor	During Construction					
<p><b>Measure AIR-3:</b> Measures to reduce PM10, PM2.5 and diesel particulate matter from construction will be incorporated to the extent feasible to ensure that short-term health impacts to nearby sensitive receptors are avoided. These include:</p> <ul style="list-style-type: none"> <li>• All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>• All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>• All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. Dry power sweeping is prohibited.</li> <li>• Vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>• Roadway, driveway, and sidewalk paving shall be completed as soon as possible.</li> <li>• Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>• Idling times shall be minimized either by shutting equipment off when not in use or reducing maximum idling time to 5 minutes (CCR Title 13, Section 2485). Clear signage shall be provided for construction workers at all access points.</li> <li>• All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, checked by a certified mechanic, determined to be running in proper condition prior to operation, and meet the current CARB fleet standards.</li> <li>• A publicly visible sign shall be posted with telephone number and contact person at the Lead Agency for dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</li> </ul>	Contractor	During Construction					

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<b>Noise</b>									
<p><b>Mitigation Measure NOI-A:</b> Incorporate noise abatement in the form of a replacement noise barrier (NB Wall 13), located along northbound I-680, between Palm Avenue and Mission Boulevard, which would replace portions of the existing soundwall that would be removed under the Build Alternative. The final decision of the noise abatement will be made upon completion of the project design and public involvement processes. Refer to <b>Section 2.2.7, Noise</b> for more details.</p>	Caltrans	Final Design Phase							
<p><b>Measure NOI-1:</b> The following measures would be implemented to reduce construction noise impacts:</p> <ul style="list-style-type: none"> <li>• Require all construction equipment to conform to Section 14-8.02, Noise Control, of the latest Standard Specifications.</li> <li>• Noise-generating construction activities will be restricted to the allowable hours of construction as identified by local jurisdictions, where feasible:                         <ul style="list-style-type: none"> <li>◦ Construction is generally allowed to start at 7:00 a.m., Monday through Friday, in communities along the I-680 corridor. Construction activities should end by 7:00 p.m., Monday through Friday.</li> <li>◦ Construction activities in Milpitas are allowed between the hours of 7:00 a.m. and 7:00 p.m. on weekends.</li> <li>◦ Fremont allows construction between 9:00 a.m. and 6:00 p.m. on Saturdays and prohibits construction on Sundays.</li> <li>◦ Alameda County allows construction between 8:00 a.m. and 5:00 p.m. on Saturday and Sunday.</li> </ul> </li> <li>• If work is necessary outside of allowable hours, contractor(s) must implement a construction noise monitoring program and, if feasible, provide additional avoidance measures as necessary (e.g., noise control blankets or other temporary noise barriers, etc.).</li> <li>• Pile driving activities will be limited to daytime hours only, where feasible. Contractor(s) will be required to equip all internal combustion engine equipment with intake and exhaust mufflers that are in good condition and appropriate for the machines.</li> <li>• Unnecessary idling of internal combustion engines within 100 feet of residences will be strictly prohibited.</li> <li>• Contractor(s) will be required to locate stationary noise generating equipment as far as possible from sensitive receptors and utilize "quiet" air compressors and other "quiet" equipment, where such technology exists.</li> <li>• Contractor(s) will prepare a detailed construction plan identifying the schedule for major noise-generating construction activities and noise reduction measures and distribute this plan to adjacent noise-sensitive receptors.</li> </ul>	Contractor	During Construction							

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<b>Natural Communities</b>									
<b>Wetlands and other Waters of the U.S.</b>									
<p><b>Mitigation Measure BIO-A:</b> Any impacts to jurisdictional water features that cannot be recreated on-site shall be subject to formalized mitigation requirements of the regulatory agencies. A conceptual restoration and mitigation plan shall be prepared prior to permit applications to regulatory agencies. The on-site restoration of Waters of the U.S. combined with the implementation of other components of the conceptual restoration and mitigation plan will ensure no net loss of functions and values of Waters of the U.S.</p> <p>The off-site mitigation ratio proposed for Waters of the U.S., including wetlands, under jurisdiction of the USACE, is 1:1 acres of mitigation per acre of permanent impact. The mitigation ratio proposed for temporary impacts is 1:1 acre of mitigation per acre of temporary impact. All of the mitigation for temporary impacts is anticipated to be achieved on-site by restoring impacted areas to pre-project conditions. Final impact quantities and required mitigation will be determined during the permitting process with USACE.</p> <p>Off-site mitigation for permanent impacts is proposed through purchase of credits at an approved mitigation bank. A conceptual on-site restoration and mitigation plan will be included in the permit applications to regulatory agencies. This plan will include a native plant palette list, plant establishment period, success criteria, and a monitoring and reporting schedule that would be reviewed and approved by the regulatory agencies prior to project construction. In addition, under Section 401 of the Clean Water Act, the RWQCB may request or require mitigation as part of the Water Quality Certification.</p>	Caltrans	Permitting Phase							

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<b>Threatened and Endangered Species</b>									
<p><b>Mitigation Measure BIO-B:</b> In order to meet the requirements of California Fish and Game Code Section 2081 for obtaining an Incidental Take Permit for the California tiger salamander, compensatory mitigation is proposed to satisfy the conditions of multiple agencies and jurisdictions including FESA and the CEQA process. Caltrans will purchase Service-approved banking credits at the Ohlone West Conservation Bank or Ohlone Preserve Conservation Bank to offset impacts to Central California tiger salamander habitat. Caltrans will satisfy the habitat compensation by phase, starting with Phase 1. Compensation for the Future Phases will occur when funding is available. Compensation for each phase will be completed prior to ground-breaking on that phase. In the event that banking credits are not available, Caltrans will coordinate with the regulatory agencies to establish an appropriate mitigation strategy.</p> <p>Caltrans will implement restoration of temporary work areas at the conclusion of project construction. Areas will be restored to their particular baseline land cover and ecological functions.</p> <p>Caltrans will compensate for the prolonged temporary loss of riparian woodland habitat by restoring 0.15 acre of riparian habitat within the temporary work areas, and planting an additional 0.18 acre of riparian woodland vegetation off-site but adjacent to the construction footprint within the Alameda Creek and Sheridan Creek riparian corridors. Riparian trees will be replaced at 3:1 in coordination with the CDFW.</p>	Caltrans	Final Design Phase							
<p><b>Mitigation Measure BIO-C:</b> In order to meet the requirements of the USFWS for the California red-legged frog, compensatory mitigation is proposed. Caltrans will purchase Service-approved banking credits at the Ohlone West Conservation Bank or Ohlone Preserve Conservation Bank to offset impacts to California red-legged frog habitat. Caltrans will satisfy the habitat compensation by phase, starting with Phase 1. Compensation for the Future Phases will occur when funding is available. Compensation for each phase will be completed prior to ground-breaking on that phase. In the event that banking credits are not available, Caltrans will coordinate with the regulatory agencies to establish an appropriate mitigation strategy.</p> <p>Caltrans will implement restoration of temporary work areas at the conclusion of project construction. Areas will be restored to their particular baseline land cover and ecological functions.</p> <p>Caltrans will compensate for the prolonged temporary loss of riparian woodland habitat by restoring 0.15 acre of riparian habitat within the temporary work areas, and planting an additional 0.18 acre of riparian woodland vegetation off-site but adjacent to the construction footprint within the Alameda Creek and Sheridan Creek riparian corridors. Riparian trees will be replaced at 3:1 in coordination with the CDFW.</p>	Caltrans	Final Design Phase							

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<p><b>Mitigation Measure BIO-D:</b> In order to meet the requirements of California Fish and Game Code Section 2081 for obtaining an Incidental Take Permit for the Alameda whipsnake, compensatory mitigation is proposed. Caltrans will purchase Service-approved banking credits at the Ohlone West Conservation Bank or Ohlone Preserve Conservation Bank to offset impacts to Alameda whipsnake habitat. Caltrans will satisfy the habitat compensation by phase, starting with Phase 1. Compensation for the Future Phases will occur when funding is available. Compensation for each phase will be completed prior to ground-breaking on that phase. The proposed off-site habitat acquisition for the Alameda whipsnake is summarized in Table 2.3.7-7. In the event that banking credits are not available, Caltrans will coordinate with the regulatory agencies to establish an appropriate mitigation strategy.</p> <p>Caltrans will implement restoration of temporary work areas at the conclusion of project construction. Areas will be restored to their particular baseline land cover and ecological functions.</p> <p>Caltrans will compensate for the prolonged temporary loss of riparian woodland habitat by restoring 0.15 acre of riparian habitat within the temporary work areas, and planting an additional 0.18 acre of riparian woodland vegetation off-site but adjacent to the construction footprint within the Alameda Creek and Sheridan Creek riparian corridors. Riparian trees will be replaced at 3:1 in coordination with the CDFW.</p>	Caltrans	Final Design Phase							
<p><b>Mitigation Measure BIO-E:</b> Approximately 1.22 acres of oak woodland would be impacted by project activities. Caltrans will provide native oak woodland compensation at a 1:1 acre ratio for impacts. Trees will be planted onsite in the project area to the maximum extent possible after the completion of roadway construction. Offsite planting areas near the project will be sought if onsite restoration cannot accommodate the acreage.</p>	Caltrans	Final Design Phase							
<p><b>Biological Measures Incorporated into the Project Design</b></p>									
<p><b>Measure BIO-1:</b> Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS and CDFW approval prior to initiating construction activities.</p>	Caltrans	Pre-Construction							
<p><b>Measure BIO-2:</b> The agency-approved biologist(s) will be onsite during initial ground-disturbing activities, and thereafter as needed to fulfill the roll of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when onsite. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to:</p> <ul style="list-style-type: none"> <li>• communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that take of special-status species is minimized and permit requirements are fully implemented</li> <li>• stop project activities to minimize take of special-status species, or if he/she determines that any permit requirements are not fully implemented. Agencies shall be notified by telephone and email within 24 hours if this occurs.</li> </ul>	Biological Monitor/ Resident Engineer	During Construction							

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<b>Measure BIO-3:</b> All construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working on the project.	Caltrans/ Contractor	Pre- Construction					
<b>Measure BIO-4:</b> To prevent inadvertent entrapment of special-status species during construction, excavated holes or trenches more than one-foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used. If it is not feasible to cover an excavation or provide the additional barrier, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the on-site biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS will be contacted by telephone for guidance. The USFWS will be notified of the incident by telephone and email within 48 hours.	Contractor/ Biologist	During Construction					
<b>Measure BIO-5:</b> The limits of construction zones within suitable habitat for special-status species will be delineated with high visibility wildlife exclusion fencing at least four feet in height to prevent wildlife from accessing the construction footprint. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project construction area. Wildlife exclusion fencing is not required for construction activities occurring outside of suitable habitat for special-status species.	Contractor/ Biologist	During Construction					
<b>Measure BIO-6:</b> Work Window within Aquatic Features. Construction activities that would disturb soil or have the potential to result in siltation to water bodies will be limited to the summer season, defined as April 15 to October 15, to avoid peak rainy periods. This measure does not apply to work in Alameda Creek, which has a more restrictive work window due to the potential presence of listed fish species (see Measure BIO-13).	Contractor/ Biologist	During Construction					
<b>Measure BIO-7:</b> Work Window for Nesting Birds. To the extent practicable, clearing and grubbing activities will be conducted during the non-nesting season, from September 2 to February 14.	Contractor	During Construction					
<b>Measure BIO-8:</b> Prior to any ground disturbance that occurs between Koopman Road and SR 238, or between Scott Creek Road and SR 262, pre-construction surveys will be conducted by an agency-approved biologist for special-status species. If any listed species are detected during preconstruction surveys, the USFWS and/or the CDFW and the NMFS will be notified as appropriate within 48 hours.	Biologist	Pre- Construction					
<b>Measure BIO-9:</b> Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of any construction activities occurring during the breeding season (February 15 to September 1).	Biologist	Pre- Construction					

Task and Brief Description	Responsible Branch / Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed	Remarks	Environmental Compliance
<b>Measure BIO-10:</b> A no-work buffer will be established within 100 feet of active raptor nests and 50 feet of active passerine nests. These distances may be increased or decreased on a case-by case basis depending on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.	Biological Monitor	During Construction					
<b>Measure BIO-11:</b> Occupancy Surveys for Western Burrowing Owl. Occupancy surveys, as defined in the Staff Report on Burrowing Owl Mitigation (CDFW 2012), shall be conducted by a qualified biologist prior to ground-disturbing activity. If burrowing owls are found to occupy habitat in or adjoining the project limits, avoidance and minimization measures will be determined in consultation with CDFW.	Biologist	Pre-Construction					
<b>Measure BIO-12:</b> A qualified biologist will conduct a preconstruction survey to determine if woodrat nests are present within the project construction woodland areas. The need for nest dismantling and relocation will be determined by Caltrans in coordination with CDFW.	Biologist	Pre-Construction					
<b>Measure BIO-13:</b> Work within Alameda Creek will adhere to the provisions outlined in the Biological Opinion to avoid and minimize impacts to biological resources in this area. Refer to <b>Section 2.3.7, Avoidance and Minimization Measures Included in the Project Design</b> for more details.	Biological Monitor/ Contractor	Pre-Construction/ During Construction					
<b>Measure BIO-14:</b> Bat Disturbance during Bridge Widening. At all bridge widening locations, combustion equipment, such as generators, pumps, and vehicles, are not to be parked nor operated under the bridge unless they are required to be in contact or close proximity to activities under the bridge. Personnel shall minimize their presence directly under known bat roost sites.	Contractor	During Construction					
<b>Measure BIO-15:</b> A survey for bat day roosts shall be conducted one year prior to the scheduled demolition and widening work on the Alameda Creek Bridge. The survey shall consist of the provisions specified in the project's Natural Environmental Study. If bat day roosts are identified that will be directly destroyed by demolition or widening activities, then CDFW shall be consulted regarding the appropriate course of action. If no day roosts are identified during surveys that would be directly destroyed by demolition or widening activities, then exclusion measures are not necessary. Refer to <b>Section 2.3.7, Avoidance and Minimization Measures Included in the Project Design</b> for more details.	Biologist/ Contractor	Pre-Construction/ During Construction					
<b>Measure BIO-16:</b> A qualified biologist shall assess trees within the riparian corridor of Alameda Creek for suitable bat habitat (e.g., knotholes, exfoliating bark, crevices at the ends of broken branches, cavities formed by decay, and holes created by woodpecker activity) within 30 days of tree removal. If the habitat assessment reveals suitable bat habitat and tree removal is scheduled from April 16 through August 30 and/or October 16 through February 28 then presence/absence surveys shall be conducted two to three days prior to tree removal. If the surveys are negative then tree removal may be conducted by following the two-phased tree removal system.	Biologist	Pre-Construction					

Task and Brief Description	Responsible Branch / Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed	Remarks	Environmental Compliance
<b>Measure BIO-17:</b> Project employees will be provided with written guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.	Contractor	During Construction					
<b>Measure BIO-18:</b> To the extent practicable, nighttime construction will be minimized.	Contractor	During Construction					
<b>Measure BIO-19:</b> Artificial lighting of the work area during nighttime hours will be minimized to the maximum extent practicable.	Contractor	During Construction					
<b>Measure BIO-20:</b> All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the work area.	Contractor	During Construction					
<b>Measure BIO-21:</b> No firearms will be allowed in the action area except for those carried by authorized security personnel, or local, state, or Federal law enforcement officials.	Contractor	During Construction					
<b>Measure BIO-22:</b> To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.	Contractor	During Construction					
<b>Measure BIO-23:</b> Specific tree preservation measures related to the local regulatory tree ordinances shall be addressed during the permitting phase of the project. Trees within Caltrans right-of-way are under state control, and are not subject to local regulations.	Caltrans	Final Design Phase					
<b>Measure BIO-24:</b> Caltrans will include a copy of the biological opinion within its solicitations for design and construction of the proposed project, making the primary contractor aware of all requirements and obligations included within the biological opinion, and to educate and inform all other contractors involved in the project as to the requirements of the biological opinion. The Resident Engineer or their designee will be responsible for implementing the Conservation Measures and Terms and Conditions of the biological opinion and will maintain a copy of the biological opinion onsite whenever construction is taking place. Their name and telephone number will be provided to the USFWS at least 30 calendar days prior to groundbreaking. Prior to ground breaking, the Resident Engineer will submit a letter to the USFWS verifying that they possess a copy of the biological opinion and have read the Terms and Conditions.	Resident Engineer	During Construction					
<b>Measure BIO-25:</b> The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that Alameda whipsnake, California red-legged frog, California tiger salamander, or San Joaquin kit fox is observed within a construction zone, and will suspend construction activities within a 50-foot radius of the animal until it leaves the site voluntarily or an agency-approved protocol for removal has been established.	Resident Engineer	During Construction					
<b>Measure BIO-26:</b> Construction activities that would disturb soil within suitable habitat for California tiger salamander will occur between April 15 and October 15, when the species is unlikely to be active and there is lower potential for an individual to enter the work area.	Contractor	During Construction					

Task and Brief Description	Responsible Branch / Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
<b>Measure BIO-27:</b> Plastic monofilament netting (erosion control matting) or similar material will not be used for the project because Alameda whipsnakes, California red-legged frogs, and California tiger salamanders may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.	Contractor	During Construction							
<b>Measure BIO-28:</b> In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control included in the project will not use species listed as invasive. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur.	Contractor	During Construction							
<b>Measure BIO-29:</b> At bridges where colony-nesting birds such as cliff swallows occur, a plan shall be developed to deter their nesting prior to the start of construction. Only nests in areas that will be directly impacted by bridge widening activities will be deterred. If birds build nests on parts of the bridge that will not be directly impacted by bridge widening, those birds will be allowed to nest and construction activities shall avoid disturbance to those nests. If netting is used as a bird deterrent, it must be of proper mesh size to ensure that it does not entangle birds, and installed in such a way as to ensure that it does not cause entrapment of birds.	Biologist	Pre-Construction/ During Construction							
<b>Measure BIO-30:</b> All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and tree species to restore habitat values. Invasive, exotic plants will be controlled within the PCA to the maximum extent practicable pursuant to Executive Order 13112.	Contractor/ Biologist	Construction/P ost- Construction							
<b>Measure BIO-31:</b> In the year prior to the beginning of any ground disturbance for the project, a seasonally-timed rare-plant survey will be conducted by a qualified biologist. The survey requires two site visits to cover the blooming periods for rare plants that have potential to occur within the project limits. One survey must be completed between March and April for early-blooming plants, and the second must be completed between June and August for late-blooming plants. Surveys are only required in areas identified as suitable habitat for rare plants, which includes between Koopman Road and SR 238, or on the northbound side of I-680 between Scott Creek Road and SR 262.	Biologist	Pre-Construction							

Task and Brief Description	Responsible Branch / Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
<p><b>Measure BIO-32:</b> If bat day roosts are identified, then CDFW shall be consulted regarding the appropriate course of action. If deemed appropriate, roost exclusion measures may be put in place at those day roost entrances. Exclusion measures shall only be placed during the period from March 1 to April 15, in order to avoid both the breeding season and hibernation season. Examples of exclusion measures include one-way flaps or doors fitted into roost entrances. No bird netting of any kind shall be used for bat exclusion. These exclusion measures shall be monitored and maintained in working order until demolition activities on the bridge remove the roosting locations.</p> <p>If no day roosts are identified during surveys that would be directly destroyed by demolition or widening activities, then exclusion measures are not necessary. Exclusion measures shall not be used on day roosts that will not be directly destroyed by demolition or widening activities, regardless of the level of construction disturbance that will occur. Construction disturbance near a roost location is not sufficient justification for exclusion.</p>	Biologist	Pre-Construction/ During Construction							
<p><b>Measure BIO-33:</b> Orange construction barrier fencing will be installed to identify environmental sensitive areas (ESAs), including oak woodlands, present within the BSA but that are to be avoided by project activities. A qualified biologist will identify sensitive biological resources adjacent to the construction area before the final design plans are prepared so that the areas to be fenced can be included in the plans. Temporary fences around the ESAs will be installed as one of the first orders of work in accordance with Caltrans specifications. Before construction, the construction contractor will work with the project engineer and a resource specialist to identify the locations for the barrier fencing and will place stakes around the sensitive resource sites to indicate these locations. The protected areas will be designated as ESAs and identified clearly on the construction plans. The fencing will be installed before construction activities are initiated, maintained throughout the construction period, and be removed after completion of construction.</p>	Biologist	Pre-Construction/ During Construction							