CALIFORNIA HIGH-SPEED TRAIN

Project Environmental Impact Report / Environmental Impact Statement

Mitigation Monitoring and Reporting Program

Merced to Fresno Section

Adopted May 2012
Revision 1 December 2012

CALIFORNIA High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration

California High-Speed Train Project EIR/EIS
Merced to Fresno Section

Mitigation Monitoring and Reporting Program (MMRP)

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Revision	Date	Description
0	03 May 2012	Board Adoption of Initial Release
1	06 Dec 2012	Staff update to clarify roles and responsibilities and make revisions consistent with the CEQA Findings of Fact (*Rev1*)

Note: Signatures apply for the latest MMRP revision as noted above.

The California Environmental Quality Act (CEQA) requires that a Lead Agency establish a program to monitor and report on mitigation measures that it has adopted as part of the environmental review process. CEQA (Public Resources Code Section 21081.6 (a) (1)) requires that a Mitigation Monitoring and Reporting Program (MMRP) be adopted at the time that the agency determines to carry out a project for which an Environmental Impact Report (EIR) has been prepared to ensure that mitigation measures identified in the environmental document are fully implemented during project implementation, including the design, pre-construction construction, and post-construction phases.

Based on coordination with the resource agencies, local agencies, and stakeholders, various design features have been proposed as part of the project to minimize impacts. However, adverse effects may still occur. Mitigation measures that would reduce or eliminate potentially adverse significant environmental impacts associated with the Hybrid Alternative for the Merced to Fresno Section High-Speed Train (HST) Project have been identified throughout the Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

The MMRP for the Merced to Fresno Section of the California HST Project is presented as a table that includes the mitigation measures identified in the Final EIR/EIS and is organized by environmental issue, following the topical areas addressed in the EIR/EIS. The California High-Speed Rail Authority (Authority) may refine the means by which it will implement a mitigation measure, as long as the alternative means ensure compliance during project implementation. The MMRP describes implementation and monitoring procedural guidance, responsibilities, and timing for each mitigation measure identified in the EIR/EIS, including:

Significant Impact: Provides a brief description of the impact expected to occur from the proposed project as identified in the Final EIR/EIS.

Mitigation Measure: Provides the mitigation measure and monitoring requirements as identified the Final EIR/EIS.

Implementing Party/Monitoring /Reporting Party: Identifies the entity that will be responsible for directly implementing the mitigation measures, monitoring, and reporting. Implementation can be the responsibility of the Authority or its Contractor. Monitoring will generally be the responsibility of the Contractor, with oversight provided by the Authority during construction. Long-term mitigation monitoring responsibilities will be transitioned from the Contractor to the Authority upon final contract acceptance. The following roles are utilized in the MMRP:

<u>Contractor Roles</u>

- Contractor: Designated Contractor representative responsible for implementing or monitoring and reporting mitigation measures as specified in this MMRP.
- Mitigation Manager: Contractor's representative responsible for overseeing project mitigation to verify that mitigation is carried out as specified in this MMRP. Reports the status of each mitigation measure to Authority in accordance with this MMRP.
- Contractor's Biologist: The Contractor's Biologist is responsible for implementing mitigation measures in compliance with the terms and conditions outlined in the MMRP and U.S. Fish and Wildlife (USFWS), U.S. Army Corps of Engineers (USACE), State Water Resource Control Board (SWRCB), and California Department of Fish and Game (CDFG) permits.
- Project Biological Monitor: The Project Biological Monitor will be approved by and report directly to the Contractor's Biologist. The Project Biological Monitor will be onsite during all ground-disturbing activities that have the potential to affect biological resources and will be the principal agent(s) in the direct implementation of the MMRP and compliance assurance.

- Qualified Professional Archaeologist: Contractor's archaeologist who meets the Secretary of the Interior (SOI) Standards of Archaeology. The Qualified Professional Archaeologist shall be responsible for training contractor staff, implementing mitigation, and coordinating the status of the archaeological mitigation with the Authority in accordance with this MMRP.

- Archaeological Monitor: Contractor's field crew responsible for field monitoring of archaeological mitigation in accordance with this MMRP. The contractor shall determine how many Archaeological Monitors are needed to satisfy the mitigation requirements.

- Paleontological Resources Specialist (PRS): Contractor's paleontologist responsible for determining where and when paleontological resources monitoring should be conducted. Also responsible for developing and implementing their portion of the Worker Environmental Awareness Program training.

Paleontological Resources Monitor (PRM): Contractor's staff selected by the PRS to conduct paleontological monitoring for the project.

Authority Roles

- Authority: Designated Authority representative responsible for implementing or monitoring and reporting mitigation measures as specified in this MMRP.

- Project Biologist: The Project Biologist will represent the Authority, and will be responsible for providing oversight to the Contractor's implementation of the biological mitigation and monitoring.

- Post Construction Contractor: Hired by the Authority to perform post construction activities.

Mitigation Timing (Implementation Schedule/Reporting Schedule): Not all mitigation actions will occur at the same time. Depending upon the measure, it may be undertaken prior to construction, during construction, or during project operations. Measures may also be undertaken in conjunction with different construction packages or at such time as project operations reach a certain level. This column of the table identifies the stage of the project during which the mitigation action will be taken and when reporting is to occur, if reporting is required.

Implementation Mechanism or Tool: Identifies the actions required to implement the measures, including any required agreements and/or conditions.

As the lead agency and proponent of this project, the Authority will implement the mitigation measures through its own actions, those of its contractors, and actions taken in cooperation with other agencies and entities. The Authority is ultimately accountable for the overall administration of the mitigation monitoring program and for assisting relevant individuals and parties in their oversight and reporting responsibilities. The responsibilities of mitigation implementation, monitoring, and reporting extend to several entities as discussed above; however, the Authority will bear the primary responsibility for verifying that the mitigation measures are implemented.

The Authority defines the mitigation measures required for the project. When project work is undertaken by the Authority's contractor, the Contractor shall implement the mitigation measures that are pertinent to their scope of work. The Contractor shall monitor construction activities to ensure that the mitigation measures are being properly implemented and accurately report their activity and results to the Authority. The Authority will periodically check the Contractor's activity, reports, and effectiveness of mitigation activities.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing: Pre-Construction	Mitigation Timing: Construction	Mitigation Timing: Post-Construction	Mitigation Timing: Operations	Mitigation Timing: Implementation Schedule/ Reporting Schedule	Implementation Mechanism or Tool
Transportation[1]								
Transportation mitigation measures are included in Attachment A. These mitigations have been reorganized to clarify implementation responsibilities. *Rev1*								
Air Quality and Global Climate Change								
AQ#1: Regional Impacts. Construction of the HST alternatives would exceed the CEQA emissions thresholds for volatile organic compound (VOC) and nitrogen oxide (NOx). Therefore, it could potentially cause violations of nitrogen dioxide (NO_2) and ozone (O_3) air quality standards or contribute substantially to NO_2 and O_3 existing or projected air quality violations	**AQ-MM#1: Reduce Criteria Exhaust Emissions from Construction Equipment.** This mitigation measure will apply to heavy-duty construction equipment used during the construction phase. All off-road construction diesel equipment will use the cleanest reasonably available equipment (including newer equipment and/or tailpipe retrofits), but in no case less clean than the average fleet mix, as set forth in CARB's Non-Road/Off-Road 2007 database. The contractor will document efforts it undertook to locate newer equipment (such as, in order of priority, Tier 4, Tier 3 or Tier 2 equipment) and/or tailpipe retrofit equivalents. The contractor shall provide documentation of such efforts, including correspondence with at least two construction equipment rental companies. A copy of each unit's certified tier specification and any required CARB or SJVAPCD operating permit will be made available at the time of mobilization of each piece of equipment. The contractor shall keep a written record (supported by equipment hours meters where available) of equipment usage during project construction for each piece of equipment.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Daily Recording/Weekly Reporting	A copy of each unit's certified tier specification and any required California Air Resources Board (CARB) or San Joaquin valley Air Pollution Control District (SJVAPCD) operating permit will be made available at the time of mobilization of each piece of equipment. When non-retrofitted Tier 3 engines are utilized, the contractor will document that no Tier 4 equipment or emissions equivalent retrofit equipment is available or practicable for a particular equipment type. Documentation will be provided in such instances by the contractors and at least two construction equipment rental companies.
	AQ-MM#2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment. This mitigation measure applies to on-road trucks used to haul construction materials, including fill, ballast, rail ties, and steel. Material hauling trucks will consist of an average fleet mix of equipment model year 2010 or newer, to the extent reasonably practicable. The contractor shall provide documentation of efforts to secure such fleet mix inclusive of its sub-contractors. The contractor and its sub-contractors shall keep a written record of equipment usage during project construction for each piece of equipment. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Prior to construction/weekly reporting	Contract Requirements/ Specifications
	AQ-MM#4: Offset Project Construction Emissions through a SJVAPCD Voluntary Emission Reduction Agreement (VERA). This mitigation measure would address AQ IMPACT #1 (Regional Impacts – Construction of the HST would exceed the CEQA emissions threshold for VOC and NO_x). The Authority and SJVAPCD will enter into a contractual agreement to mitigate (by offsetting) to net zero the project's actual emissions that exceed thresholds by providing funds for the district's Emission Reduction Incentive Program (SJVAPCD, 2011) to fund grants for projects that achieve emission reductions, thus offsetting project-related impacts on air quality. The project will reduce actual construction emissions for VOC and NO_x that exceed	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Parties:** Authority & SJVAPCD *Rev1*		X			Prior to construction/weekly reporting	The Authority and SJVAPCD will enter into a contractual agreement to mitigate the project's emissions by providing funds for the district's Emission Reduction Incentive Program to fund grants for projects that achieve emission reductions, thus offsetting project-related impacts on air quality.

[1] Mitigation timing for Transportation mitigations derived from MMRP Traffic Memo.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	significance/General Conformity thresholds through the VERA program. To lower overall cost, funding for the VERA program, to cover estimated construction emissions for any funded construction phase, shall be provided at the beginning of the construction phase. At a minimum, mitigation/offsets shall occur in the year of impact, or as otherwise permitted by 40 CFR Part 93 Section 93.163. *Rev1*							
AQ#2: Regional Impacts. Material hauling outside the SJVAB would exceed CEQA emission thresholds for NOx in the Bay Area Air Quality Management District (AQMD), East Kern APCD, Mojave Desert AQMD, and the SCAQMD for certain hauling scenarios. Therefore, it could potentially cause violations of NO_2 and O_3 air quality standards or contribute substantially to NO_2 and O_3 existing or projected air quality violations in those air districts.	**AQ-MM#2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment** See description above in Impact AQ#1: Regional Impacts. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Prior to construction/weekly reporting	Contract Requirements/ Specifications
	AQ-MM#5: Purchase Offsets and Offsite Emission Mitigation for Emissions Associated with Hauling Ballast Material in the BAAQMD and SCAQMD Air Districts. Actual NO_X emissions from ballast hauling shall be reported to the South Coast AQMD and offsets purchased from the South Coast AQMD for actual emissions exceeding the thresholds. In the Bay Area AQMD, actual NO_X emissions above the district's significance threshold will be mitigated through an offsite emission mitigation program to achieve emission reduction due to material hauling in Bay Area AQMD. Potential offsite mitigation programs include the Bay Area AQMD's Carl Moyer Memorial Air Quality Standards Attainment Program (CMP) or other air district emission reduction incentive programs.	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority Contractor to report hauling emissions to the Authority. Authority to purchase offsets and offsite emission mitigation based on data reported from Contractor. *Rev1*	X	X			Prior to construction/weekly reporting	Authority to coordinate the purchase of offsets with pertinent AQMDs.
AQ#3: Compliance with Air Quality Plans. Construction of the HST alternatives would exceed the CEQA emissions thresholds for VOC and NOx. Therefore, it would conflict with the 1-hour Ozone Attainment Plan and the 8-hour Ozone Attainment Plan.	**AQ-MM#1: Reduce Criteria Exhaust Emissions from Construction Equipment.** See description above in Impact AQ#1: Regional Impacts. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Daily Recording/Weekly Reporting	A copy of each unit's certified tier specification and any required California Air Resources Board (CARB) or San Joaquin valley Air Pollution Control District (SJVAPCD) operating permit will be made available at the time of mobilization of each piece of equipment. When non-retrofitted Tier 3 engines are utilized, the contractor will document that no Tier 4 equipment or emissions equivalent retrofit equipment is available or practicable for a particular equipment type. Documentation will be provided in such instances by the contractors and at least two construction equipment rental

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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								companies.
	AQ-MM#2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment See description above in Impact AQ#1: Regional Impacts.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Construction/weekly reporting	Contract Requirements/Specifications
	AQ-MM#4: Offset Project Construction Emissions through a SJVAPCD Voluntary Emission Reduction Agreement (VERA). See description above in Impact AQ#1: Regional Impacts.	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Parties:** Authority & SJVAPCD *Rev1*		X			Construction/weekly reporting	The Authority and SJVAPCD will enter into a contractual agreement to mitigate the project's emissions by providing funds for the district's Emission Reduction Incentive Program to fund grants for projects that achieve emission reductions, thus offsetting project-related impacts on air quality.
AQ# 4: Local Impacts. Construction of the alignment may expose sensitive receptors to temporary substantial pollutant concentrations from concrete batch plants.	**AQ-MM#3: Reduce the Potential Impact of Concrete Batch Plants.** Concrete batch plants will be sited at least 1,000 feet from sensitive receptors, including daycare centers, hospitals, senior care facilities, residences, parks, and other areas where people may congregate. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Construction/weekly reporting	Contract Requirements/Specifications
Noise and Vibration								
N&V#1: Construction Noise	**N&V-MM#1: Construction noise mitigation measures.** Monitor construction noise to verify compliance with the limits. Provide the contractor the flexibility to meet the FTA construction noise limits in the most efficient and cost-effective manner. The contractor would have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. To meet required noise limits, the following noise control mitigation measures will be implemented as necessary, for nighttime and daytime: • Install a temporary construction site sound barrier near a noise source. • Avoid nighttime construction in residential neighborhoods. • Locate stationary construction equipment as far as possible from noise-sensitive sites. • Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents. • During nighttime work, use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with spotters. • Use low-noise emission equipment. • Implement noise-deadening measures for truck loading and operations. • Monitor and maintain equipment to meet noise limits. • Line or cover storage bins, conveyors, and chutes with sound-deadening material. • Use acoustic enclosures, shields, or shrouds for equipment and facilities.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Construction/weekly reporting	Contract Requirements/ Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	• Use high-grade engine exhaust silencers and engine-casing sound insulation. • Prohibit aboveground jackhammering and impact pile driving during nighttime hours. • Minimize the use of generators to power equipment. • Limit use of public address systems. • Grade surface irregularities on construction sites. • Use moveable sound barriers at the source of the construction activity. • Limit or avoid certain noisy activities during nighttime hours. • To mitigate noise related to pile driving, the use of an augur to install the piles instead of a pile driver would reduce noise levels substantially. If pile driving is necessary, limit the time of day that the activity can occur.							
N&V#2: Construction Vibration	**N&V-MM#2: Construction vibration mitigation measures.** Building damage from construction vibration is only anticipated from impact pile driving at very close distances to buildings. If piling is more than 25 to 50 feet from buildings, or if alternative methods such as push piling or augur piling can be used, damage from construction vibration is not expected to occur. Other sources of construction vibration do not generate high enough vibration levels for damage to occur. When a construction scenario has been established, preconstruction surveys will be conducted at locations within 50 feet of piling to document the existing condition of buildings in case damage is reported during or after construction. Damaged buildings would be repaired or compensation paid.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Ongoing monitoring during construction/post-construction monitoring as needed to assess damage to buildings	Contract Requirements/Specifications
N&V#3: Severe Operational Noise Impacts	**N&V-MM#3: Implement California High-Speed Train Project Noise and Vibration Mitigation Guidelines.** California High-Speed Train Project Noise and Vibration Mitigation Guidelines (Guidelines) will be applied for ballast and tie track along the alignment. These Noise Guidelines will also be applied for slab track along the alignment. The Guidelines are included as Attachment 2 to the CEQA Findings. Various options exist to address the potentially severe noise effects from HSTs and from shifting SR 99. With input from local jurisdictions and balancing technological factors, such as structural and seismic safety, cost, number of affected receptors, and effectiveness, mitigation measures from among those identified in the Guidelines and summarized below will be selected and implemented. The mitigation measure or suite of mitigation measures for severe noise impacts will be designed to reduce the noise level from HST operations from "severe" to "moderate" according to the provisions of the FRA noise and vibration manual (FRA 2005). The Guidelines include the following mitigation measures for severe operational noise impacts: • Install sound barriers. Depending on the height and location relative to the tracks, sound barriers can achieve between 5 and 15 dB of noise reduction. The primary requirements for an effective sound barrier are that the barrier must (1) be high enough and long enough to break the line-of-sight between the sound source and the receiver, (2) be of an impervious material with a minimum surface density of 4 pounds per square foot, and (3) not have any gaps or holes between the panels or at	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor Regarding final bullet, Contractor and Authority shall work together to identify and acquire easements required to mitigate noise and vibration. *Rev1*	X	X	X		Construction/weekly reporting	Noise and Vibration Mitigation Guidelines

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	the bottom. Because many materials meet these requirements, aesthetics, durability, cost, and maintenance considerations usually determine the selection of materials for sound barriers. Depending on the situation, sound barriers can become visually intrusive. Typically, the sound barriers style is selected with input from the local jurisdiction to reduce the visual effect of barriers on adjacent lands uses. For example, sound barriers could be solid or transparent, of various colors, materials, and surface treatments. The maximum sound barrier height would be 14 feet for at-grade sections; however, all sound barriers would be designed to be as low as possible while still achieving a substantial noise reduction. Berm and berm/wall combinations are the preferred types of sound barriers where space and other environmental constraints permit. On aerial structures, the maximum sound barrier height would also be 14 feet, but barrier material would be limited by engineering weight restrictions for barriers on the structure. Sound barriers on the aerial structure should still be designed to be as low as possible while still achieving a substantial noise reduction. Sound barriers on aerial structures and at-grade could consist of solid, semitransparent, and transparent materials. • Work with the communities to determine how the use and height of sound barriers would be determined using jointly developed performance criteria. Other solutions may result in higher numbers of residual impacts than reported herein. Options may be to reduce the height of sound barriers and combine barriers with sound insulation or to accept higher than the FRA's current noise thresholds. • Install building sound insulation. Sound insulation of residences and institutional buildings to improve the outdoor-to-indoor noise reduction is a mitigation measure that can be provided when the use of sound barriers is not feasible in providing a reasonable level (5 to 7 dB) of noise reduction. Although this approach has no effect on noise in exterior areas, it may be the best choice for sites where sound barriers are not feasible or desirable and for buildings where indoor sensitivity is of most concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dB) can often be achieved by adding an extra layer of glazing to windows, by sealing holes in exterior surfaces that act as sound leaks, and by providing forced ventilation and air conditioning so that windows do not need to be opened. Establish performance criteria to balance existing noise events and ambient roadway noise conditions as factors for determining mitigation measures. • Acquire easements on properties severely affected by noise. Another option for mitigating noise impacts is for the Authority to acquire easements on residences likely to be affected by HST operations in which the homeowners would accept the future noise conditions. This approach is usually taken only in isolated cases where other mitigation options are infeasible, impractical, or too costly. *Rev1*						
	N&V-MM#4: Vehicle Noise Specification. In the procurement of an HST vehicle technology, the Authority will require bidders to meet the federal regulations applicable at the time of procurement (currently a 93-dB level	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to construction/weekly reporting	HST vehicle technology procurement

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	standard for cars operating at speeds of greater than 45 mph). Depending on the available technology, this could significantly reduce the number of impacts throughout the corridor. *Rev1*							
	N&V-MM#5: Special Trackwork at Crossovers and Turnouts. Because the impacts of HST wheels over rail gaps at turnouts increases HST noise by approximately 6 dB over typical operations, turnouts can be a major source of noise impact. If the turnouts cannot be moved from sensitive areas, the project can use special types of trackwork that eliminate the gap.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*				X	Post Construction/Operations Monitoring	Authority to coordinate with local jurisdictions to address noise-related issues
	N&V-MM#6: Additional Noise Analysis During Final Design. If final design of the track base or final vehicle specifications results in changes to the assumptions underlying the noise analysis, reassess noise impacts and recommendations for mitigation and provide supplemental environmental documentation, as required by CEQA and NEPA.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prepare construction management plan/weekly reporting	Noise impact re-assessment during final project design
Public Utilities and Energy								
PUE #1: Conflicts with Existing Substations.	**PUE-MM#1**: **Redesign to avoid substation.** Roadway modifications associated with the Hybrid Alternative would affect a substation. The final project design will avoid these conflicts through refinements of project features.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prepare construction management plan/weekly reporting	Condition of Design/Build Contract
	PUE-MM#2: **Move existing substation.** If the Ave 21 Wye requires relocation of a substation, the existing substation could be moved to one of five potential locations, as shown in Figure 3.6-8 in the Final Project EIR/EIS. *Rev1*	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority *Rev1*	X				Prepare construction management plan/weekly reporting	Contract Requirements/Specifications and agreement with appropriate utility provider
Biological Resources								
Bio#1: Introduction of Noxious Weeds.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** During final design, and prior to construction, the Contractor will prepare the Biological Resources Management Plan (BRMP), and assemble the biological resources mitigation measures. In the BRMP, the Contractor will include terms and conditions from applicable permits and agreements and make provisions for monitoring assignments, scheduling, and responsibility. The BRMP will also include habitat replacement and revegetation, protection during ground-disturbing activities, performance (growth) standards, maintenance criteria, and monitoring requirements for temporary and permanent native plant community impacts. The BRMP will form the parameters for the biology mitigation measures from this EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB, and CDFG permits. The BRMP will be prepared for all phases of project implementation, but may be exclusively prepared for each construction package. The goal of the BRMP is to assist the Contractor with an organized reporting tool to ensure the mitigation measures and terms and conditions are implemented in a timely manner and are reported on. These include all avoidance, minimization, repair, mitigation, and compensatory actions stated in the mitigation measures or terms and conditions from the permits referenced above. These measures and conditions are tracked through final design, implementation, and post-construction phases. Specific performance standards are habitat-based and are related to success of onsite or offsite repair of temporary impacts, or more	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	permanent impacts that are compensated at an offsite location. Habitat based mitigation applies to compensatory mitigation or permittee-responsible mitigation for impacts on special-status plants, special-status wildlife, special-status plant communities, or jurisdictional waters and are generally addressed in the Bio-MM#58 as part of the HMMP. Performance standards are targets for determining the effectiveness of the mitigation and assessing the need for adaptive management (e.g., mitigation design or maintenance revisions). Success criteria are formal criteria that must be met after a specific timeframe to meet regulatory requirements of the permitting agencies. These are habitat-based performance standards that include consideration for the establishment of a species or habitat. Since species are nested within habitats, the performance standards are primarily based on vegetation, substrate, and hydrology conditions. The performance standards for the establishment of any temporary or permanent impacts on these resources are recognized in those resource categories, but are more specifically covered in the specific performance standards/guidelines shown in Bio-MM#58. The overarching goal is to neutralize the impacts with respect to species and habitat impacted. The BRMP will help the long-term perpetuation of biological resources within the temporarily disturbed areas, as well as protect adjacent targeted habitats. The BRMP will contain but not be limited to the following information: a. Specific measures for the protection of special-status species. b. Identification (on construction plans) of the locations and quantity of habitats to be avoided or removed, including locations where habitats are to be restored. c. Procedures for vegetation analyses of temporarily impacted habitats to approximate their relative composition, as well as procedures for site preparation, irrigation, planting, and maintenance. This information may be used to determine the requirements of the revegetation areas for both onsite temporary impacts and offsite compensatory sites. d. Sources of plant materials and methods of propagation. e. Specific parameters for determining the amount of replacement habitat for temporary disturbance areas identified consistent with mitigation ratios and permit conditions. f. Specification of parameters for maintenance and monitoring of re-established habitats, including weed control measures, frequency of field checks, and monitoring reports for temporary disturbance areas. g. Specification of performance standards for the re-established plant communities within the construction limits. h. Remedial measures, such as a form of adaptive management, to be taken if performance standards are not met. i. Methodologies and requirements for monitoring the restoration/replacement efforts, which will be a combination of qualitative and quantitative data consistent with mitigation measures and permit conditions. j. Measures to preserve topsoil and control erosion. k. Design of protective fencing around ESAs and ERAs and the construction staging areas. l. Specification of location and quantities of gallinaceous guzzlers (catch basin/artificial watering structures) if needed; specification of monitoring of							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	water levels in guzzlers. m. Location of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees. n. Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within sensitive habitat areas. o. Specific construction monitoring programs for habitats of concern and special-status species, as needed. p. Specific measures for the protection of vernal pool habitat and riparian areas. These measures may include but are not limited to: erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements. q. Provisions for biological monitoring during ground-disturbing activities to confirm compliance and success of protective measures. The monitoring procedures will: (1) identify specific locations of wildlife habitat and sensitive species to be monitored, (2) identify the frequency of monitoring and the monitoring methodology (for each habitat and sensitive species to be monitored), (3) list required qualifications of biological monitor(s), and (4) identify reporting requirements. *Rev1*							
	Bio-MM#4: Prepare and Implement a Weed Control Plan. Prior to ground-disturbing activities, the Contractor will prepare and implement a Weed Control Plan to minimize or avoid the spread of weeds during ground-disturbing activities. The Weed Control Plan will address the following: • Schedule for conducting noxious weed surveys to be conducted in coordination with the Biological Resources Management Plan (BRMP)(Bio-MM#5). • Success criteria for noxious and invasive weed control as established by a qualified biologist. The success criteria will be linked to the HMMP for compensatory mitigation sites, and the standards for onsite work during construction will limit invasive species to less than 5% and non-native herbaceous species to less than 25%. If these success criteria have not been met by the end of the BRMP monitoring and implementation period, monitoring and control efforts will continue and remedial actions will be identified and implemented until success criteria are met. Based on monitoring results, additional or revised measures may be needed to ensure the introduction and spread of noxious weeds is not promoted by the construction and operation of the HST. • Provisions to ensure that the development of the Weed Control Plan will be coordinated with development of the Restoration and Revegetation Plan (RRP)(Bio-MM#6) so that the RRP incorporates measures to reduce the spread and establishment of noxious weeds and incorporates percent cover of noxious weeds into revegetation performance standards. Identify weed control treatments including permitted herbicides, and manual and mechanical methods for application. Restrict herbicide application from use in environmentally sensitive areas (ESAs). • Determine timing of the weed control treatment for each plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract Weed Control Plan

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	• Identify fire prevention measures. The Contractor will implement the Weed Control Plan during the construction period and require that maintenance crews follow the guidelines in the Weed Control Plan during the project period. The Authority will appoint the responsible party during the operations period. A monthly memorandum will be prepared by the Contractor to document the progress of the Plan and its implementation. *Rev1*							
Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. During final design, the Contractor will prepare a restoration and revegetation plan (RRP) for upland communities. This is a complement for site restoration in addition to the temporary effects for riparian plant communities (Bio-MM#15) and for jurisdictional waters (Bio-MM#44). In the RRP, address impacts on habitat subject to temporary ground disturbances that will require decompaction or regrading, if appropriate. The standards for onsite work during construction will limit invasive species to less than 5% and nonnative herbaceous species to less than 25% unless otherwise called out in the final approved seed mix. During ground-disturbing activities, the Contractor will implement the RRP in temporarily disturbed areas. The Contractor will prepare and submit compliance reports to document implementation. The RRP compliance reports will be prepared and submitted to the Authority. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). Prior to ground-disturbing activities, to the extent practicable, the Contractor will verify that environmentally sensitive areas (ESAs) and environmentally restricted areas (ERAs) are delineated as appropriate. ESAs are areas within the construction zones containing suitable habitat for special-status species and habitats of concern that may allow construction activities, but have restrictions based on the presence of special-status species or habitats of concern at the time of construction. ERAs are areas outside the construction footprint that must be protected in-place during all construction activities. Prior to ground-disturbing activities, the Contractor will include all ESAs and ERAs on final construction plans (including grading and landscape plans). Prepare, review and approve the map of all ESAs and ERAs on the design	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	drawings and work to update the map as necessary. Prior to ground-disturbing activities, the Contractor will mark ESAs and ERAs with high visibility temporary fencing to prevent encroachment of construction personnel and equipment onto sensitive areas. Designate the two categories, ESA and ERA, differently in the field (e.g., different colored flagging/fencing). Use sub-meter accurate GPS equipment to delineate all ESAs and ERAs. Remove ESA and ERA fencing when construction is complete or the resource has been cleared according to agency permit conditions and construction drawings and specifications. The Contractor will submit memoranda regarding the field delineation of all ESAs/ERAs to the Authority. These areas will receive ongoing monitoring during site preparation and construction activities. *Rev1*							
	Bio-MM#8: Equipment Staging Areas. Prior to ground-disturbing activities, the Contractor will locate staging areas for construction equipment outside sensitive biological resources including habitat for special-status species, habitats of concern(e.g., wetlands, waters of the U.S., riparian communities), and wildlife movement corridors, to the maximum extent possible. The Contractor will submit memoranda to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. During ground-disturbing activities, the Contractor will restrict project-related vehicle traffic, within the construction area, to established roads, construction areas, and other designated areas. Establish vehicle traffic locations disturbed by previous activities to prevent further adverse effects. Observe a 20 mph speed limit for construction areas with potential special-status species habitat. Clearly flag and mark access routes and prohibit off-road traffic. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. During post-construction, the Contractor will revegetate all disturbed riparian areas using appropriate plants and seed mixes. The Contractor will monitor restoration activities consistent with provisions in the Habitat Mitigation and Monitoring Plan (HMMP)(Bio-MM#58). The Contractor will submit a memorandum to the Authority documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program**. Prior to ground-disturbing activities, the Contractor will prepare and implement a WEAP for construction crews. WEAP training materials will include the following: discussion of the federal ESA, CESA, BGEPA, and the MBTA; consequences and penalties for violation or noncompliance with these laws and regulations and project permits; identification and value of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities; hazardous substance spill prevention and containment measures; the contact person in the event of the discovery of a dead or injured wildlife species; and review of mitigation measures. In the WEAP, the Contractor will detail construction timing in relation to habitat and species' life stage requirements and discuss	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	project maps, showing areas of planned minimization and avoidance measures. A fact sheet prepared by the Contractor conveying this information will be prepared for distribution to the construction crews and to other individuals who enter the construction footprint. Upon completion of the WEAP training, construction crews will sign a form stating that they attended the training and understand and will comply with the information presented. Construction crews will be informed during the WEAP training that, to the extent possible, travel within the marked project site will be restricted to established roadbeds. Established roadbeds include all pre-existing and project-constructed unimproved, as well as improved roads. *Rev1*							
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. After each construction period is completed, the Contractor will submit post-construction compliance reports consistent with the appropriate agency (e.g., UFSWS, NMFS and CDFG) protocols, including compliance with resource agency permits (i.e.,	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Section 7 of federal ESA, Section 2081 of CESA and Section 401 and 404 of FCWA and 1600 of Fish and Game Code). The Contractor will submit a memorandum to the Authority documenting compliance. The frequency of the memorandum compilation and submission will be consistent with regulatory compliance permits. *Rev1*	work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*						
	Bio-MM#17: Conduct Pre-Construction Surveys for Special-Status Plant Species. The Contractor will conduct pre-construction surveys for special-status plant species in suitable habitat areas, subject to ground-disturbing activities. The surveys will be conducted in the appropriate season prior to ground-disturbing activities for salvage and relocation activities. The Contractor will use the results of the Special-Status Plants Survey Report (prepared as part of the Biological Resources Technical Report), including mapping of locations of special-status plant species, to determine focused locations for the pre-construction surveys, as appropriate. The Contractor will mark and avoid locations of all special-status plant species observed where feasible or incorporate the species into the relocation/compensation program defined in Bio-MM#50: Compensate for Impacts on Special-Status Plant Species. Prior to ground-disturbing activities, the Contractor will protect any populations of special-status plant species identified during the surveys within 100 feet of the construction footprint as ERAs. As appropriate, the Contractor will update the special-status or habitats of concern mapping within the construction limits, based upon resource agency permits. The Contractor will determine the locations of special-status plant species on construction drawings and identified as ESAs within the construction footprint. Plant populations within 100 feet of the construction limits will be fenced as ERAs by the Contractor. Terms and conditions from Section 7 and Section 2081 agreements will be incorporated as appropriate. The Contractor will provide verification and report through memorandum to the Authority. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Pre-construction and Prior to ground-disturbing activities	Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#18: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species. The Contractor will prepare a plan prior to ground-disturbing activities to address monitoring, salvage, relocation, and propagation of special-status plant species. The relocation or propagation of plants and seed will be performed at a suitable mitigation site, as appropriate per species. Documentation will include provisions that address the techniques, location, and procedures required for the successful establishment of the plant populations. The plan will include provisions for performance that address survivability requirements, maintenance, monitoring, implementation, and the annual reporting requirements. Permit conditions issued by the appropriate resource agencies (e.g., USFWS, CDFG) will guide the development of the plan and performance standards. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X		X		Pre-construction and prior to ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. Prior to ground-disturbing activities, the Contractor will	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	X	X	X		Prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	conduct pre-construction, non-protocol surveys in seasonally inundated habitats (seasonal wetland, noninundated wetlands) within the construction footprint. The Contractor will conduct general aquatic surveys at a suitable interval after the first significant storm event of the rainy season (October 15 to June 1), as feasible prior to ground-disturbing activities. The sampling is an assessment of the hydrological, biological and ecological conditions of each seasonal wetland and open waters. This assessment will determine the quality and suitability of seasonal wetlands for special-status species (e.g., vernal pool branchiopods, western spadefoot toads, and California tiger salamanders) and later assist in determining which materials (e.g., soils, viable plant seeds, vernal pool cysts) may be collected. The sampling is an assessment that will be useful in understanding the species present and will help guide the implementation of performance standards to be consistent with Bio-MM#20: Implement and Monitor Vernal Pool Protection, for vernal pool special-status species (e.g., vernal pool branchiopods, western spadefoot toads, and California tiger salamanders).The Contractor will submit a report within 1 month of completing the field work and submit to the Authority. The report will provide the documentation and the results of the sampling, including the results of the data collected and compared with the performance standards. *Rev1*	*Rev1*					Follow reporting requirements as established by regulatory compliance permits.	Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							permit conditions	
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. During ground-disturbing activities, the Contractor will halt work in the event that a special-status wildlife species gains access to the construction footprint. This work stoppage will be coordinated with the resident engineer and/or the Authority or its designee. The work stoppage will occur within the area where the potential construction activity could affect the species; other work may continue. This will be determined prior to direction given to the Contractor. At this direction the Contractor will suspend ground-disturbing activities in the immediate construction area that could reasonably result in a "take" of special-status wildlife species. The Contractor will continue the suspension until the individual leaves voluntarily, is relocated to a release area using USFWS- and/or CDFG-approved handling techniques and relocation methods, or as required by USFWS or CDFG. The Contractor will submit a memorandum to the Authority documenting compliance within 1 day of the work stoppage and subsequent action. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above in Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. For seasonal avoidance of special-status vernal pool branchiopods and vernal pool-dependent species (e.g., California tiger salamander), the Contractor will not work within 250 feet of aquatic habitats suitable for these species (e.g., vernal pools and other seasonal wetlands) from October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Ground-disturbing activities may begin once the habitat is no longer inundated for the season. If any work remains to be completed after October 15, exclusion fencing and erosion control measures will be placed at the vernal pools and other seasonal wetlands by the Contractor. The fencing will act as a buffer between ground-disturbing activities and the vernal pools and other seasonal wetlands as determined through consultations with USFWS/USACE. The Contractor will document compliance through a memorandum to the Authority during the establishment of the	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	fencing activities. *Rev1*							
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. If construction impacts can be avoided, the vernal pool(s) will be protected by erecting exclusion fencing. The Contractor will erect and maintain the exclusion fencing. For temporary impacts on vernal pools and other seasonal wetlands that cannot be avoided, the Contractor will apply geotextile fabric and a layer of gravel over the affected vernal pool(s) prior to ground-disturbing activities to protect the contours in cases where the pool is not directly, permanently impacted from the construction footprint. The Contractor will implement this measure within the construction areas during one dry season period. Resource agency consultations with the USFWS/USACE will occur as needed to determine impacts per construction schedules and based on permit conditions. • If temporary impacts occur beyond the dry season (approximately June 1 to October 15) and the vernal pool(s) cannot be fenced, the Contractor will collect a representative sampling of soils from the vernal pool(s) prior to initiating ground-disturbing activities within vernal pools as applicable per USFWS and/or CDFG consultations. The representative soil sample(s) will contain viable plant seeds and vernal pool branchiopod cysts to be preserved from the vernal pool(s). These samples may be incorporated into other specified vernal pools. If construction impacts take more than one full wet-dry season, offsite mitigation will be implemented. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor If offsite mitigation is required, the Authority will be responsible for implementation, monitoring, and reporting. *Rev1*	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. During or post-construction, the Contractor will restore disturbed jurisdictional waters using stockpiled and segregated soils. The Contractor will conduct revegetation using appropriate plants and seed mixes, and conduct maintenance monitoring consistent with the provisions in the HMMP (Bio-MM#58). The Contractor will document compliance with memorandum submitted to the Authority. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. During ground-disturbing activities, the Contractor will conduct monitoring within jurisdictional waters, including monitoring of the installation of protective devices (silt fencing, sandbags, fencing, etc.), installation and/or removal of creek crossing fill, construction of access roads, vegetation removal, and other associated construction activities. The Contractor will conduct biological monitoring to document adherence to habitat avoidance and minimization measures addressed in the project mitigation measures and as listed in the USFWS, CDFG, SWRCB, and USACE permits conditions. The Contractor will report and document compliance consistent with requirements in the permitting documents, including frequency and timing and submittals. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							as required by permit conditions.	
Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#11: Entrapment Prevention. The Contractor will cover all excavated, steep-sided holes or trenches, more than 8 inches deep, at the close of each working day with plywood or similar materials, or provide a minimum of one escape ramp per 10 feet of trenching constructed of earth fill. The Contractor will thoroughly inspect such holes or trenches for trapped animals before leaving the construction site each day. The Contractor will screen all culverts, or similar enclosed structures, with a diameter of 4 inches or greater to prevent use by wildlife. The Contractor will ensure that cleared and stored material at the construction site for common and special-status wildlife species before the material is subsequently used or moved. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. The Contractor will notify the USFWS and/or CDFG immediately in the case of an accidental death or injury to a federal or state listed species during project-related activities. The Authority or its designee will be notified prior to the notification to the agencies. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#22: Implement Conservation Guidelines During the Construction Period for Valley Elderberry Longhorn Beetle. Prior to and during ground-disturbing activities, the Contractor will implement the avoidance and minimization measures detailed in the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999a). These measures include establishing and maintaining appropriate buffer areas around elderberry plants, surveying for beetle boreholes in affected shrubs, restricting the use of chemicals that might harm beetles, and mowing. After ground-disturbing activities are completed, restore any damage to buffer areas containing elderberry shrubs according to specifications within the *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999a). In areas where encroachment on the 100-foot buffer has been approved by	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities, during ground-disturbing activities, and after ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	USFWS, the Contractor will provide a minimum setback of at least 20 feet from the dripline of each Mexican elderberry plant. In buffer areas, ground-disturbing activities should be minimized, and any damaged area should be restored by the Contractor following construction. The Contractor will erect signage every 50 feet along the edge of the avoidance area with the following information: "This area is habitat of the valley elderberry longhorn beetle, a federally threatened species, and must not be disturbed. This species is protected by the Federal ESA of 1973, as amended. Violators are subject to prosecution, fines, and imprisonment." The signs should be clearly readable from a distance of 20 feet, and must be maintained by the Contractor for the duration of ground-disturbing activities. To prevent encroachment, these buffer areas must continue to be protected per USFWS protocol (after ground-disturbing activities) from adverse effects of the project (USFWS 1999a) during the construction phase. The Contractor will include protective measures such as fencing, signage, weeding, and trash removal to enforce the protection of the valley elderberry longhorn beetle and its associated habitat. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis or at other appropriate intervals. *Rev1*							
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#6: Construction of the HST would disturb California tiger salamander habitat.	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Great Valley mixed riparian forest and other riparian habitat.						established by agency permit conditions	
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. During ground-disturbing activities, the Contractor will verify that plastic mono-filament netting (erosion-control matting) or similar material is not used in erosion control materials; substitutes include coconut hair matting or tackified hydroseeding compounds. The Contractor will submit memoranda to the Authority documenting compliance monthly, or as appropriate, through the life of the project construction. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above in impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above in Impact Bio#6: Construction of the HST would disturb	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor			X		Post-construction. Follow reporting requirements as established by agency	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	California tiger salamander habitat. *Rev1*	*Rev1*					permit conditions	documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor If offsite mitigation is required, the Authority will be responsible for implementation, monitoring, and reporting. *Rev1*	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#22: Implement Conservation Guidelines During the Construction Period for Valley Elderberry Longhorn Beetle. See description above in impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities, during ground-disturbing activities, and after ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#23: Translocation of California Tiger Salamanders. Prior to ground-disturbing activities, the Contractor will conduct a pre-construction survey and relocate any California tiger salamanders from within the construction footprint in accordance with the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003). The relocation will occur for any individuals within the construction footprint per coordination with the USFWS. The Contractor will conduct pit trapping. The Contractor will install amphibian exclusion fencing specified in Bio-MM#24. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	basis or at other appropriate intervals. *Rev1*							
	Bio-MM#24: Erect Amphibian Exclusion Fencing. The Contractor will install exclusion barriers (i.e. silt fences) to influence the movement of California tiger salamander, including other amphibian species, within impacted areas. The barriers can be used to exclude California tiger salamander and other amphibian species, from ground-disturbing areas and to guide breeding adults toward pre-identified mitigation ponds. Exclusion fencing will be maintained by the Contractor throughout the California tiger salamander's entire active period (November to April) or until all ground-disturbing activities are completed, whichever occurs first. Exclusion fencing must be trenched into the soil at least 4 inches in depth with the soil compacted against both sides of the fence for its entire length to prevent amphibians from passing under the fence. Barriers must be inspected by the Contractor at least twice weekly on non-consecutive days and after any significant rain event (defined as a 0.75 inch downpour or 1.5 inches of rain in any 24-hour period). Barriers will be installed by the Contractor with turn-arounds at any access openings needed in the fencing, to redirect amphibians away from openings. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#7: Construction of the HST would disturb western spadefoot toad habitat.	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
								plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. See description above in Impact Bio#6: Construction of the HST would disturb California tiger salamander habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							weekly/monthly report.	
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above in Impact Bio#6: Construction of the HST would disturb California tiger salamander habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) 1600 Streambed Alteration Agreement.
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor If offsite mitigation is required, the Authority will be responsible for implementation, monitoring, and reporting. *Rev1*	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#22: Implement Conservation Guidelines During the Construction Period for Valley Elderberry Longhorn Beetle. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities, during ground-disturbing activities, and after ground-disturbing activities. Follow reporting requirements as established by regulatory	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							compliance permits.	
	Bio-MM#24: Erect Amphibian Exclusion Fencing. See description above in Impact Bio#6: Construction of the HST would disturb California tiger salamander habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander
	Bio-MM#25: Conduct Emergence and Larval Surveys for Western Spadefoot Toad. The Contractor or designee (qualified herpetologist) will conduct pre-construction emergence and larval surveys for western spadefoot toad during the fall and winter rainy season. Emergence surveys will be conducted within the appropriate time period(s) after precipitation events as evaluated by a qualified herpetologist and will be partially in tandem with California tiger salamander surveys. Potential breeding depressions, including vernal pools, will be surveyed for western spadefoot toad larvae concurrently with special-status vernal pool branchiopod and California tiger salamander pre-construction surveys. Adults found within the construction footprint during emergence surveys will be relocated to an appropriate area adjacent to another pool suitable for breeding. Pre-construction surveys will help identify the proper implementation of mitigation measures, identify state and federal permit requirements, and inform the accurate implementation of mitigation requirements. The Contractor will submit a memorandum to the Authority documenting compliance after surveys are complete. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#46: Install Wildlife Fencing. Prior to operation of the HST, the Contractor will install free-ranging mammal-proof fencing along portions of the proposed project consistent with final design. The Contractor will verify that the installation is consistent with the designated terms and conditions in the applicable permits. The Contractor will prepare and submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Prior to operation of the HST	Submit a memorandum documenting compliance.
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							as required by permit conditions.	
Bio#8: Construction of the HST would disturb habitat that supports the western pond turtle.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#9: Mono-Filament Netting. See description above in Impact Bio#6: Construction of the HST would disturb California tiger salamander habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			During ground-disturbing activities and Construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							document in weekly/monthly report.	
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above in Impact Bio#6: Construction of the HST would disturb California tiger salamander habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
	Bio-MM#26: Conduct Western Pond Turtle Pre-Construction Surveys and Relocation. Prior to ground-disturbing activities, conduct pre-construction surveys for western pond turtles to determine the presence or absence of western pond turtles within the construction footprint. If western pond turtles are found within the construction footprint, conduct daily clearance surveys prior to the initiation of any construction activities. If a western pond turtle nest will be affected by ground-disturbing activities, relocate the eggs according to relocation protocol coordinated with CDFG for all life stages of western pond turtles. Relocate hatchling and adult turtles outside of the construction footprint in suitable habitat. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Clearance surveys during construction. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#27: Conduct Western Pond Turtle Monitoring. During ground-disturbing activities, the Contractor will observe all construction activities within habitat that supports populations of western pond turtles. If ESAs are deemed necessary, the Contractor will conduct a clearance survey for western pond turtles prior to the time the fence is installed. If necessary, conduct daily clearance surveys prior to construction. The Contractor will submit a memorandum to Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			During ground-disturbing activities and Daily clearance surveys during construction. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#28: Implement Western Pond Turtle Avoidance and Relocation. Prior to ground-disturbing activities, if a western pond turtle nesting area is present and will be affected by ground-disturbing activities, the Contractor will avoid western pond turtle nesting areas. If avoidance is not feasible, the Authority will coordinate with CDFG to identify where to relocate western pond turtles. The Authority will coordinate specific trapping and relocation protocols with CDFG for adults, hatchlings, and eggs prior to ground-disturbing activities. The Contractor will not move eggs or hatchlings without prior coordination with the Authority and concurrence from CDFG. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis or as determined appropriate pending construction progress.	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities and during ground-disturbing activities and construction. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Rev1							
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#53: Implement Western Pond Turtle Mitigation Measures. The Contractor will mitigate the impacts on western pond turtle in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). The Contractor will submit a memorandum documenting compliance to the Authority. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Schedule according to BO and 2081 Determination	Memorandum documenting compliance with BO and 2081 Determination
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#10: Construction of the HST would disturb nesting Swainson's hawk.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage.	**Implementing Party:** Contractor	X	X			During ground-disturbing	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Monitoring/Reporting Party:** Contractor *Rev1*					activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#29: Conduct Pre-Construction Surveys and Monitoring for Raptors. Prior to ground-disturbing activities, the Contractor will conduct pre-construction surveys for nesting raptors if construction and habitat removal activities are scheduled to occur during the breeding season (February 1 to August 15). The Contractor will conduct surveys in areas within 300 feet of the construction footprint. Modify the required survey dates based on local conditions. If breeding raptors with active nests are found, establish a 300-foot buffer around the nest and phase construction activities within the buffer(s) until the young have fledged from the nest or the nest is abandoned. Approve construction activities within the buffer area, pending site conditions that will not jeopardize the nest. The Contractor will conduct pre-construction surveys for bald and golden eagle nests within ¼ mile of the construction footprint. If nesting bald or golden eagles are identified, the Contractor will establish a 1,000-foot buffer area. The Contractor will adjust the 1,000-foot buffer as needed to reflect existing conditions including ambient noise, topography, and disturbance with the approval of the USFWS or CDFG, as appropriate. The Contractor will conduct regular monitoring of the nest to determine success/failure and to confirm that project activities are not conducted within the buffer(s) until the nesting cycle is complete or the nest fails. The Contractor will document the results of the surveys and the ongoing monitoring, and provide a copy of the monitoring reports for impact areas to the respective agencies. The Contractor will approve ground-disturbing activities within the buffer area, pending site conditions that will not jeopardize the nest. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys, prior to ground-disturbing activities, and during construction	Condition of Design/Build Contract
	Bio-MM#31: Raptor Protection on Power Lines. During final design, the Contractor will verify that the catenary system and masts are designed to be	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	X				Final design, completed prior to construction.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	raptor-safe, in accordance with the *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee 2006). The Contractor will check the final design drawings and submit a memorandum to the Authority documenting compliance *Rev1*	*Rev1*						
	Bio-MM#32: Conduct Pre-Construction Surveys for Swainson's Hawks. The Contractor will conduct pre-construction surveys for Swainson's hawks during the nesting season (March 1 through September 15) within the construction footprint and within a 0.5-mile buffer. The Contractor will conduct the pre-construction nest surveys at least 30 days prior to ground-disturbing activities and phase with project construction. The pre-construction surveys will determine the status (i.e., active, inactive) of the nest and then will be used to set up nest avoidance strategies (Bio-MM#33). The Contractor will submit a memorandum to the Authority documenting compliance with the measure. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Pre-construction surveys at least 30 days prior to ground-disturbing activities and construction	Condition of Design/Build Contract
	Bio-MM#33: Swainson's Hawk Nest Avoidance. If active Swainson's hawk nests (defined as a nest used one or more times in the last 5 years) are found within 0.5 mile of the construction footprint during the nesting season (March 1 to September 15), the Contractor will implement buffers restricting construction activities, following CDFG's *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFG 1994). Adjustments to the buffer(s) will require prior approval by CDFG as coordinated by the Contractor. The buffers and nest condition will then be monitored (see Bio-MM#34). The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Nesting season (March 1 – September 15)	Condition of Design/Build Contract
	Bio-MM#34: Monitor Removal of Nest Trees for Swainson's Hawks. Prior to ground-disturbing activities, the Contractor will monitor nest trees for Swainson's hawks in the construction footprint that are not removed. If a nest tree for a Swainson's hawk must be removed, the Contractor will obtain a Management Authorization (including conditions to offset the loss of the nest tree) from the CDFG, as described in CDFG's *Staff Reporting Regarding Mitigation for Impacts to Swainson's Hawks (Buteo swainsoni) in the Central Valley of California* (CDFG 1994). The Management Authorization will specify the tree removal period, generally between October 1 and February 1. If ground-disturbing activities or other project-related activities may cause nest abandonment by a Swainson's hawk or forced fledging within the specified buffer area, monitoring of the nest site (funded by the Authority) by the Contractor will be required to determine if the nest is abandoned. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis during the appropriate season. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities, during construction.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							conditions.	
Bio#11: Construction of the HST would disturb breeding birds, including raptors.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#29: Conduct Pre-Construction Surveys and Monitoring for Raptors. See description above in Impact Bio#10: Construction of the HST would disturb nesting Swainson's hawk.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	X	X			Pre-construction surveys, prior to ground-disturbing activities, and during construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#30: Conduct Pre-Construction Surveys and Delineate Active Nest Exclusion Areas For Other Breeding Birds. In the event active bird nests are encountered during the pre-construction survey, the Contractor will determine the nest avoidance buffer zones as appropriate. The Contractor will establish the suitable buffers consistent with the intent of the MBTA. The Contractor will delineate nest avoidance buffers established for ground nesting birds in a manner that does not create predatory bird perch points in close proximity (150 feet) to the active nest site. The Contractor will monitor active bird nests weekly or more frequently pending status of nest and status of fledgling development. The Contractor will maintain the nest avoidance buffer zone until nestlings have fledged or the nest is abandoned. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Pre-construction surveys and during construction	Condition of Design/Build Contract
	Bio-MM#31: Raptor Protection on Power Lines. See description above in Impact Bio#10: Construction of the HST would disturb nesting Swainson's hawk.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Final design, completed prior to construction.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#12: Construction of the HST would disturb or cause the loss of burrowing owls and their habitat.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							document in weekly/monthly report.	
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#35: Conduct Pre-Construction Surveys for Burrowing Owls. Prior to ground-disturbing activities, the Contractor will conduct pre-construction surveys in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995). The Contractor will conduct these surveys at appropriate timeframes within suitable habitat located in the construction footprint and a 500-foot buffer. Results of the surveys will be used to inform Bio-MM#36. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities, the winter (December 1 through January 31) and breeding season (April 15 through July 15)	Condition of Design/Build Contract
	Bio-MM#36: Burrowing Owl Avoidance and Minimization. Implement burrowing owl avoidance and minimization measures following CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 1995). • The Contractor will not disturb occupied burrowing owl burrows during the nesting season (February 1 through August 31) unless it is verified that either the birds have not begun egg-laying and incubation, or that juveniles from the occupied burrows are foraging independently and are capable of independent survival as determined by the Contractor. Eviction outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from the CDFG authorizing the eviction. • Unless otherwise authorized by CDFG, the Contractor will establish a 250-foot buffer (as an environmentally sensitive area) between the construction work area and nesting burrowing owls during the nesting season. The Contractor will maintain this protected area until August 31 or a time set at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently. • Unless otherwise authorized by CDFG, the Contractor will establish a 160-foot buffer (as an environmentally sensitive area) between the construction work area and occupied burrows during the non-breeding season (September 1 through January 31). The Contractor will maintain this protected area until January 31 or at CDFG's discretion and based upon monitoring evidence, until the young owls are foraging independently. If burrowing owls must be moved away from the construction footprint, the Contractor will undertake the passive relocation measures in accordance with CDFG's (1995) guidelines. The Contractor will submit a memorandum to the Authority documenting compliance on a weekly basis. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Preconstruction burrow identification, during construction.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#13: Construction of the HST would disturb breeding or nonbreeding bats.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required.			X		Post-construction. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		Rev1						
	Bio-MM#37: Conduct Pre-Construction Surveys for Special-Status Bat Species. Prior to any ground-disturbing activities, the Contractor will conduct a visual and acoustic pre-construction survey for roosting bats. Include a minimum of one day and one evening in the visual pre-construction survey. The Contractor will contact CDFG if any hibernation roosts or active nurseries are identified within the construction footprint, as appropriate. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Pre-construction surveys, prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#38: Bat Avoidance and Relocation. During ground-disturbing activities, the Contractor will avoid active hibernation roosts. If avoidance of the hibernation roost is not feasible, the Contractor will prepare a relocation plan and coordinate the construction of an alternative bat roost with CDFG. The Contractor will implement the Bat Roost Relocation Plan prior to the commencement of construction activities. Remove roosts with approval from CDFG before hibernation begins (October 31), or after young are flying (July 31), using exclusion and deterrence techniques described in Bio-MM#39 below. The timeline to remove vacated roosts is between August 1 and October 31. All effort to avoid disturbance to maternity roosts will be made during construction activities. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#39: Bat Exclusion and Deterrence. During ground-disturbing activities, if non-breeding or non-hibernating individuals or groups of bats are found within the construction footprint, the bats will be safely excluded by either opening the roosting area to change lighting and airflow conditions, or by installing one-way doors, or other appropriate methods specified by CDFG. The Contractor will leave the roost undisturbed by project-related activities for a minimum of one week after implementing exclusion and/or eviction activities. The Contractor will not implement exclusion measures to evict bats from established maternity roosts or occupied hibernation roosts. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		During ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#14: Construction of the HST would disturb American badger dens.	**Bio-MM#5: Prepare and Implement a Biological Resources Management Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	X	X	X		Prior to construction. Follow reporting	Condition of Design/Build Contract. Restoration and Revegetation Plan

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	*Rev1*					requirements as established by agency permit conditions.	(RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#11: Entrapment Prevention. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#40: Conduct Pre-Construction Surveys for American Badger. Prior to ground-disturbing activities, the Contractor will conduct pre-construction surveys for American badger den sites within suitable habitats in the construction footprint. The Contractor will conduct these surveys no more than 30 days before the start of ground-disturbing activities and phase with project build out. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#41: American Badger Avoidance. The Contractor will establish a 50-foot buffer around occupied American badger dens. The Contractor will establish a 200-foot buffer around badger maternity dens through the pup-rearing season (February 15 through July 1). Adjustments to the buffer(s) will require prior approval by CDFG. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction per approval by CDFG	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
Bio#15: Construction of the HST would disturb San Joaquin kit fox dens.	**Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program**. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/Post construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#11: Entrapment Prevention. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#12: Work Stoppage. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Submit a memorandum to the Mitigation Manager documenting compliance within 1 day of the work stoppage and subsequent action.	Condition of Design/Build Contract
	Bio-MM#13: 'Take' Notification and Reporting. See description above in Impact Bio#5: Construction of the HST would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Following incident, immediately report to USFWS and/or CDFG. Prepare report and document in weekly/monthly report.	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#42: Conduct Pre-Construction Surveys for San Joaquin Kit Fox. The USFWS' *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 1999b) will be implemented as follows for construction related impacts. Prior to the start of ground-disturbing activities, the Contractor will conduct pre-construction surveys in accordance with the USFWS' *San Joaquin Kit Fox Survey Protocol for the Northern Range* (USFWS 1999c). The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Pre-construction surveys and prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#43: Minimize Impacts on San Joaquin Kit Fox. The Contractor will Implement USFWS' *Standard Measures for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* (USFWS 1999b) to minimize ground disturbance-related impacts on this species. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys and prior to ground-disturbing activities	Condition of Design/Build Contract USFWS' Standard Measures for Protection of the San Joaquin Kit Fox
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
Bio#16: Construction of the HST would temporarily convert special-status plant communities (e.g., Great Valley mixed riparian forest, coastal and valley freshwater marsh, vernal pools).	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#6: Prepare and Implement a Restoration and Revegetation Plan. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction. Follow reporting requirements as established by agency permit conditions.	Condition of Design/Build Contract. Restoration and Revegetation Plan (RRP) for upland communities and Compliance reports to document implementation and performance standards
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field). See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to construction and Construction	Final construction plans (including grading and landscape plans) and Memorandum regarding the field delineation of all ESAs/ERAs
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction.	**Implementing Party:** Contractor	X	X			Pre-construction and	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Monitoring/Reporting Party:** Contractor *Rev1*					during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor If offsite mitigation is required, the Authority will be responsible for implementation, monitoring, and reporting. *Rev1*	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
Bio#17: Construction of the HST would have indirect impacts on jurisdictional waters.	**Bio-MM#3: Prepare and Implement a Worker Environmental Awareness Program**. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Training of all crew/construction personnel prior to start of construction. Provide weekly/monthly reporting as required by permit conditions.	Condition of Design/Build Contract
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#5: Prepare and Implement a Biological Resources Management Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Following implementation and reporting schedule as established by agency permit conditions.	Condition of Design/Build Contract. Biological Resources Management Plan (BRMP) and Construction plans
	Bio-MM#7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field)	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	X	X	X		Prior to construction and Construction	Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	*Rev1*						
	Bio-MM#8: Equipment Staging Areas. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract
	Bio-MM#10: Vehicle Traffic. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			During ground-disturbing activities. Report on weekly basis.	Condition of Design/Build Contract
	Bio-MM#15: Restore Temporary Riparian Impacts. See description above in Impact Bio#2: Construction of the HST would disturb Great Valley mixed riparian forest and other riparian habitat.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor If offsite mitigation is required, the Authority will be responsible for implementation, monitoring, and reporting. *Rev1*	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
							agency permit conditions.	
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
Bio#21: Construction of the HST would disturb Camp Pashayan (San Joaquin River Ecological Reserve).	**Bio-MM#15: Restore Temporary Riparian Impacts.** See description above in Impact Bio#6: Construction of the HST would disturb California tiger salamander habitat. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Post-construction. Follow reporting requirements as established by agency permit conditions	Condition of Design/Build Contract Habitat Mitigation and Monitoring Plan (HMMP) and Memorandum documenting compliance and other reporting requirements in the 1600 Streambed Alteration Agreement.
	Bio-MM#17: Conduct Pre-Construction Surveys for Special-Status Plant Species. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Pre-construction and Prior to ground-disturbing activities	Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#18: Prepare and Implement Plan for Salvage, Relocation and/or Propagation of Special-Status Plant Species. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X		X		Pre-construction and prior to ground-disturbing activities. Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract
	Bio-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Prior to ground-disturbing activities Follow reporting requirements as established by regulatory compliance permits.	Condition of Design/Build Contract Plan for monitoring, salvage, relocation, and propagation of special-status plant species and Memorandum documenting compliance
	Bio-MM#20: Seasonal Vernal Pool Work Restriction. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction and during construction. Seasonal restrictions: October 15 to June 1 (corresponding to the rainy season), or as determined through informal or formal consultation with the USFWS or USACE. Report within 1 month of completing the field work	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#21: Implement and Monitor Vernal Pool Protection. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor If offsite mitigation is required, the Authority will be responsible for implementation, monitoring, and reporting. *Rev1*	X	X	X		Prior to construction/Post Construction monitoring and reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#44: Restore Temporary Impacts on Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		Construction and Post-construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	Bio-MM#45: Monitor Construction Activities within Jurisdictional Waters. See description above in Impact Bio#4: Construction of the HST would disturb suitable habitat that has potential to support vernal pool branchiopods.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X	X		During ground-disturbing activities and Construction Follow reporting as determined by regulatory agency permit conditions.	Condition of Design/Build Contract
	PK-MM#4: Acquire Park Property for Camp Pashayan. Final design will continue to seek to minimize right-of-way impacts and pier placement in Camp Pashayan. Mitigation will include in-lieu fee for property impacts associated with pier installation as well as revegetation of disturbed areas with native plantings (consistent with CDFG vegetation/landscaping plans for the reserve).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor in coordination with the Authority *Rev1*	X				Prior to construction/monthly reporting	The Authority will work with the California Department of Fish and Game to prepare and execute an agreement to acquire the property.
Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in Bio-IMPACT#16).	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. The Authority will compensate for permanent impacts on Great Valley mixed riparian forest and other riparian habitats, determined in consultation with the appropriate agencies (e.g., CDFG), by restoring nearby areas to suitable habitat through permittee-responsible mitigation and/or by purchasing credits in a mitigation bank. Other relevant regulatory permits addressing riparian impacts include the CDFG 1600 Streambed Alteration Agreement, the USACE Section 404 Permit, and the SWRCB 401 Permit. The HMMP will provide the planning details as referenced in Bio-MM#58. Bio-MM#58 provides documentation and reporting requirements. Compensation will be based on the following ratios (acres of mitigation to acres of impact): • Great Valley Mixed Riparian Forest: 2:1 • Other Riparian: 2:1 *Rev1*	**Implementing Party:** Authority to compensate based on area of permanent riparian habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*			X		Prior to Operations	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State	**Implementing Party:** Contractor	X				Prior to ground-disturbing	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Streambeds. The Contractor, prior to final design, will conduct a jurisdictional delineation, documenting jurisdictional waters and state streambeds consistent with USACE, SWRCB, and CDFG guidance. As part of the delineation, determine the functions and values of the jurisdictional waters using accepted methods such as the CRAM so that the functions and values have been replaced and that no net loss of jurisdictional waters and state streambed values occurs. Develop habitat replacement guidelines to identify and quantify habitats that are to be removed and identify the locations for restoring or relocating habitats. The Contractor will submit a memorandum to the Authority documenting compliance. *Rev1*	**Monitoring/Reporting Party:** Contractor *Rev1*					activities	
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. As part of the USFWS, USACE, SWRCB, and CDFG permit applications and prior to ground-disturbing activities, the Contractor will prepare an HMMP to mitigate for temporary and permanent impacts on jurisdictional waters and state streambeds. The HMMP will detail performance standards, including percent cover of native species, survivability, canopy cover requirements, wildlife utilization, the acreage basis, restoration ratios, and the combination of onsite and/or offsite mitigation. Preference shall be given to conduct the mitigation within the same watershed where the impact occurs. The Authority and Contractor will conduct work with the USACE, SWQCB, and CDFG to develop appropriate avoidance, minimization, mitigation, and monitoring measures to be incorporated into the HMMP. The intent of the HMMP is to mitigate for the lost functions and values of impacts on jurisdictional waters and state streambeds consistent with resource agency requirements and conditions presented in Sections 404 and 401 of the CWA and Section 1600 of the CFGC. It is also anticipated that since listed species such as California tiger salamander, colusa grass, and vernal pool branchiopods are nested within these habitats, the HMMP will also serve to mitigate for listed species through Section 7 of ESA and CESA 2081. The Contractor will submit a memorandum to the Authority documenting compliance. In the HMMP, the applicant or its designee shall incorporate the following standard requirements consistent with USACE, SWRCB, and CDFG guidelines: • Description of the project impact/site. • Goal(s) (i.e., functions and values) of the compensatory mitigation project. • Description of the proposed compensatory mitigation site. • Implementation plan for the proposed compensatory mitigation site. • Maintenance activities during the monitoring period. • Monitoring plan for the compensatory mitigation site. • Completion of compensatory mitigation. • Contingency measures. Additionally, the following will be included at a minimum for the implementation plan: • Site analysis for appropriate soils and hydrology. • Site preparation specifications based on site analysis, including but not limited to grading and weeding. • Soil and plant material salvage from impact areas, as appropriate to the timing of impact and restoration as well as the location of restoration sites. • Specifications for plant and seed material appropriate to the locality of the	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	mitigation site. • Specifications for site maintenance to establish the habitats, including but not limited to weeding and temporary irrigation. Habitat restoration, enhancement, and/or establishment activities will be conducted on some of the compensatory (i.e., selected permittee-responsible) mitigation sites to achieve the mitigation goals. A detailed design of the mitigation habitats will be created in coordination with the permitting agencies and be described in the HMMP. It is recognized that several HMMPs will be developed consistent with the selected mitigation sites and the resources mitigated at each. The Contractor will ensure that construction is implemented in a manner that minimizes disturbance of such areas to the extent feasible. Temporary fencing will be used during construction to avoid sensitive biological resources that are adjacent to construction areas and can be avoided. Performance standards are targets for determining the effectiveness of the mitigation and assessing the need for adaptive management (e.g., mitigation design or maintenance revisions). Success criteria are formal criteria that must be met after a specific timeframe to meet regulatory requirements of the permitting agencies. Where applicable, replacement planting/seeding will be implemented if monitoring demonstrates that performance goals or success criteria are not met during a particular monitoring interval. The criteria for measuring performance will be used to determine whether the habitat improvement is trending toward sustainability (i.e., reduced human intervention) and to assess the need for adaptive management. These criteria must be met for the habitat improvement to be declared successful, both during a particular monitoring year and at the end of the establishment period. These performance criteria will be developed in consultation with the permitting agencies. The criteria include: • Percent survival of planted trees (65–85%). • Percent survival of transplanted trees (60–85%). • Percent relative canopy cover (5–35%). • Percent cover of invasive species (<1%). • Percent cover of nonnative herbaceous plants (<10–25%). • Percent absolute cover of native species (>50–80%). • Percent relative cover of native species (>50%). • Percent total cover of plant species (20–75%). • Percent relative cover of wetland indicator species (75–90%). • Water level within +/-6 inches (or other measurement) of design. • Species composition and community diversity, relative to reference sites, and/or as described in the guidelines issued by permitting agencies (e.g., USFWS conservation guidelines for valley elderberry longhorn beetle). Performance goals and success criteria will be provided for each of the years of monitoring and will be specific to habitat types at each permittee-responsible mitigation site. The monitoring schedule will be detailed in the site-specific HMMPs. To be deemed successful, the site may be required to meet the success criteria only in selected years. However, if success criteria are not met in specific years, remedial measures, including regrading, adjustment to modify the							

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	hydrological regime, and/or replacement planting or seeding, must be implemented and that year's monitoring must be repeated the following year until the success criteria are met. The success criteria specified must be reached without human intervention (e.g., irrigation, replacement plantings) aside from maintenance practices described in the site-specific HMMPs for maintenance during the establishment period. Where the HST alignment affects an existing mitigation bank, the Authority or its designee will modify the mitigation ratio to meet the vernal pool mitigation requirement. The Authority or its designee will relocate the affected portion of the mitigation bank or compensate the landowner in accordance with the Uniform Relocation and Real Property Policy Act of 1970, as amended. The Contractor in coordination with the Authority will oversee the implementation of all HMMP elements and monitor consistent with the prescribed maintenance and performance monitoring requirements. The Contractor will prepare annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits. In addition, the Contractor will document compliance and submit to the Authority. *Rev1*							
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. The Authority will mitigate permanent wetland impacts through compensation determined in consultation with the USACE, SWRCB, USFWS, and CDFG, in order to be consistent with the HMMP (Bio-MM#58). Regulatory compliance for jurisdictional waters includes relevant terms and conditions from the USACE 404 Permit, SWRCB 401 Permit, and CDFG 1600 Streambed Alteration Agreement. The Authority will document compliance. Performance standards for jurisdictional waters are generally described in Bio-MM#58. It is important to recognize that Bio-MM#58 includes standards that apply to several resource areas (e.g., jurisdictional waters, riparian habitat, California tiger salamander habitat). Compensation could include one of the following: • Purchase of credits from an agency-approved mitigation bank. • Fee-title-acquisition of natural resource agency-related property. • Purchase or establishment of a conservation easement with an endowment for long-term management of the property-specific conservation values. • In-lieu fee contribution determined through negotiation and consultation with the various natural resource regulatory agencies. Base compensation for permanent impacts on the following ratios (acres of mitigation to acres of impact), pending agency confirmation: • Vernal pools and other seasonal wetlands: 2:1 Preservation and 1:1 Creation.	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	• Coastal and Valley Freshwater Marsh: 1:1. • Other Wetlands: Between 1.1:1 and 1.5:1 (1:1 onsite and 0.1 to 0.5:1 offsite), based on function and values lost. • Ratios determined in consultation with the appropriate agencies. The Authority will mitigate impacts on jurisdictional waters by replacing, creating, restoring, or preserving the identified resource at the ratios presented below or other ratio that compensates for functions and values lost. The Authority or its designee will consider modifying the vernal pool mitigation ratio in the final permits based on site-specific conditions and the specific life history requirements of vernal pool branchiopods, California tiger salamanders, and western spadefoot toads. Where the HST Alternative affects an existing mitigation bank, the Authority or its designee will modify the mitigation ratio to meet the vernal pool mitigation requirement. Relocate the affected portion of the mitigation bank or provide compensation to the holder of the conservation easement, in accordance with the *Uniform Relocation and Real Property Policy Act of 1970*, as amended. Through the HMMP reporting program and the applicable terms and conditions from the USACE 404 Permit, SWRCB 401 Permit, and the CDFG 1600 Streambed Alteration Agreement, the Authority will document compliance. *Rev1*							
	Bio-MM#60: Offsite Habitat Restoration, Enhancement, and Preservation. Prior to site preparation at the mitigation site, the Authority or its designee will consider the offsite habitat restoration, enhancement, or preservation program, and identify short-term temporary and/or long-term permanent effects on the natural landscape. A determination will be made on any effects from the physical alteration of the site to onsite biological resources, including plant communities, land cover types, and the distribution of special-status plants and wildlife. Appropriate seasonal restrictions (e.g., breeding season) may be applicable if appropriate habitats exist onsite. Activities resulting in the physical alteration of the site include grading/modifications to onsite topography, stockpiling, storage of equipment, installation of temporary irrigation, removal of invasive species, and drainage feature treatments. In general, the long-term improvements to habitat functions and values will offset temporary effects during restoration, enhancement, or preservation activities. The offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite. Potential effects on site-specific hydrology and the downstream resources will be evaluated as a result of implementation of the restoration-related activity. Site-specific BMPs and an SWPPP will be implemented as appropriate. The Authority or its designee will report on compliance with permitting requirements. The Authority will be responsible for the monitoring and tracking of the program and will document compliance.	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Rev1							
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#23: Project period impacts from the HST would permanently convert suitable habitat that has potential to support special-status plant species.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#50: Compensate for Impacts on Special-Status Plant Species. Prior to Final Design and during the permitting process, the Authority will comply with CESA and the federal ESA by implementing the following measures: Purchase credits from an existing mitigation bank or conduct a special-status plant re-establishment program within the same watershed or in proximity to the impact area at a 1:1 ratio. The success of the special status plant species program is related to the success of the vernal pools. Restored areas must be similar in species composition and ecosystem function to the reference habitat to be considered completed and successful at the end of the monitoring period. In general, this means that data collected on restored or enhanced pools must fall within the range of data obtained from reference pools. General performance standards and guidelines are presented in Bio-MM#58. Mitigate the impacts on special-status plants in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). The Authority will document compliance. *Rev1*	**Implementing Party:** Authority to compensate based on area of special-status plant species habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Prior to final design	Memorandum documenting compliance
	Bio-MM#51: Implement Conservation Guidelines During the Project Period for Valley Elderberry Longhorn Beetle. The Authority or its designee will conduct compensatory mitigation for the valley elderberry longhorn beetle, including transplantation and replacement of elderberry shrubs, and maintenance for replacement shrubs, following the USFWS' *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999a). Performance standards for valley elderberry longhorn beetle habitat are generally described in Bio-MM#58. It is important to recognize that Bio-MM#58 includes standards that apply to several resource areas (e.g., jurisdictional waters, riparian habitat, California tiger salamander habitat). The Authority will document compliance. *Rev1*	**Implementing Party:** Authority to compensate based on area of Valley Elderberry Longhorn Beetle habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*			X		Prior to Operations	Memorandum documenting compliance
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).							
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#24: Project period impacts from the HST would permanently convert suitable habitat that has the potential to	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
support vernal pool branchiopods.	**Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds.** See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Bio#25: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support valley elderberry longhorn beetle.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#51: Implement Conservation Guidelines During the Project Period for Valley Elderberry Longhorn Beetle. See description above in Impact Bio#23: Project period impacts from the HST would permanently convert suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Authority to compensate based on area of Valley Elderberry Longhorn Beetle habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*			X		Prior to Operations	Memorandum documenting compliance
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio #24: Project period impacts for the HST would permanently convert suitable habitat that has the potential to support vernal pool branchiopods.	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#26: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support California tiger salamander.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#52: Compensate for Impacts on California Tiger Salamander. The Authority or its designee will determine compensatory mitigation for the temporary and permanent loss of suitable upland and aquatic breeding habitat through agency consultation with the USFWS and CDFG. Performance standards for California tiger salamander habitat are generally described in Bio-MM#58. It is important to recognize that Bio-MM#58 includes standards that apply to several resource areas (e.g., jurisdictional waters, riparian habitat,	**Implementing Party:** Authority to compensate based on area of temporary and permanent California Tiger Salamander habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure	X	X	X		Prior to Operations	Memorandum documenting compliance with agency-issued BO and 2081 Determination.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	California tiger salamander habitat). Compensatory mitigation could include one of the following: • Purchase of credits from an agency-approved mitigation bank. • Fee-title-acquisition of natural resource regulatory agency-approved property. • Purchase or establishment of a conservation easement with an endowment for long-term management of the property-specific conservation values. • In-lieu fee contribution determined through negotiation and consultation with the various natural resource regulatory agencies. • Implementation of USFWS Biological Opinion and/or CDFG 2081(b). The Authority will document compliance. *Rev1*	*Rev1*						
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
								their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#27: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support western spadefoot toad.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Memorandum documenting compliance
	Bio-MM#25: Conduct Emergence and Larval Surveys for Western Spadefoot Toad. See above in Impact Bio#7: Construction of the HST would disturb western spadefoot toad habitat. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction surveys. Prior to ground-disturbing activities. Follow reporting as determined by regulatory permit conditions.	Condition of Design/Build Contract
	Bio-MM#52: Compensate for Impacts on California Tiger Salamander. See description above in Impact Bio#26: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support California tiger salamander.	**Implementing Party:** Authority to compensate based on area of temporary and permanent California Tiger Salamander habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Prior to Operations	Memorandum documenting compliance with agency-issued B) and 2081 Determination.
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*						
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#28: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support western pond turtle.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent riparian habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*			X		Prior to Operations	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#53: Implement Western Pond Turtle Mitigation Measures. See description above in Impact Bio#8: Construction of the HST would disturb habitat that supports the western pond turtle. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Schedule according to BO and 2081 Determination	Memorandum documenting compliance with BO and 2081 Determination
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).							
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#30: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support nesting	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority			X		Post-construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Swainson's hawk.	suitable habitat that has potential to support special-status plant species.	Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*						
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent riparian habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*			X		Prior to Operations	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#54: Compensate for Loss of Swainson's Hawk Foraging Habitat. To compensate for the loss of Swainson's hawk foraging habitat, the Authority or its designee will provide compensatory mitigation that follows the ratios recommended by CDFG's (1994) Staff Report Regarding Mitigation for Impacts to Swainson's hawks in the Central Valley. The Authority will document compliance. The ratios are based on the distance from the construction footprint to the closest active nest site (which for this species is defined as a nest used one or more times in the last 5 years), as follows: • Compensate where impacts on foraging habitat occur within 1 mile of an active nest tree, at a 1:1 ratio on agricultural lands or other suitable foraging habitat; or at a 0.5:1 ratio where habitat can be managed for prey production. • Compensate where impacts on foraging habitat occur within 5 miles, but more than 1 mile from an active nest tree, at a 0.75:1 ratio. • Compensate where impacts on foraging habitat occur within 10 miles, but more than 5 miles from an active nest tree, at a 0.5:1 ratio. • Mitigate the impacts on special-status plants in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). *Rev1*	**Implementing Party:** Authority to compensate based on area of Swainson's hawk foraging habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Memorandum documenting compliance
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		the responsibility to other contractors. *Rev1*						
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
Bio#31: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support burrowing owls.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#55: Compensate for Loss of Burrowing Owl Foraging and Breeding Habitat. The Authority or its designee will provide base compensatory mitigation for the temporary and permanent loss of foraging and breeding habitat on the number of western burrowing owl pairs or individuals affected. Compensation will be at a 6.5:1 ratio (acres of habitat: number of pairs or individuals). Mitigate each occupied burrow destroyed by enlarging or enhancing existing unsuitable burrows at a 2:1 ratio based on CDFG's (1995) *Staff Report on Burrowing Owl Mitigation*. The Authority will document compliance. *Rev1*	**Implementing Party:** Authority to compensate based on area of Burrowing Owl foraging and breeding habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Memorandum documenting compliance with CDFG guidance
Bio#32: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support breeding birds, including raptors and	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other	**Implementing Party:** Authority to compensate based on area of permanent riparian habitat impacted by the Contractor			X		Prior to Operations	Post-construction compliance reports consistent with the appropriate agency-issued permits

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
burrowing owls.	riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Monitoring/Reporting Party:** Authority *Rev1*						
	Bio-MM#54: Compensate for Loss of Swainson's Hawk Foraging Habitat. See description above in Impact Bio#30: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support nesting Swainson's hawk.	**Implementing Party:** Authority to compensate based on area of Swainson's hawk foraging habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Memorandum documenting compliance
	Bio-MM#55: Compensate for Loss of Burrowing Owl Foraging and Breeding Habitat. See description above in Impact Bio#31: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support burrowing owls. *Rev1*	**Implementing Party:** Authority to compensate based on area of Burrowing Owl foraging and breeding habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Memorandum documenting compliance with CDFG guidance
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
		Rev1						Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#33: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support special-status bats.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	HMMP
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent riparian habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*			X		Prior to Operations	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority	X	X	X		Prior to Operations	Documentation of compliance with permit conditions

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	*Rev1*						
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#34: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support American badger dens.	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Memorandum documenting compliance
	Bio-MM#47: Install Wildlife Fencing Prior to operation of the HST, the Contractor will install free-ranging mammal-proof fencing along portions of the proposed project consistent with final design. The Contractor will verify that the installation is consistent with the designated terms and conditions in the applicable permits. The Contractor will prepare and submit a memorandum to the Authority documenting compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X	X		Post-construction	Memorandum documenting compliance
	Bio-MM#48: Construction in Wildlife Movement Corridors. Before ground-disturbing activities, the Contractor will submit a construction avoidance and minimization plan for the Eastman Lake-Bear Creek ECA to the Authority for concurrence. During ground-disturbing activities, the Contractor will keep the Eastman Lake-Bear Creek ECA riparian corridors (including Deadman and Dutchman creeks) free of all equipment, storage materials, construction materials, and any significant potential impediments. The Contractor will minimize ground-disturbing activities within the Eastman Lake-Bear Creek ECA riparian corridors (Deadman and Dutchman creeks) during nighttime hours to the extent practicable. In addition, keep nighttime illumination (e.g., for security) from spilling into the ECA or shield nighttime lighting to avoid illumination spilling into the ECA. Inspections by the Authority will check compliance and the Contractor will prepare and submit memorandum to the Authority to document compliance. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Post-construction	Memorandum documenting compliance

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#35: Project period impacts from the HST would permanently	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of			X		Post-construction	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
convert suitable habitat that has the potential to support San Joaquin kit fox dens.		work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*						
	Bio-MM#47: Install Wildlife Fencing. See description above in Impact Bio#34: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support American badger dens.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#48: Construction in Wildlife Movement Corridors. See description above in Impact Bio#34: Project period impacts from the HST would permanently convert suitable habitat that has the potential to support American badger dens.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Pre-construction and during construction	Condition of Design/Build Contract
	Bio-MM#56: Compensate for Destruction of Natal Dens. The Authority will mitigate the destruction of kit fox natal dens by the purchase of suitable, approved habitat (USFWS and CDFG). Replace habitat at a minimum of 1:1 acre of habitat in order to provide additional protection and habitat in a location consistent with the recovery of the species. Mitigate the impacts on San Joaquin kit fox in accordance with the USFWS Biological Opinion and/or CDFG 2081(b). The Authority will document compliance. *Rev1*	**Implementing Party:** Authority to compensate based on area of kit fox natural den habit impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*			X		Prior to Operations	Memorandum documenting compliance with BO and 2081 Determination
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and	**Implementing Party:** Authority to implement offsite	X	X	X		Pre-Construction,	Offsite habitat restoration,

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*					Construction, Post-Construction	enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#36: Project period impacts from the HST would permanently convert special-status plant communities (Great Valley Mixed Riparian and other riparian addressed in Bio#22).	**Bio-MM#14: Post-Construction Compliance Reports.** See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#49: Compensate for Permanent Riparian Impacts. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent riparian habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*			X		Prior to Operations	Post-construction compliance reports consistent with the appropriate agency-issued permits
	Bio-MM#51: Implement Conservation Guidelines During the Project Period for Valley Elderberry Longhorn Beetle. See description above in Impact Bio#23: Project period impacts from the HST would permanently convert suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Authority to compensate based on area of Valley Elderberry Longhorn Beetle habitat impacted by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*			X		Prior to Operations	Memorandum documenting compliance
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities	Condition of Design/Build Contract
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation	Documentation Reports demonstrating compliance with HMMP

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*					prescribed in the resource agency permits.	
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
	Bio-MM#4: Prepare and Implement a Weed Control Plan. See description above in Impact Bio#1: Introduction of Noxious Weeds.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
Bio#37: Project period impacts from the HST would permanently convert jurisdictional waters.	**Bio-MM#4: Prepare and Implement a Weed Control Plan.** See description above in Impact Bio#1: Introduction of Noxious Weeds. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Prior to construction/monthly memorandum to document the progress of the Weed Control Plan and implementation	Condition of Design/Build Contract
	Bio-MM#14: Post-Construction Compliance Reports. See description above in Impact Bio#3: Construction of the HST would disturb suitable habitat that has potential to support special-status plant species.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority Each Contractor will submit a Post-Construction Compliance Report at substantial contract completion for its own scope of work. The Authority will aggregate all reports and continue post-construction compliance reporting as required. *Rev1*			X		Post-construction	Condition of Design/Build Contract
	Bio-MM#57: Conduct Delineation of Jurisdictional Waters and State	**Implementing Party:** Contractor	X				Prior to ground-disturbing	Condition of Design/Build Contract

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Streambeds. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Monitoring/Reporting Party:** Contractor *Rev1*					activities	
	Bio-MM#58: Prepare and Implement a Habitat Mitigation and Monitoring Plan. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor and Authority 1. For off-site and compensatory mitigation activities, the Authority will be responsible for the production of that specific HMMP and implementation, monitoring and reporting against it 2. Any modifications of mitigation ratios will require consultation and agreement with Authority 3. Annual monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X	X	Annual monitoring reports for 5 years (or less if success criteria are met as described earlier) and/or other documentation prescribed in the resource agency permits.	Documentation Reports demonstrating compliance with HMMP
	Bio-MM#59: Compensate for Permanent Impacts on Jurisdictional Waters. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to compensate based on area of permanent jurisdictional waters impacted by the Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X	X		Prior to Operations	Documentation of compliance with permit conditions
	Bio-MM#60: Offsite Habitat Restoration, Enhancement and Preservation. See description above in Impact Bio#22: Project period impacts from the HST would permanently convert Great Valley mixed riparian forest and other riparian habitat (Coastal and Valley Freshwater Marsh and vernal pools addressed in BIO IMPACT #16).	**Implementing Party:** Authority to implement offsite mitigation based on effects from the physical alteration of onsite biological resources by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Pre-Construction, Construction, Post-Construction	Offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFG 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite
Bio#40: The HST would affect Camp Pashayan (within the San Joaquin River Ecological Reserve).	**PK-MM#1: Compensate for Staging in Park Property for Construction**. The Authority will coordinate with the respective jurisdictions to establish appropriate compensation in terms of allowance or additional property to accommodate for displaced park use during construction. Options will include preparing a plan for alternative public recreation resources during the period of closure, and preparing signs and newsletters describing the project, its schedule, and the alternative public recreational opportunities. Alternative parks and recreational resources will include the installation of recreational facilities, trails, and landscaping on lands currently owned by the city but not already developed, or it will include temporary park development on open lands until the park can be reopened. Landscaping replacement will include replacement grass areas, tree replacement on a ratio of two 5-inch caliber	**Implementing Party:** Authority to implement park property mitigation based on displaced park use by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Prior to construction/Post construction. Authority to coordinate with local jurisdictions.	The Authority and contractor will work with respective jurisdictions to develop a staging plan.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	trees for every tree removed and two shrubs for every shrub removed. All other facilities will be replaced or moved on a one-for-one ratio, including play equipment, benches, and the like. *Rev1*							
	PK-MM#4: Acquire Park Property for Camp Pashayan. Final design will continue to seek to minimize right-of-way impacts and pier placement in Camp Pashayan. Mitigation will include in-lieu fee for property impacts associated with pier installation as well as revegetation of disturbed areas with native plantings (consistent with CDFG vegetation/landscaping plans for the reserve).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor in coordination with the Authority *Rev1*	X				Prior to construction/monthly reporting	The Authority will work with the California Department of Fish and Game to prepare and execute an agreement to acquire the property.
Hydrology and Water Resources								
No significant impacts on hydrology and water resources have been identified.								
Geology, Soils, and Seismicity								
With implementation of standard engineering design measures and BMPs, impacts for elevated structures, retained cuts, retained fills, and at-grade segments of each alternative would be less than significant. Therefore, mitigation measures are not required.								
Hazardous Materials and Wastes								
HMW#1: Handling of Extremely Hazardous Materials within 0.25 mile of a School	**HMW-MM#1: Limit use of extremely hazardous materials near schools.** The contractor shall not handle an extremely hazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a quantity equal to or greater than the state threshold quantity specified pursuant to subdivision (j) of Section 25532 of the Health and Safety Code within 0.25 mile of a school. Signage would be used to delimit all work areas within 0.25 mile of a school and the contractor would be required to monitor all use of extremely hazardous substances. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Construction/Monthly reporting	Contract Requirements/Specifications
Safety and Security								
S&S #2: Increased demand for fire, rescue, and emergency services at stations and HMF.	**S&S-MM#2: Monitor response of local fire, rescue, and emergency service providers to incidents at stations and the HMF and provide a fair share of cost of service.** Upon approval of the Merced to Fresno Section, the Authority will monitor service levels in the vicinity of the Merced and Fresno stations, in order to determine baseline service demands. "Service levels" consist of the monthly volume of calls for fire and police protection, as well as city- or fire protection district-funded EMT/ambulance calls that occur within the station and HMF site service areas. Prior to operation of the stations for HST service, the Authority will enter into an agreement with the public service providers of fire, police, and emergency services to fund the Authority's fair share of services above the average baseline service demand level for the station and HMF service areas (as established during the monitoring period). The fair share will be based on projected passenger use for the first year of operations, with a growth factor for the first 5 years of operation. This cost-sharing agreement will include provisions for ongoing monitoring and future	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority	X	X	X	X	Monitoring of service levels during construction in the vicinity of the Merced and Fresno stations to determine baseline service demands. Prior to operation of the stations for HST service	Authority to fund through fair share of services agreement.

Significant Impact	Mitigation Measure	Implementing Party and Monitoring / Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule / Reporting Schedule	
	negotiated amendments as the stations are expanded or passenger use increases. Such amendments will be made on a regular basis for the first 5 years of station operation, as will be provided in the agreement. To make sure that services are made available, impact fees will not constitute the sole funding mechanism, although impact fees may be used to fund capital improvements or fixtures (for example, police substation, additional fire vehicles, onsite defibrillators) necessary to service delivery. After the first 5 years of operation, the Authority will enter into a new or revised agreement with the public service providers of fire, police, and emergency services to fund the Authority's fair share of services. The fair share will take into account the volume of ridership, past record and trends in service demand at the stations and HMF site, new local revenues derived from station area development, and any services that the Authority may be providing at the station.							
Socioeconomics, Communities, and Environmental Justice								
SO#3: Displacement of Community Facility. Acquisition of a homeless shelter in the City of Merced.	**SO-MM#4: Implement measures to reduce impacts associated with the relocation of community facilities.** This mitigation measure would address SO IMPACT #3 (Displacement of community facility). Minimize impacts associated with the acquisition of the homeless shelter in Merced, by conducting outreach and coordinating with the facility prior to acquisition. Coordinate with the respective parties prior to land acquisition to reconfigure or relocate facilities, as necessary, to minimize disruption to activities. To reduce disruption to the use of this community facility the Authority will make sure that reconfiguring of land uses or buildings or relocating of community facilities is completed before the demolition of any existing structures. Work with the City of Merced to facilitate the construction of the facilities prior to demolition of the existing structures. During the design process, the Authority, with support from the Contractor, will conduct targeted outreach efforts for these facilities to understand and determine their needs for siting criteria. This mitigation measure will be effective in minimizing the impacts of the project by completing new facilities prior to relocation being necessary, and by involving affected facilities in the process of identifying new locations for their facilities. *Rev1*	**Implementing Party:** Authority and Contractor **Monitoring / Reporting Party:** Authority *Rev1*	X	X			Final design and prior to acquisitions	Outreach efforts - recruitment, training, and job set-aside programs
	SO-MM#5: Continue outreach to disproportionately and negatively affected environmental justice communities of concern. The Authority will continue to conduct substantial environmental justice outreach activities in adversely affected neighborhoods to obtain resident feedback on potential impacts and suggestions for mitigation measures. Input from these communities will be used to refine project features during the design phase and facilitate the identification of the highest priority mitigation measures developed for the Merced to Fresno section. In addition, to offset any disproportionate effects, the Authority will develop special recruitment, training, and job set-aside programs so that minority and low-income populations are able to benefit from the jobs created by the project. This type of outreach is common for large infrastructure projects with long construction periods and has been found to be effective.	**Implementing Party:** Authority **Monitoring / Reporting Party:** Authority	X	X			Prior to acquisitions	Outreach efforts - recruitment, training, and job set-aside programs
Station Planning, Land Use, and Development								
No impacts on land use have been identified that would be significant or potentially significant under CEQA. All three alternatives and the HMF sites are consistent with local and regional land use plans, policies, and regulations adopted for the purpose of avoiding or								

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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mitigating an environmental effect. The alternatives and the HMF sites would not cause significant changes in land use patterns or intensities that would be incompatible with adjacent land uses. Station effects related to increased density and TOD are considered beneficial and would result in infill development and redevelopment of the downtown centers, which would reduce pressures on the surrounding agricultural lands.								
Agricultural Lands								
Ag#1: Permanent Conversion of Agricultural Land to Nonagricultural Use.	**Ag-MM#1: Preserve the Total Amount of Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland.** The Authority will enter into an agreement with the DOC California Farmland Conservancy Program to implement the preservation of farmland. The Authority will fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. The performance standards for this measure are to preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, within the same agricultural regions as the impacts occur, at a replacement ratio of not less than 1:1. The California Farmland Conservancy Program will work with local, regional, or statewide entities whose purpose includes the acquisition and stewardship of agricultural conservation easements. The Authority and California Farmland Conservancy Program will develop selection criteria under this agreement to guide the pursuit and purchase of conservation easements. These will include, but are not limited to, provisions to ensure that the easements will conform to the requirements of Public Resources Code Section 10252 and to prioritize the acquisition of willing seller easements on lands that are adjacent to other protected agricultural lands or that would support the establishment of greenbelts and urban separators. In addition, the Authority has incorporated establishment and administering of a farmland consolidation program to sell remnant parcels to neighboring landowners for consolidation with adjacent farmland properties. In addition, the program will assist the owners of remnant parcels in selling those remnants to adjacent landowners, upon request. The goal of the program is to provide for continued agricultural use on the maximum feasible amount of remnant parcels that otherwise may not uneconomical to farm. The program will focus on severed remainder parcels, including those that were under Williamson Act or Farmland Security Act contract at the time of right-of-way acquisition and have become too small to remain in the local Williamson Act or Farmland Security Act program. The program will assist landowners in obtaining lot line adjustments where appropriate to incorporate remnant parcels into a larger parcel that is consistent with size requirements under the local government general plan. The program will operate for a minimum of 5 years after construction of the section is completed. *Rev1*	**Implementing Party:** Authority & California Farmland Conservancy **Monitoring/Reporting Party:** Authority	X				Prior to construction/Monthly reporting Prior to construction	The Authority will enter into an agreement with the DOC California Farmland Conservancy Program to implement the preservation of farmland. The Authority and California Farmland Conservancy Program will develop selection criteria under this agreement to guide the pursuit and purchase of conservation easements.
Electromagnetic Fields and Electromagnetic Interference								
The project would comply with applicable federal and state regulations and implement design strategies as outlined in the Final Statewide Program EIR/EIS (Authority and FRA 2005). No significant impacts would occur during construction nor operation of the Project Alternatives or HMFs.								
Parks, Recreation, and Open Space								

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
PK#4: Restricted Use at Camp Pashayan (City of Fresno)	**PK-MM#1: Compensate for Staging in Park Property for Construction.** The Authority will coordinate with the respective jurisdictions to establish appropriate compensation in terms of allowance or additional property to accommodate for displaced park use during construction. Options will include preparing a plan for alternative public recreation resources during the period of closure, and preparing signs and newsletters describing the project, its schedule, and the alternative public recreational opportunities. Alternative parks and recreational resources will include the installation of recreational facilities, trails, and landscaping on lands currently owned by the city but not already developed, or it will include temporary park development on open lands until the park can be reopened. Landscaping replacement will include replacement grass areas, tree replacement on a ratio of two 5-inch caliber trees for every tree removed and two shrubs for every shrub removed. All other facilities will be replaced or moved on a one-for-one ratio, including play equipment, benches, and the like.	**Implementing Party:** Authority to implement park property mitigation based on displaced park use by the Contractor **Monitoring/Reporting Party:** Authority The Contractor shall monitor any activities and prepare any reports required where its construction activities contribute to the requirement for this mitigation measure *Rev1*	X	X	X		Prior to construction/Post construction. Authority to coordinate with local jurisdictions.	The Authority and contractor will work with respective jurisdictions to develop a staging plan.
PK#7: Acquisition of Camp Pashayan Park Property. At Camp Pashayan, 0.6 acre of park area would be acquired for support columns and easement for elevated structure.	**PK-MM#4: Acquire Park Property for Camp Pashayan.** Final design will continue to seek to minimize right-of-way impacts and pier placement in Camp Pashayan. Mitigation will include in-lieu fee for property impacts associated with pier installation as well as revegetation of disturbed areas with native plantings (consistent with CDFG vegetation/landscaping plans for the reserve).	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor in coordination with the Authority *Rev1*	X				Prior to construction/monthly reporting	The Authority will work with the California Department of Fish and Game to prepare and execute an agreement to acquire the property.
PK#8: Noise Impacts at Roeding Park (City of Fresno)	**PK-MM#5: Address Noise at Roeding Park with City of Fresno.** To mitigate the noise impacts, a sound barrier approximately 2,800 feet in length will be constructed. It is assumed that a sound barrier will be 10 to 14 feet tall and have aesthetic treatment. A 10-foot-high sound barrier will reduce noise to 64 dBA at 250 feet inside the park and residual noise effects will occur. A 14-foot-high sound barrier will reduce noise effects to within 1 dB of no impact. The sound barrier will result in visual effects, but would not change the existing visual quality. The visual character of the eastern part of the park will change as one moves closer to the edge of the park. The landscape character at the park's edge will change with the presence and build of the sound barrier compared to the existing chain link fence, flat roadway, and open views. However, the sound barrier, with aesthetic treatment of shrubs located along the park side of the wall, will improve the park's visual quality and setting by blocking views of the existing transportation facilities outside the park's visual quality and setting by blocking views of the existing transportation facilities outside the park that detract from its setting. Aesthetic treatment of the sound barrier will be selected with input from the community. The mitigation measure will be further refined in consultation with the owners and maintenance keepers of the park and recreational facilities. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Design and Construction	The Authority will work with the City of Fresno as the resource owner to address noise impacts. It is possible that the City of Fresno would view the projected noise levels as acceptable and preferable to the implementation of mitigation measures.
Aesthetics and Visual Resources								
VQ#1: Visual Disturbance during Construction.	**VQ-MM#1: Minimize Visual Disruption During Construction and from Construction Activities.** Adhere to local jurisdiction construction requirements (if applicable) regarding construction-related visual/aesthetic	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Construction/Weekly reporting	Contract Requirements/ Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
Construction activities would cause visual impacts in urban areas.	disruption. In order to minimize visual disruption, construction will employ the following activities: • Minimize the pre-construction clearing to that necessary for construction. • Limit the removal of buildings to those that would obstruct project components. • When possible, preserve existing vegetation, particularly vegetation along the edge of construction areas that may help screen views. • After construction, degrade areas disturbed by construction, staging, and storage to original contours and revegetate with plant material similar in replacement numbers and type to that which was removed upon completion of construction, based upon local jurisdictional requirements. If there are no local jurisdictional requirements to follow, replace remove vegetation at a 1:1 replacement ratio for shrubs and small trees, and a 2:1 replacement ratio for mature trees. For example, if 10 mature trees in an area are removed, replant 20 younger trees that after 5 to 15 years (depending on the growth rates of the trees) would provide coverage that was similar to the coverage provided by the trees that were removed for construction. • To the extent feasible, do not locate construction staging sites within immediate foreground distance (0 to 500 feet) of existing residential, recreational, or other high-sensitivity receptors. Where such siting is unavoidable, staging sites will be screened from sensitive receptors using appropriate solid screening materials such as temporary fencing and walls. Any graffiti or visual defacement of temporary fencing and walls will be painted over or removed within 5 business days. Implementation of this mitigation measure is not expected to result in secondary impacts. *Rev1*							
VQ#2: Nighttime Lighting during Construction. Nighttime lighting would affect Merced and Fresno urban areas.	**VQ-MM#2: Minimize Light Disturbance During Construction.** Where construction lighting will be required during nighttime construction, shield such lighting and direct it downward in such a manner that the light source is not visible offsite, and so that the light does not fall outside the boundaries of the project site to avoid light spillage offsite. Implementation of this mitigation measure is not expected to result in secondary impacts. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Construction/Weekly reporting	Contract Requirements/ Specifications
VQ#5 and VQ#6. Lower Visual Quality in the West of SR 99 Landscape Unit	**VQ-MM#5: Provide Landscape Treatments Along the HST Project Overcrossings and Retained Fill Elements of the HST.** Upon the completion of construction, the Authority will plant the surface of the ground supporting the overpasses (slope-fill overpasses) and retained fill elements with vegetation consistent with the surrounding landscape in terms of vegetative type, color, texture, and form. During final design, the Authority will consult with the affected cities and counties regarding the landscaping program for planting the slopes of the overcrossings and retained fill. Plant species will be selected on the basis of their mature size and shape, growth rate, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed, if needed. Where wall structures supporting the overpasses or retained fill are	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor in coordination with Authority. Landscaping and maintenance will be provided by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for landscaping or assign the responsibility to other third parties. *Rev1*			X		Pre and Post Construction/monthly reporting	Contract Requirements/ Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	proposed, the structure will employ architectural details and low-maintenance trees and other vegetation to screen the structure, minimize graffiti, and reduce the effects of large walls. Surface coatings will be applied on wood and concrete to facilitate cleaning and the removal of graffiti. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable time after notification. Implementation of this mitigation measure is not expected to result in secondary impacts. *Rev1*							
VQ#11. Sound Barrier and Retaining Wall Would Block Views.	**VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST.** See description above in Impact VQ#5 and VQ#6: Lower Visual Quality in the West of SR 99 Landscape Unit. *Rev1*	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor in coordination with Authority. Landscaping and maintenance will be provided by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for landscaping or assign the responsibility to other third parties. *Rev1*			X		Pre and Post Construction/monthly reporting	Contract Requirements/ Specifications
	VQ-MM#6: Provide Sound Barrier Treatments. The Authority will design a range of sound barrier treatments for visually sensitive areas, such as those where residential views of open landscaped areas would change or in urban areas where sound barriers would adversely affect the existing character and setting. The Authority will develop the treatments during final design and integrate them into the final project design. The treatments will include, but are not limited to, the following: • Sound barriers along elevated guideways may incorporate transparent materials, where sensitive views would be adversely affected by solid sound barriers. • Sound barriers will use non-reflective materials and will be of a neutral color. • Surface design enhancements and vegetation appropriate to the visual context of the area will be installed with the sound barriers. Vegetation will be installed consistent with the provisions of VQ-MM#5. Surface enhancements will be consistent with the design features and will include architectural elements (i.e. stamped pattern, surface articulation, and decorative texture treatment as determined acceptable to the local jurisdiction. Surface coatings will be used on wood and concrete sound barriers to facilitate cleaning and the removal of graffiti. Implementation of this mitigation measure is not expected to result in secondary impacts. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Construction/monthly reporting	Contract Requirements/ Specifications
	VQ-MM#3: Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context. This mitigation measure is referenced and included in VQ-MM#6 to address VQ IMPACT #11 (Sound Barrier and Retaining Wall Would Block Views). During final design of elevated guideways and the Merced and Fresno stations, the Authority will coordinate with local jurisdictions on the design of these facilities so that they are designed appropriately to fit in with the visual context of the areas near them.	**Implementing Party:** Contractor and Authority **Monitoring/Reporting Party:** Contractor in coordination with Authority *Rev1*	X				Final design and Construction/Monthly reporting	Established local consultation process with City of Merced and City of Fresno

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	This will include the following activities: • For stations: During the station design process, establish a local consultation process with the City of Merced and the City of Fresno to identify and integrate local design features into the station design through a collaborative context-sensitive solutions approach. The process will include activities to solicit community input in their respective station areas. This effort will be coordinated with the station area planning process that will be undertaken by those cities under their station area planning grants. • For elevated guideways in cities or unincorporated communities: During the elevated guideway design process, establish a process with the city or county with jurisdiction over the land along the elevated guideway to advance the final design through a collaborative context-sensitive solutions approach. Participants in the consultation process will meet on a regular basis to develop a consensus on the urban design elements to be incorporated into the final guideway designs. The process will include activities to solicit community input in the affected neighborhoods. Actions taken to help achieve integration with the local design context during the context-sensitive solutions process will include the following: • Design HST stations and associated structures such as elevators, escalators, and walkways to be attractive architectural elements or features that add visual interest to the streetscapes near them. • Design HST station parking structures and adjacent areas to integrate visually into the areas where they would be located. Where the city has adopted applicable downtown design guidelines, the parking structures and adjacent areas will be designed to be compatible with the policies and principles of those guidelines. • For the elevated guideways and columns, incorporate architectural elements, such as graceful curved or tapered sculptural forms and decorative surfaces, to provide visual interest. Include decorative texture treatments on large-scale concrete surfaces such as parapets and other portions of elevated guideways. Include a variety of texture, shadow lines, and other surface articulation to add visual and thematic interest. Closely coordinate the design of guideway columns and parapets with station and platform architecture to promote unity and coherence where guideways lie adjacent to stations. • Integrate trees and landscaping into the station streetscape and plaza plans where possible to soften and buffer the appearance of guideways, columns, and elevated stations. This will be consistent with the principles of crime prevention through environmental design. • For the stations, structures, and related open spaces: incorporate design features that provide interest and reflect the local design						

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	context. These features could include landscaping, lighting, and public art. The designs within cities and unincorporated communities will reflect the results of the context-sensitive solutions design process. During the context-sensitive solutions design process, the HST Project's obligations and constraints related to planning, mitigation, engineering, performance, funding, and operational requirements will be taken into consideration. *Rev1*							
VQ #12. Traction Power Distribution Stations Would Alter Visual Character or Block Views.	**VQ-MM#7: Screen Traction Power Distribution Station and HMF.** Upon completion of traction power distribution station or HMF construction, the Authority will screen the traction power substations (located at approximately 30-mile intervals along any of the HST alternatives) and HMF from public view through the use of landscaping or solid walls/fences. This will consist of context-appropriate landscaping of a type and scale that does not draw attention to the station. Plant species will be selected on the basis of their mature size and shape, growth rate, hardiness, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed within the landscaped areas. Walls will be constructed of cinder-block or similar material and will be painted a neutral color to blend in with the surrounding context. If a chain-link or cyclone fence is used, it will include wood slats in the fencing. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable period as agreed between the Authority and local jurisdiction. Implementation of this mitigation measure is not expected to result in secondary impacts. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor Landscaping and maintenance will be provided by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for landscaping or assign the responsibility to other third parties. *Rev1*			X		Post Construction	Contract Requirements/ Specifications
Cultural and Paleontological Resources								
Arch#1: Effect on Significant Prehistoric and Historic-Era Archaeological Resources During Construction	**Arch-MM#1: Conduct Archaeological Training.** Prior to ground-disturbing activities within the project alternatives, a qualified professional archaeologist, who meets the Secretary of the Interior's (SOI's) Standards for Archaeology, will develop a training program and printed material to be presented to construction personnel. The purpose of this training and accompanying materials will be to familiarize construction personnel with the relevant legal (Section 106/NEPA/CEQA) context for cultural resources of the project and with the types of cultural sites, features, and artifacts that could be uncovered during construction activities. These training sessions will be conducted prior to commencing construction within discrete portions of the project alternatives or as needed as construction crews and supervisors may change. The archaeological training program is further detailed in the Archaeological Treatment Plan (ATP), which will focus on the treatment of known buried historic properties and will provide guidance in the event of unanticipated discoveries. This is being developed with input from all consulting parties, including: • Merced County • City of Merced • City of Merced Design Review Board/Commission and Historic Preservation Commission	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Prior to ground-disturbing activities/weekly monitoring	Worker Environmental Awareness Program training ATP MOA An Unanticipated Discoveries Plan is a part of the ATP and has been developed, in coordination with the consulting parties, to detail the specific procedures to be followed if archaeological materials are found during construction. Implement an ADRP if the circumstances warrant an ADRP. The Authority will provide the ADRP, as an element of the

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	• Fresno County • City of Fresno • City of Fresno Historic Preservation Program • Fresno County Landmarks and Records Advisory Commission • Madera County • City of Madera • California State Historic Preservation Office (SHPO) • Advisory Council on Historic Preservation (ACHP) In addition, consultation is being undertaken with participating parties and entities that have expressed a formal interest in being involved with the project, including Native American tribes. The ATP will reflect the input of all parties. The ATP is a living document, monitored by all of the consulting parties so that compliance activities and mitigation commitments can be tracked. The ATP will be also be tied to the Memorandum of Agreement (MOA), which will also contain compliance and tracking stipulations tied to each specific mitigation item. The combination of the ATP and the MOA, along with ongoing coordination with the consulting parties, tracks and measures the commitments. *Rev1*							treatment plan prepared for the section, to the MOA signatories and MOA concurring parties for review and comment. Programmatic Agreement (PA)
	Arch-MM#2: Halt Work in the Event of an Archaeological Discovery. If any cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will halt, and the project proponent will consult with a qualified archaeologist to assess the significance of the find, according to CEQA Guidelines Section 15064.5, and any work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out. An Unanticipated Discoveries Plan will be developed in coordination with the consulting parties to detail the specific procedures to be followed if archaeological materials are found during construction. This plan is a part of the ATP, which is also being developed through a consultative process. The California State Lands Commission (CSLC) will be notified if the find is a cultural resource on or in the submerged lands of California, consequently under the jurisdiction of the CSLC. The project proponent will comply with all applicable rules and regulations promulgated by CSLC with respect to cultural resources located in submerged lands, and in accordance with the Programmatic Agreement (PA). If human remains are encountered, the project proponent will comply with applicable laws and regulations regarding notification and disposition of the remains. If the coroner determines that the remains are Native American, the coroner will notify the Native American Heritage Commission (NAHC) under Health and Safety Code 7050.5. If any find is determined to be significant, the project proponent and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation in conjunction with the SHPO and the MOA signatories. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards as determined in the project MOA. In considering any	**Implementing Party:** Contractor, in consultation with the California State Lands Commission, the Native American Heritage Commission, and the State Historic Preservation Office, as appropriate. **Monitoring/Reporting Party:** Contractor, in coordination with Authority, SHPO and appropriate consulting agencies *Rev1*		X			Construction	ATP MOA

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	suggested mitigation proposed by the consulting archaeologist to mitigate impacts on historical resources or unique archaeological resources, a determination will be made whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If, in consultation with the consulting archaeologist, it is determined that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, one of the following actions may be followed, as feasible: • If prudent and feasible, redesign the project to avoid any adverse effect on the significant archaeological resource. • Implement Arch-MM#3, Intentional Site Burial for Site Preservation. • Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible). If the circumstances warrant an ADRP, such a program will be conducted. Together with a project archaeologist, the scope of the ADRP will be determined. The archaeologist will prepare a draft ADRP, which will identify the scientific/historical research questions that are applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes will address the applicable research questions. Pursuant to Section VIII(c)(1) of the PA, the Authority will provide the ADRP, as an element of the treatment plan prepared for the section, to the MOA signatories and MOA concurring parties for review and comment. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods will not be applied to portions of the archaeological resources if nondestructive methods are practical. Performance tracking of this mitigation measure will be based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*							
	Arch-MM#3: Plan an Intentional Site Burial Preservation In-Place. If project engineering concludes that avoidance is not feasible, a process to determine whether the site can be preserved through intentional site burial will be considered. When complete avoidance is not possible, preservation in-place is the preferred form of mitigation for an "historical resource of an archaeological nature" because it retains the relationships between artifact and context, and may avoid conflicts with groups associated with the site, pursuant to CEQA Guidelines 15126.4(b)(3)(A). The process, presented in overview below, is specified in detail in the ATP, which is being developed in coordination with all of the project's consulting parties. To intentionally bury a site, it will be necessary to conduct test excavations to determine the vertical and horizontal extent of the identified resources discovered as planning proceeds or through accidental discovery. If excavations have not yet been conducted for the purpose of evaluating the site for eligibility in accordance with Section 106 of the NHPA, the Authority will contract with a qualified archaeologist to conduct a formal excavation of the site to delineate the site boundaries and to determine the site's eligibility for	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor, in coordination with the Authority, SHPO and appropriate consulting agencies Site burial monitoring reports will be produced by the Contractor for its scope of work until substantial completion of the work at which time the Authority shall assume responsibility for production or assign the responsibility to other contractors. *Rev1*	X	X	X		Prior to construction/Weekly reporting	ATP MOA

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			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	the CRHR or NRHP. If found to be eligible and avoidance is not possible, consideration will be given to intentional site burial. The contracted archaeologist will, in addition to the formal delineation of the site boundaries, prepare and implement a design plan to dictate the conditions of the intentional site burial according to the recommendations discussed in the National Park Service Technical Brief Number 5, Intentional Site Burial: A Technique to Protect Against National or Mechanical Loss (Thorne 1991). Among the requirements of an effective capping, the mechanical process of burying the site must be designed in a manner that will make sure that the site matrix is protected during the placement process and during the operation of the HST. Preconstruction testing can be used to determine the construction equipment and fill material load limits that are allowable without causing compression or warpage of the artifact and feature components of the site. If the preconstruction testing determines that compression or warpage of the site is probable and the mitigation will not effectively reduce the effects of the project to less than significant levels, additional mitigation, such as data recovery, will be necessary. Furthermore, if it is determined that the engineering requirements of the construction and operation of the HST at the location of the site prohibit the effective avoidance of the site, or if the surrounding conditions prohibit the protection or preservation of the archaeological components, the mitigation of data recovery will be the only feasible mitigation (see Arch-MM#2 above). In addition, the Authority will make provisions with the contracted archaeologist to monitor the site after the burial process is completed. Performance tracking of this mitigation measure will be based upon successful implementation and the approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*							
	Arch-MM#4: Conduct Archaeological Monitoring in Proximity to Identified Sites or Areas of Sensitivity. Ground-disturbing activities that have the potential to affect archaeological remains may occur in areas that have been identified as either the location of a known archaeological site, or in an area known to be sensitive for the presence of buried cultural resources. The Authority will retain the services of a qualified archaeological monitor who will be present during all ground-disturbing construction activities occurring in native sediments/soils. The process for archaeological monitoring, presented in overview below, will be specified in detail in the ATP, developed in coordination with all of the project's consulting parties. In the event that cultural resources are exposed during construction, following guidelines presented in the ATP, the archaeological monitors will be empowered to temporarily halt activities in the immediate vicinity of the discovery while it is evaluated for significance. If the archaeologist determines that the cultural resources exposed are unique archaeological resources as defined by Section 21083.2 of CEQA, then the archaeologist will conduct additional excavations to avoid impacts on these resources by the development. If they are not "unique," then no further mitigation will be required. Unique cultural resources will be determined based on the criteria set forth in Section 21083.2 of CEQA. The Authority will seek Native American	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor, in coordination with the Authority, SHPO and appropriate consulting agencies *Rev1*	X	X	X		Construction/Weekly reporting	ATP MOA

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
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	input and consultation under terms and conditions specified in the ATP and MOA. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*							
Pale#2: Effect on Paleontological Resources during Construction	**Pale-MM#1: Engage a Paleontological Resources Specialist to Direct Monitoring during Construction.** At least 120 days prior to construction, a paleontological resources specialist (PRS) will be designated for the project and will be responsible for determining where and when paleontological resources monitoring should be conducted. Paleontological resources monitors (PRMs) will be selected by the PRS based on their qualifications, and the scope and nature of their monitoring will be determined and directed based on the Paleontological Resource Monitoring and Mitigation Plan (PRMMP). The PRS will be responsible for developing and implementing their portion of the Worker Environmental Awareness Program training. All management and supervisory personnel and construction workers involved with ground-disturbing activities will be required to take this training prior to beginning work on the project and will be provided with the necessary resources for response in case paleontological resources are found during construction. The PRS will document any discoveries, as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Authority *Rev1*	X	X			Identify PRS at least 120 days prior to construction The PRS will document any discoveries, as needed, evaluate the potential resource, and assess the significance of the find.	Paleontological Resource Monitoring and Mitigation Plan (PRMMP)
	Pale-MM#2: Prepare and Implement a Paleontological Resource Monitoring and Mitigation Plan (PRMMP). Paleontological monitoring and mitigation measures are restricted to those construction-related activities that will result in the disturbance of paleontologically sensitive sediments. The PRMMP will include a description of when and where construction monitoring will be required; emergency discovery procedures; sampling and data recovery procedures; procedures for the preparation, identification, analysis, and curation of fossil specimens and data recovered; preconstruction coordination procedures; and procedures for reporting the results of the monitoring and mitigation program. In general, the monitoring program will reflect site-specific construction of the selected option. The PRMMP will be consistent with Society of Vertebrate Paleontology guidelines (SVP 1995a,b) for the mitigation of construction-related impacts on paleontological resources. The PRMMP will also be consistent with the SVP (1996) conditions for receivership of paleontological collections and any specific requirements of the designated repository for any fossils collected. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X	X			Construction	PRMMP Worker Environmental Awareness Program training
	Pale-MM#3: Halt Construction when Paleontological Resources Are Found. If fossil or fossil-bearing deposits are discovered during construction, regardless of the individual making a paleontological discovery, construction activity in the immediate vicinity of the discovery will cease. This requirement will be spelled out in both the PRMMP and the Worker Environmental Awareness Program. Construction activity may continue elsewhere provided that it continues to be monitored as appropriate. If the discovery is made by someone other than a PRM or the PRS, a PRM or the PRS will immediately be notified.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor to halt construction and notify Authority of discovery. *Rev1*	X	X			Construction/weekly reporting	A Built Environment Treatment Plan (BETP) provides additional detail on the methodology for the avoidance of adverse vibration effects, and how that will be implemented during the project.

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Hist#1: Effect on Historically Significant Built-Environment Resources During Construction	**Hist-MM#1: Avoid Construction Adverse Vibration Effects.** The HST Project will develop construction methods to avoid indirect adverse effects or substantial adverse change to any historic properties (Section 106) or historical resources (CEQA) from vibration caused by construction activities. Vibration from impact pile-driving during construction could cause the physical destruction, damage, or alteration of historic properties or historical resources if the pile-driving is within 25 to 50 feet of the building. Because this impact pile-driving could cause adverse effects or substantial adverse changes, alternative construction methods causing less than 0.12 peak particle velocity of one inch per second (0.12 PPV in/sec) measured at the receptor would be developed for construction activities near historic properties or historical resources if they are determined to be extremely susceptible to vibration damage. If piling is more than 50 feet from buildings, or if alternative methods such as push piling or auger piling can be used, damage from construction vibration should not be an issue. Preconstruction surveys conducted at locations within 50 feet of piling would document existing condition of buildings in case there is an issue during or after construction. The mitigation measure described above is consistent with FRA's High-Speed Ground Transportation Noise and Vibration Impact Assessment (2005) for evaluation of noise and vibration impacts associated with HSTs. A BETP will be prepared that provides additional detail on the methodology for the avoidance of adverse vibration effects, and how that will be implemented during the project. The BETP is being developed in coordination with the project's consulting parties to verify that all parties have a role in the generation of this plan. Performance tracking of this mitigation measure is based upon successful implementation and the approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority, in consultation with the SHPO and appropriate consulting agencies. *Rev1*	X	X	X		Preconstruction surveys and Construction	BETP PA
	Hist-MM#2: Develop Protection and Stabilization Measures. The Built Environment Treatment Plan (BETP) will identify historic properties/historical resources that will require protection and/or stabilization prior to the start of construction of the project. Properties subject to this mitigation activity include any that are physically affected, and/or relocated, and/or in close enough proximity to require protection. This mitigation will be used to confirm that adverse effects on historic properties/historical resources will be either avoided entirely, or minimized to the extent possible. This mitigation will be developed in consultation with the landowner and land-owning agencies, as well as the SHPO and the MOA signatories, as required by the PA. Such measures will include, but will not be limited to, vibration monitoring of construction in the vicinity of historic properties; cordoning off of resources, such as traffic, equipment storage, and personnel, from construction activities; shielding of resources from dust or debris; and stabilization of buildings adjacent to construction. For buildings that are to be moved, such measures will include stabilization of buildings and structures before, during, and after relocation; protection of buildings and structures during temporary storage; and relocation at a new site and during subsequent rehabilitation. Moving buildings could result in minor impacts on air emissions from equipment and vehicles and minor effects on developed or undeveloped sites. Protection and stabilization measures proposed for impacted resources will be	**Implementing Party:** Contractor and Authority, in consultation with the landowner, land-owning agencies, SHPO, and the MOA signatories, as required by the Programmatic Agreement (PA). **Monitoring/Reporting Party:** Contractor and Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X	X			Preconstruction surveys and Construction/weekly reporting	BETP PA Historic Structure Report (HSR) and the relocation plan

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	presented in more detail in the BETP, a plan that is being developed with critical input from all of the project's consulting parties. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Similar mitigation measures have proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and the approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*							
	Hist-MM#3: Minimize Adverse Effects through Relocation of Historic Structures. The BETP will identify historic properties/historical resources that will be relocated to help avoid destruction and minimize the direct adverse effect of their physical damage or alteration. The plan for relocation and implementation of relocation will take place prior to construction. The relocation of the historic properties/historical resources will take into account the historic site and layout (i.e., the orientation of the buildings to the cardinal directions), as well as their potential re-use. All structures will be thoroughly recorded in a Historic Structure Report (HSR), and the relocation plan will provide for stabilization of the structures before, during, and after the move. The project's consulting parties will provide input to develop the relocation of historic structures section of the BETP in an effort to provide a comprehensive and thorough approach that would best meet the needs of the parties as well as the resources. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Relocating historic structures has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful relocation of resources and the approval of the process by the SHPO and appropriate consulting parties. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X	X			Preconstruction surveys and Construction/weekly reporting	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Photographs and nomination document
	Hist-MM#5: Prepare and Submit NRHP Nominations. The BETP will identify specific historic properties/historical resources for nomination to the NRHP Program of the National Park Service (NPS). Properties subject to this mitigation will be treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency (i.e., the Authority). Current photographs of the property used in the nomination(s) will be taken prior to the start of project construction. The nomination document may also use other current and/or historic images prepared as part of other mitigation activities. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Preparing and submitting NRHP nominations has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies	X	X			Prior to construction/monthly reporting	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Photographs and nomination document
	Hist-MM#6: Prepare and Submit CRHR Nominations. The BETP	**Implementing Party:** Authority	X	X			Prior to construction	BETP (current BETP does not

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	identifies specific historical resources for nomination to the CRHR Program at the California OHP. Current photographs of the resource used in the nomination(s) will be made prior to the start of construction. The nomination document may also use current and/or historic images prepared as part of other mitigation activities. Properties subject to this mitigation will be treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency (i.e., the Authority). This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Preparing and submitting CRHR nominations has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*	**Monitoring / Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies						specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Photographs and recordation document per National Parks Service (NPS) HABS/HAER/HALS guidelines (up to Level II HABS written data standards)
	Hist-MM#7: Prepare and Submit Historic American Building Survey (HABS) / Historic American Engineering Record (HAER) / Historic American Landscape Survey (HALS) Documentation. The BETP identifies specific historical resources that would be physically altered, damaged, relocated, or destroyed by the project and that may be documented in compliance with the HABS/HAER/HALS programs. Consultation with the SHPO, NPS, and the consulting parties will be required if any of the resources must be documented to these standards. Prior to the start of construction, in consultation with the Western Regional Office of the NPS, Oakland, California, large-format (4-inch by 5-inch, or larger, negative-size) black and white photographs will be taken of these historic properties/historical resources showing them in context, as well as details of character-defining features. The photographs will be processed for archival permanence in accordance with HABS/HAER/HALS photographic specifications. Each view will be fully captioned and, if necessary, perspective corrected. Oblique aerial photography will be considered as a photographic recordation option in these coordination efforts. The recordation will follow the NPS HABS/HAER/HALS guidelines, and the report format, views, and other documentation details will be coordinated with the NPS. It is anticipated that the recordation of historic properties will be completed to Level II HABS written data standards and will include archival and digital reproduction of historic images, plans, and drawings, if available. Copies of the documentation will be offered to the appropriate local governments, historical societies and agencies, and libraries. The documentation will also be offered in printed and electronic form to any repository or organization upon which SHPO, the Authority, and local agency with jurisdiction over the property, through consultation, may agree. The electronic copy of the report may also be placed on an agency or organization's web site. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Preparing and submitting HABS/HAER/HALS documentation has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval	**Implementing Party:** Authority, in consultation with the Western Regional Office of the NPS **Monitoring / Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies	X				Prior to construction	BETP HSR

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			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	of the documentation by the SHPO and appropriate consulting parties. *Rev1*							
	Hist-MM#8: Prepare Historic Structure Reports. The BETP identifies historic properties/historical resources that would be physically altered, damaged, or relocated that would be subject to an HSR. The HSR will be prepared prior to the start of construction. The HSR will follow the general guidelines for such reports as described in the California OHP publication, "Historic Structure Report Format" (OHP n.d.). The scope of each HSR will be developed in consultation with the land-owning agencies, the SHPO, and appropriate consulting parties. The HSR will include documentation of existing landscaping, if appropriate. The HSRs may be used in the ongoing planning process and re-use of the properties, and may be coordinated with the other mitigation documentation activities, such as HABS/HAER records. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Preparing HSRs has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies	X				Prior to construction	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Interpretive exhibits Informative permanent metal plaques
	Hist-MM#9: Prepare Interpretive Exhibits. Some historic properties/historical resources may be identified in the BETP for historic interpretation. Interpretive exhibits will provide information regarding the specific historic property or historical resource. The interpretive exhibits will utilize images, narrative history, drawings, or other material produced for the mitigation described above, including the HABS/HAER reports, NRHP and CRHR nominations, or other archival sources. The interpretive exhibits may be in the form of, but are not limited to, interpretive display panels and/or printed material for dissemination to the public. The interpretive exhibits may be installed at local libraries, historical societies, or public buildings. All historic properties/historical resources demolished by the project will be the subject of informative permanent metal plaques that will be installed at the site of the demolished historic property, or at nearby public locations. The plaques will provide a brief history of the property, its engineering/architectural features and characteristics, and the reasons for and date of its demolition. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. Preparing interpretive exhibits has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties. *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies			X		Post-construction/annual reporting	BETP Photographic documentation Plan for repairs to historic properties
	Hist-MM#10: Plan Repair of Inadvertent Damage. The BETP provides a plan for the repair of inadvertent damage to historic properties/historical resources. The plan will be developed prior to construction, and it states that damage resulting from the project to any of the historic properties/historical	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies		X	X		Prior to construction	Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	resources near construction activities will be repaired in accordance with the SOI's Standards for Rehabilitation. The HSR, and/or HABS/HAER, recordation will photographically document the condition of historic properties/historical resources prior to the start of construction to establish the baseline condition for assessing damage. A copy of this photographic documentation will be provided to the landowner or land-owning agencies. Prior to implementation, plans for any repairs to historic properties will be submitted for SHPO review and comment to verify conformance with the SOI's Standards for Rehabilitation. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with mitigation measures for similar scale transportation projects. This type of measure has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful repair of any damage to historic properties/historical resources and approval of that work by the SHPO and appropriate consulting parties. *Rev1*							Conformance with SOI's Standards of Rehabilitation
Hist#2: Effect on Historically Significant Built-Environment Resources During Construction	**Hist-MM#1: Avoid Adverse Construction Vibration Effects.** See description above in Impact **Hist#1:** Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority, in consultation with the SHPO and appropriate consulting agencies. *Rev1*	X	X	X		Preconstruction surveys and Construction	BETP PA
	Hist-MM#2: Develop Protection and Stabilization Measures. See description above in Impact **Hist#1:** Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Contractor and Authority, in consultation with the landowner, land-owning agencies, SHPO, and the MOA signatories, as required by the Programmatic Agreement (PA). **Monitoring/Reporting Party:** Contractor and Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X	X			Preconstruction surveys and Construction/weekly reporting	BETP PA Historic Structure Report (HSR) and the relocation plan
	Hist-MM#3: Minimize Adverse Effects through Relocation of Historic Structures. See description above in Impact **Hist#1:** Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor and Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X	X			Preconstruction surveys and Construction/weekly reporting	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Photographs and nomination document
	N&V-MM#1: Construction noise mitigation measures. Monitor construction noise to verify compliance with the limits. Provide the contractor the flexibility to meet the FTA construction noise limits in the most efficient and cost-effective manner. The contractor would have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. To meet required noise limits, the following noise control mitigation measures will be implemented as necessary, for nighttime and daytime: • Install a temporary construction site sound barrier near a noise source.	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*		X			Construction/weekly reporting	Contract Requirements/ Specifications

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	• Avoid nighttime construction in residential neighborhoods. • Locate stationary construction equipment as far as possible from noise-sensitive sites. • Re-route construction-related truck traffic along roadways that will cause the least disturbance to residents. • During nighttime work, use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with spotters. • Use low-noise emission equipment. • Implement noise-deadening measures for truck loading and operations. • Monitor and maintain equipment to meet noise limits. • Line or cover storage bins, conveyors, and chutes with sound-deadening material. • Use acoustic enclosures, shields, or shrouds for equipment and facilities. • Use high-grade engine exhaust silencers and engine-casing sound insulation. • Prohibit aboveground jackhammering and impact pile driving during nighttime hours. • Minimize the use of generators to power equipment. • Limit use of public address systems. • Grade surface irregularities on construction sites. • Use moveable sound barriers at the source of the construction activity. • Limit or avoid certain noisy activities during nighttime hours. To mitigate noise related to pile driving, the use of an augur to install the piles instead of a pile driver would reduce noise levels substantially. If pile driving is necessary, limit the time of day that the activity can occur. *Rev1*							
	Hist-MM#5: Prepare and Submit NRHP Nominations. See description above in Impact Hist#1: Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X	X			Prior to construction/monthly reporting	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Photographs and nomination document
	Hist-MM#6: Prepare and Submit CRHR Nominations. See description above in Impact Hist#1**:** Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X	X			Prior to construction	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Photographs and recordation document per National Parks Service (NPS) HABS/HAER/HALS guidelines (up to Level II HABS written data standards)

Significant Impact	Mitigation Measure	Implementing Party and Monitoring /Reporting Party	Mitigation Timing					Implementation Mechanism or Tool
			Pre-Construction	Construction	Post-Construction	Operations	Implementation Schedule/ Reporting Schedule	
	Hist-MM#7: Prepare and Submit HABS/ HAER/ HALS Documentation. See description above in Impact Hist#1: Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Authority, in consultation with the Western Regional Office of the NPS **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X				Prior to construction	BETP HSR
	Hist-MM#8: Prepare Historic Structure Reports. See description above in Impact Hist#1: Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*	X				Prior to construction	BETP (current BETP does not specify any resources requiring mitigation; however, future amendments to the BETP may identify such resources) Interpretive exhibits Informative permanent metal plaques
	Hist-MM#9: Prepare Interpretive Exhibits. See description above in Impact Hist#1: Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*			X		Post-construction/annual reporting	BETP Photographic documentation Plan for repairs to historic properties
	Hist-MM#10: Plan Repair of Inadvertent Damage. See description above in Impact Hist#1: Effect on Historically Significant Built-Environment Resources During Construction *Rev1*	**Implementing Party:** Authority **Monitoring/Reporting Party:** Authority, in consultation with the SHPO and appropriate consulting agencies *Rev1*		X	X		Prior to construction	Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Conformance with SOI's Standards of Rehabilitation
Hist#3: Effect on Historically Significant Built-Environment Resources During Operation	**PK-MM#5: Address Noise at Roeding Park with City of Fresno.** See description above in Impact PK#7: Acquisition of Camp Pashayan Park Property. At Camp Pashayan, 0.6 acre of park area would be acquired for support columns and easement for elevated structure. *Rev1*	**Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor *Rev1*	X				Design and Construction	The Authority will work with the City of Fresno as the resource owner to address noise impacts. It is possible that the City of Fresno would view the projected noise levels as acceptable and preferable to the implementation of mitigation measures.
	Hist-MM#4: Minimize Adverse Operational Noise Effects. The BETP will identify historic properties/historical resources that will be subject to treatment to help minimize indirect adverse effects caused by operational noise of the HST Project. Properties subject to this mitigation will be identified in the BETP and will be treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency (Authority). Preliminary project design options, such as noise walls, have been developed to help reduce noise impacts and follow FRA methodologies for noise abatement. *Rev1*	**Implementing Party:** Contractor, in consultation with the landowner, or land-owning agencies, and the CEQA lead agency **Monitoring/Reporting Party:** Contractor and Authority *Rev1*	X	X	X		Preconstruction and Construction	BETP PA Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Historic American Landscape Survey (HALS) programs

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
Merced Station (Between Snelling Highway (SR 59) and Yosemite Parkway (SR 140)) [3]						
Intersections						
1	16th St/SR 59	NA	**TR MM#4** - Signalize intersection. Provide signal phasing to "overlap" northbound right-turn movement with westbound left-turn movement and westbound right-turn with southbound left-turn movement. **TR MM#7, TR MM#8** - Widen northbound approach to add second right-turn lane. **TR MM#7, TR MM#8** - Widen westbound approach to add second left-turn lane.	**TR MM#4, TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4, TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4, TR MM#7, TR MM#8 -** Contract Requirements/Specifications
3	13th St – SR 99 SB Off-Ramp/V St	NA	**TR MM#5** - Restripe the southbound approach (SR 140) from left-turn, through, shared through-right-turn lane to left-turn, shared through-left-turn, and shared through-right-turn lane. **TR MM#7, TR MM#8** - Widen SR 99 SB off-ramp to add exclusive right-turn lane.	**TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#7, TR MM#8** - Contract Requirements/Specifications
6	16th St/V St	NA	**TR MM#6** - Modify signal timing.	**TR MM# 6 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM# 6** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM# 6** - Contract Requirements/Specifications
14	15th St/M St (Option A only)	NA	**TR MM#4** - Signalize intersection (meets signal warrant between 2020 and 2025).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM#4 -** MOU with City of Merced
18	Childs Ave/Martin Luther King Jr. Way	NA	**TR MM#7, TR MM#8** - Widen southbound approach on Childs Avenue to provide exclusive right-turn lane.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
20	SR 99 SB Ramps/Martin Luther King Jr. Way	NA	**TR MM#4** - Signalize intersection.	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4-** Contract Requirements/Specifications
21	SR 99 NB Ramps/Martin Luther King Jr. Way	NA	**TR MM#4** - Signalize intersection.	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4-** Contract Requirements/Specifications
22	14th St/Martin Luther King Jr. Way	NA	**TR MM#4** - Signalize intersection.	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4-** Contract Requirements/Specifications
24	16th St/Martin Luther King Jr. Way	NA	**TR MM#3** - Change northbound/southbound split phasing to protected phasing	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3** - Contract Requirements/Specifications
25	13th St/G St	NA	**TR MM#4** - Signalize intersection. **TR MM#5** - Restripe northbound approach from single lane to shared left-through and right-turn lane. **TR MM#7, TR MM#8** - Widen eastbound approach to provide a second through lane. **TR MM#5** - Restripe westbound approach from an exclusive right-turn lane to a shared through-right-turn lane.	**TR MM#4, TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4, TR MM#5, TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4, TR MM#5, TR MM#7, TR MM#8 -** Contract Requirements/Specifications
26	SR 99 SB Off-Ramp/14th St/G St	NA	**TR MM#4** - Signalize intersection.	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4-** Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
31	SR 99 NB Off-Ramp/SR 140	NA	**TR MM# 4** - Signalize intersection. **TR MM# 5** - Restripe eastbound approach to provide a second through lane. **TR MM# 7, TR MM# 8** - Widen westbound approach to add a second through lane.	**TR MM#4, TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4, TR MM#5, TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4, TR MM#5, TR MM#7, TR MM#8 -** Contract Requirements/Specifications
32	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	NA	**TR MM# 5, TR MM#8** - Restripe southbound approach to provide exclusive right-turn lane and restripe eastbound approach (SR 140) from exclusive right-turn lane to a shared through-right-turn lane.	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
33	14th St/O St (Option A only)	NA	**TR MM#9** - Convert two-way stop controlled intersection to an all-way stop controlled intersection.	**TR MM#9** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#9** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#9** - Contract Requirements/Specifications
34	13th St/M St	NA	**TR MM#4** - Signalize intersection (meets signal warrant between 2020 and 2025).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4 -** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM#4 -** MOU with City of Merced
35	14th St/M St	NA	**TR MM#4** - Signalize intersection (meets signal warrant between 2020 and 2025).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4 -** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM#4 -** MOU with City of Merced
36	15th St/Canal St	NA	**TR MM#4** - Signalize intersection (meets signal warrant between 2020 and 2025).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4 -** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM#4 -** MOU with City of Merced
39	16th St/Canal St [4]	NA	**TR MM#5** - Restripe eastbound approach from one shared-through left lane and one exclusive right-turn lane to one exclusive left-turn lane and a shared through-right lane.	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
40	11th St/Martin Luther King Jr. Way	NA	**TR MM#4** - Signalize intersection (meets signal warrant between 2020 and 2025).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4 -** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM#4 -** MOU with City of Merced
44	Main St/H St	NA	**TR MM#4** - Signalize intersection (meets signal warrant between 2020 and 2025).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4 -** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM#4 -** MOU with City of Merced
46	Main St/G St	NA	**TR MM#6** - Optimize cycle length.	**TR MM# 6 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM# 6** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM# 6** - Contract Requirements/Specifications
Roadways						
-	Main St Between Yosemite Pkwy (SR 140) and G St	NA	**TR MM#11** - Add one travel lane in each direction.	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	16th St Between R St and Martin Luther King Jr. Way	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
-	V St (Option B only) West of 13th St to 16th St	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	M St Between 13th St and 16th St	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	V St West of 13th St (Option A only) [4]	NA	**TR MM#11** - Add one travel lane in each direction.	**TR MM#11 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Martin Luther King Jr. Way Between Childs Ave and 13th St	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	G St Between 13th St and 16th St	NA	**TR MM#11** - Add one travel lane in each direction.	**TR MM#11 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
Fresno Area (North of Clinton Ave)						
Between Herndon Ave and Shaw Ave (Intersections)						
1	Golden State Blvd/Santa Ana Ave	**TR MM#4** - Signalize intersection (meets signal warrant in 2035). **TR MM#7, TR MM#8** - Widen northbound approach to provide dual left-turn lanes and one through lane. **TR MM#7** - Widen downstream on Santa Ana Avenue from one receiving lane to two receiving lanes to accommodate the dual left-turn lanes from northbound approach on Golden State Boulevard.	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor) **TR MM #7, TR MM#8 - Implementing Party**: Contractor **Monitoring/Reporting Party**: Contractor	**TR MM#4 -** Annual intersection LOS analysis. Installation of signal when warrant criteria are met. **TR MM #7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM #4 -** MOU with City of Fresno **TR MM #7, TR MM#8 -** Contract Requirements/Specifications
2	Cornelia Ave/Shaw Ave	**TR MM#4** - Signalize intersection. **TR MM#5, TR MM#8** - Restripe eastbound approach to provide one left-turn lane, two through lanes, and one right-turn lane. **TR MM#7, TR MM#8** - Widen westbound approach to provide two left-turn lanes, two through lanes and one right-turn lane. **TR MM#7, TR MM#8** - Widen northbound approach to provide one left-turn lane, one through lane, and one channelized right-turn. **TR MM#7, TR MM#8** - Widen southbound approach to provide one left-turn lane, one through lane, and one right-turn. **TR MM#7** - Widen downstream on Cornelia Avenue from one receiving lane to two receiving lanes to accommodate the second left-turn lane from westbound approach on Shaw Avenue.	NA	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM #5, TR MM#7, TR MM#8**: **Implementing Party**: Contractor **Monitoring/Reporting Party**: Contractor	**TR MM#4:** Prepare construction management plan/maintain weekly reporting schedule **TR MM #5, TR MM#7, TR MM#8:** Prepare construction management plan/maintain weekly reporting schedule	**TR MM #4:** Contract Requirements/Specifications **TR MM #5, TR MM#7, TR MM#8:** Contract Requirements/Specifications
5	Blythe Ave/Shaw Ave	**TR MM#7, TR MM#8** -Widen eastbound approach to provide a second left-turn lane.	NA	**TR MM#7, TR MM#8**: **Implementing Party**: Contractor **Monitoring/Reporting Party**: Contractor	**TR MM#7, TR MM#8:** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8:** Contract Requirements/Specifications
7	Cornelia Ave/Golden State Blvd	**TR MM#4** - Signalize intersection (meets signal warrant in 2035).	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM #4:** MOU with City of Fresno

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
9	Figarden Dr/Bullard Ave	**TR MM#5** - Restripe westbound approach to provide two left-turn lanes, one through lane and one right-turn lane.	NA	**TR MM #5**: **Implementing Party**: Contractor **Monitoring/Reporting Party**: Contractor	**TR MM #5:** Prepare construction management plan/maintain weekly reporting schedule	**TR MM #5:** Contract Requirements/Specifications
14	Veterans Blvd/Bullard Ave	**TR MM#5** - Restripe eastbound approach to provide one left-turn lane and two right-turn lanes. **TR MM#5** - Restripe northbound approach to provide three left-turn lanes and one through lane. **TR MM#6** - Modify signal timing. **TR MM#10** - Grade separate through movement on Veterans Boulevard.	NA	**TR MM #5, TR MM#6**: **Implementing Party**: City of Fresno **Monitoring/Reporting Party**: City of Fresno **TR MM#10:** City of Fresno	**TR MM #5, TR MM#6:** City of Fresno **TR MM#10:** City of Fresno	**TR MM #5, TR MM#6:** MOU with City of Fresno **TR MM#10:** MOU with City of Fresno
15	Veterans Blvd/Golden State Blvd Connector	**TR MM#5** - Restripe eastbound approach to provide one left-turn lane and four through lanes. **TR MM#7, TR MM#8** - Widen westbound approach to provide additional left-turn lane and a through lane. **TR MM#3** - Modify northbound and southbound right-turn as free movements.	NA	**TR MM #3, TR MM#5, TR MM#7, TR MM#8**: **Implementing Party**: Contractor **Monitoring/Reporting Party:** Contractor	**TR MM #3, TR MM#5, TR MM#7, TR MM#8:** Prepare construction management plan/maintain weekly reporting schedule	**TR MM #3, TR MM#5, TR MM#7, TR MM#8:** Contract Requirements/Specifications
Between Herndon Ave and Shaw Ave (Roadways)						
-	Veterans Blvd between Golden State Blvd and Bullard Ave	**TR MM#11** - Add one lane in each direction.		**TR MM#11:** City of Fresno	**TR MM#11:** City of Fresno	**TR MM#11:** MOU with City of Fresno
SR 99 Realignment (Intersections)						
5	Clinton Ave/Brawley Ave	**TR MM#7, TR MM#8** - Widen southbound approach to provide second left-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#7, TR MM#8 -** Caltrans	**TR MM#7, TR MM#8** - MOU with Caltrans
6	Clinton Ave/Marks Ave	**TR MM#7, TR MM#8** - Widen northbound approach to provide exclusive northbound right-turn lane. **TR MM#5** - Restripe southbound approach to include two left-turn lanes and one shared through-right-turn lane.	NA	**TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#5, TR MM#7, TR MM#8 -** Caltrans	**TR MM#5, TR MM#7, TR MM#8** - MOU with Caltrans
8	Clinton Ave/SR 99 SB Ramps	**TR MM#7, TR MM#8** - Widen eastbound approach to provide exclusive eastbound right-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#7, TR MM#8 -** Caltrans	**TR MM#7, TR MM#8** - MOU with Caltrans
10	Clinton Ave/Weber Ave	**TR MM#7, TR MM#8** - Widen southbound approach to provide second left-turn lane. **TR MM#7, TR MM#8** - Widen eastbound approach to provide second left-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#7, TR MM#8 -** Caltrans	**TR MM#7, TR MM#8** - MOU with Caltrans
14	Shields Ave/Brawley Ave	**TR MM#4** - Signalize intersection.	NA	**TR MM#4 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#4 -** Caltrans	**TR MM#4** - MOU with Caltrans
15	Dakota Ave/Brawley Ave	**TR MM#4** - Signalize intersection. **TR MM#5** - Restripe northbound approach to include exclusive left-turn lane and shared through-right-turn lane. **TR MM#5** - Restripe westbound approach to include exclusive left-turn lane and shared through-right-turn lane. **TR MM#7, TR MM#8** - Widen southbound approach to include exclusive left-turn, through and exclusive right-turn lanes. **TR MM#7, TR MM#8** - Widen eastbound approach to include exclusive left-turn and shared through-right-turn lane.	NA	**TR MM#4 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans **TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#4 -** Caltrans **TR MM#5, TR MM#7, TR MM#8 -** Caltrans	**TR MM#4** - MOU with Caltrans **TR MM#5, TR MM#7, TR MM#8** - MOU with Caltrans
16	Ashlan Ave – SR 99 SB Ramps/Parkway Dr	**TR MM#7, TR MM#8** - Add second northbound right-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party: Caltrans** **Monitoring/Reporting Party:** Caltrans	**TR MM#7, TR MM#8 -** Caltrans	**TR MM#7, TR MM#8** - MOU with Caltrans

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
SR 99 Realignment (Freeway)						
-	SR 99 SB, south of Clinton Ave to Olive Ave	**TR MM#2** - Add SB Auxillary lane	NA	**TR MM#2 - Implementing Party:** Caltrans **Monitoring/Reporting Party:** Caltrans	**TR MM#2:** Caltrans	**TR MM#2:** MOU with Caltrans
Fresno Area (South of Clinton) - Between McKinley Ave and SR 180						
Intersections						
5	W Olive Ave /SR 99 SB Ramps	**TR MM#7, TR MM#8** - Widen southbound approach to provide additional left-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
6	W Olive Ave /SR 99 NB Ramps	**TR MM#7, TR MM#8** - Widen northbound approach to provide exclusive left-turn lane	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
7	W Olive Ave/N West Ave	**TR MM#4** - Signalize intersection.	NA	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4** - Contract Requirements/Specifications
10	W Belmont Ave /SR 99 SB Ramps	**TR MM#4** - Signalize intersection.	NA	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4** - Contract Requirements/Specifications
11	W Belmont Ave /SR 99 NB Ramps	**TR MM#4** - Signalize intersection.	NA	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#4** - Contract Requirements/Specifications
Between McKinley Ave and SR 180 (Roadways)						
-	W Olive Ave, between SR 99 Ramps and N West Ave	**TR MM#11** - Add one lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	W Belmont Ave, between N Arthur Ave and SR 99 Ramps	**TR MM#11 -** Add one lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
Fresno Station (Between SR 180 and SR 41) [5]						
Intersections						
2	Van Ness Ave/SR 41 NB Ramp	NA	**TR MM#5, TR MM#8** - Restripe the eastbound approach to provide one exclusive left-turn lane and one shared left/through/right-turn lane at the intersection.	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
6	SR 99 NB Ramps/Ventura Ave	NA	**TR MM#4** - Signalize intersection (meets signal warrant by 2035).	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM #4:** MOU with City of Fresno

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
7	E St/Ventura Ave	**TR MM#4** - Signalize intersection (meets signal warrant by 2035).	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM #4:** MOU with City of Fresno
9	Broadway Ave/Ventura Ave	Tulare Street Underpass Option: **TR MM#7, TR MM#8** - Widen the northbound approach to add one exclusive right-turn, one left-turn lane, and one through lane. **TR MM#3** - Modify signal phasing to provide protected left-turn phases for the northbound and southbound approaches. Tulare Street Overpass Option: **TR MM#7, TR MM#8** - Widen the eastbound approach to add two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane. **TR MM#3** - Modify signal phasing to provide protected left-turn phases for the northbound and southbound approaches.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
10	Van Ness Ave/Ventura St	NA	**TR MM#3** - Modify the existing traffic signal phasing to provide protected left-turn phases for the northbound and southbound approaches.	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications
21	H St/Kern St (Tulare Street Underpass Option only)	NA	**TR MM#7, TR MM#8** - Widen the eastbound approach to provide one exclusive left-turn lane and one exclusive right-turn lane at the intersection.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
22	E St/Tulare St (Tulare Street Overpass Option only)	NA	**TR MM#7, TR MM#8** - Widen the southbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive left-turn lane, one through lane, and one exclusive right-turn lane. **TR MM#3** - Modify signal phasing to provide protected left-turn phases for the eastbound and westbound approaches.	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
23	F St/Tulare St (Tulare Street Underpass Option only)	**TR MM#7, TR MM#8** - Widen the northbound approach to provide one exclusive left-turn and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the southbound approaches to provide one exclusive left-turn lane, and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and one through lane. **TR MM#3** - Modify signal phasing to provide protected left-turn phases for all approaches.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
25	H St/Tulare St (Tulare Street Underpass Option only)	**TR MM#7, TR MM#8** - Widen westbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes. **TR MM#7, TR MM#8** - Widen northbound approach to provide one exclusive right-turn lane, one exclusive left-turn lanes, and two through lanes. **TR MM#7, TR MM#8** - Widen southbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes. **TR MM#3** - Modify signal phasing to provide protected left-turn phases for all approaches.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
26	Van Ness Ave/Tulare St (Tulare Street Underpass Option only)	NA	**TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane at the intersection.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
30	U St/Tulare St	NA	**TR MM#3** - Modify the existing traffic signal phasing to provide protected left-turn phases for the eastbound and westbound approaches.	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications
33-0	Divisadero Street/SR 41 NB Ramps/Tulare Street [4]	NA	**TR MM#6** - Retime the existing signal in AM	**TR MM# 6 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM# 6** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM# 6** - Contract Requirements/Specifications
37	SR 99 SB Ramps/Fresno St	NA	**TR MM#7, TR MM#8** - Widen the eastbound approach to provide two exclusive through lanes and one exclusive right-turn lane at the intersection.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
38	SR 99 NB Ramps/Fresno St	NA	Tulare Street Underpass Option: **TR MM#5, TR MM#8** - Restripe the eastbound approach to provide two exclusive left-turn lanes and one exclusive through lane. Tulare Street Overpass Option: **TR MM#5, TR MM#8** - Restripe the westbound approach to provide one through lane, one shared through/right-turn lane, and one exclusive right-turn lane.	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
42	Van Ness Avenue/Fresno St	NA	Tulare Street Underpass Option: **TR MM#7, TR MM#8** - Widen the southbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one exclusive right-turn lane at the intersection. Tulare Street Overpass Option: **TR MM#7, TR MM#8** - Widen the northbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
46	Fresno St/Divisadero St	NA	**TR MM#3** - Modify the existing traffic signal to provide split phases for the eastbound and westbound approaches at the intersection.	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications
50	Van Ness Ave/Tuolumne St	**TR MM#7, TR MM#8** - Widen eastbound approach to provide one exclusive left-turn lane, one through lane and one exclusive right-turn lane	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
52	E St/Stanislaus St (Tulare Street Overpass Option only)	**TR MM#5, TR MM#8** - Restripe the westbound approach to provide one shared left/through lane, two through lanes, and one shared through/right-turn lane. **TR MM#5, TR MM#8** - Restripe the southbound approach to provide one shared left/through lane and one exclusive right-turn lane. **TR MM#3** - Modify signal phasing to provide split phasing on eastbound and westbound approaches.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#5, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#5, TR MM#8 -** Contract Requirements/Specifications
53	Broadway St/Stanislaus St (Tulare Street Overpass Option only)	**TR MM#5, TR MM#8** - Restripe the southbound approach to provide shared left/through lane and one exclusive right-turn lane. **TR MM#3** - Modify signal phasing to provide permissive phase on northbound and southbound approaches.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
54	Van Ness Ave/Stanislaus St (Tulare Street Underpass Option only)	**TR MM#7, TR MM#8** - Widen westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
58	H St/San Joaquin St	**TR MM#4** - Signalize intersection (meets signal warrant after 2035).	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM #4:** MOU with City of Fresno
60	H St/Amador St	**TR MM#4** - Signalize intersection (meets signal warrant by 2035). **TR MM#7, TR MM#8** - Widen southbound approach to provide one exclusive left-turn lane and one through lane.	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor) **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met. **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM #4:** MOU with City of Fresno **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
63	H Street/Divisadero Street	**TR MM#5, TR MM#8** - Restripe the westbound approach to provide one shared through/right/left-turn lane and two exclusive right-turn lanes. **TR MM#7, TR MM#8** - Widen the northbound approach to provide two exclusive left-turn lanes and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the southbound approach to provide additional left-turn lane (on H St).	NA	**TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#7, TR MM#8** - Contract Requirements/Specifications
66	Van Ness Ave/Divisadero St	NA	**TR MM#7, TR MM#8** - Widen the eastbound approach to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane at the intersection. **TR MM#7, TR MM#8** - Widen the westbound approach to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane at the intersection.	**TR MM#7, TR MM#8** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
67	H St/Roosevelt St	**TR MM#7, TR MM#8** - Widen the westbound approach (H St) to provide one shared through/right-turn lane, one exclusive through lane, and one exclusive left-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
68	N Blackstone Ave/E McKenzie Ave	NA	**TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive left-turn lane and one exclusive through lane.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
71	Van Ness Ave/SR 180 EB Ramps	NA	**TR MM#5, TR MM#8** - Restripe the northbound approach to provide one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane at the intersection.	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
73	Van Ness Ave/SR 180 WB Ramps	NA	**TR MM#7, TR MM#8 -** Widen the eastbound approach to provide one additional exclusive left-turn lane at the intersection.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
74	N Blackstone Ave/E Belmont Ave	NA	**TR MM#7, TR MM#8** - Widen the southbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane at the intersection.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
79	N Abby St/SR 180 EB Ramps	NA	**TR MM#5, TR MM#8** - Re-stripe the northbound approach to provide one shared left/through lane, one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane at the intersection.	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
80	N Blackstone Ave/SR 180 WB Ramps	NA	**TR MM#7, TR MM#8** - Widen the eastbound approach to provide one additional exclusive right-turn lane at the intersection.	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
81	Broadway St/Amador St	**TR MM#4** - Signalize intersection (meets signal warrant by 2035).	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM #4:** MOU with City of Fresno
83	Fresno St/F St	Tulare Street Underpass Option: **TR MM#5, TR MM#8** - Restripe the northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane. **TR MM#7, TR MM#8** - Widen the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. Tulare Street Overpass Option: **TR MM#5, TR MM#8** - Restripe the northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane. **TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive left-turn lane, one through lane, one share through/right-turn lane, and one exclusive right-turn lane. **TR MM#7, TR MM#8** - Widen the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.	NA	**TR MM#5, TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#7, TR MM#8** - Contract Requirements/Specifications
84	G St/Mono St (Tulare Street Underpass Option only)	**TR MM#4** - Signalize intersection (meets signal warrant by 2035).	NA	**TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor)	**TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met.	**TR MM #4:** MOU with City of Fresno
86	H St/Ventura St (Tulare St Underpass Option Only)	**TR MM#4** - Signalize intersection.	NA	**TR MM#4 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#4:** Prepare construction management plan/maintain weekly reporting schedule	**TR MM #4:** Contract Requirements/Specifications
92	S Van Ness Ave/E California Ave	**TR MM#4** - Signalize intersection (meets signal warrant by 2035). **TR MM#7, TR MM#8** - Widen northbound approach to provide exclusive left-turn lane. **TR MM#7, TR MM#8** - Widen southbound approach to provide exclusive left-turn lane. **TR MM#3** - Modify signal phasing on northbound and southbound approaches to provide protected plus permissive left-turn phasing.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#4 - Implementing Party:** Authority and Contractor (post-construction contractor) **Monitoring/Reporting Party:** Authority and Contractor (post-construction contractor) **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#4:** Annual intersection LOS analysis. Installation of signal when warrant criteria are met. **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM #4:** MOU with City of Fresno **TR MM#7, TR MM#8 -** Contract Requirements/Specifications
96	Golden State Blvd/E Church Ave	**TR MM#7, TR MM#8** - Provide an exclusive right-turn lane in the northbound direction. **TR MM#3** - Modify signal phasing on all approaches to provide protected plus permissive left-turn phase.	NA	**TR MM#3 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor **TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#3 -** Prepare construction management plan/maintain weekly reporting schedule **TR MM#7, TR MM#8 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#3 -** Contract Requirements/Specifications **TR MM#7, TR MM#8 -** Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
101	S East Ave/Golden State Blvd	**TR MM#6** - Increase cycle length (in the PM Peak Hour only).	NA	**TR MM#6 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#6 -** Prepare construction management plan/maintain weekly reporting schedule	**TR MM#6 -**Contract Requirements/Specifications
102	Golden State Blvd/E Jensen Ave	**TR MM#8** - Provide an exclusive right-turn lane for both northbound and southbound approaches.	NA	**TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#8** - Contract Requirements/Specifications
109	Stanislaus St/F St	(Tulare Street Overpass Option only) **TR MM#7, TR MM#8** - Widen the northbound approach to provide one exclusive left-turn lane and two exclusive right-turn lanes.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
110	Tuolumne St/F St (Tulare Street Overpass Option only)	**TR MM#5, TR MM#8** - Restripe the eastbound approach to provide one exclusive left-turn lane, one shared left/through lane and one exclusive right-turn lane.	NA	**TR MM#5, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#5, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#5, TR MM#8** - Contract Requirements/Specifications
113	Stanislaus St/L St	**TR MM#7, TR MM#8** - Widen the northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
115	Stanislaus St/M St	**TR MM#7, TR MM#8** - Widen the southbound approach to provide one shared left/through lane and one exclusive right-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications
117	Stanislaus St/N St	**TR MM#7, TR MM#8** - Widen the westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane.	NA	**TR MM#7, TR MM#8 - Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#7, TR MM#8** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#7, TR MM#8** - Contract Requirements/Specifications

		Required Mitigations				
		Related to Civil Construction [1]	Related to HST Operations [2]	Implementing Party and Monitoring/Reporting Party	Implementation / Reporting Schedule	Implementation Mechanism
Roadways						
-	H St Between East Divisadero St and Stanislaus St	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Stanislaus St Between Broadway St and E St	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Fresno St Between Van Ness Ave and Broadway St (Tulare Street Overpass Option only)	NA	**TR MM#11** - Add one travel lane in each direction.	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Fresno St Between G St and SR 99 NB Ramps	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Tulare St Between Broadway St and Van Ness Avenue (Tulare Street Underpass Option only)	NA	**TR MM#11** - Add one travel lane in each direction.	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Divisadero St Between N. Fresno St and SR 41 Ramps		**TR MM#11** - Add one travel lane in each direction.	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Van Ness Ave Between Ventura Ave and SR 41 Ramps (Tulare Street Overpass Option only)	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Stanislaus St Between E St and F St (Tulare Street Overpass Option only)	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	F St Between Stanislaus St and Tuolumne St (Tulare Street Overpass Option only)	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Stanislaus St Between G St and H St (Tulare Street Overpass Option only)	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Stanislaus St Between Broadway St and Fulton St	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications
-	Stanislaus St Between L St and M St (Tulare Street Underpass Option only)	**TR MM#11** - Add one travel lane in each direction.	NA	**TR MM#11** - **Implementing Party:** Contractor **Monitoring/Reporting Party:** Contractor	**TR MM#11** - Prepare construction management plan/maintain weekly reporting schedule	**TR MM#11** - Contract Requirements/Specifications

Notes:

1 Mitigation measures indicated under this category occur with the roadway modifications due to the proposed HST alignment.
2 Mitigation measures indicated under this category are due to the HST station operations.
3 In the vicinity of Merced Station, all locations are impacted under both parking options A and B, unless otherwise specified.
4 Location impacted under Existing + Project conditions only.
5 In the vicinity of Fresno Station, all locations are impacted under both Tulare Street Underpass and Overpass options, unless otherwise specified