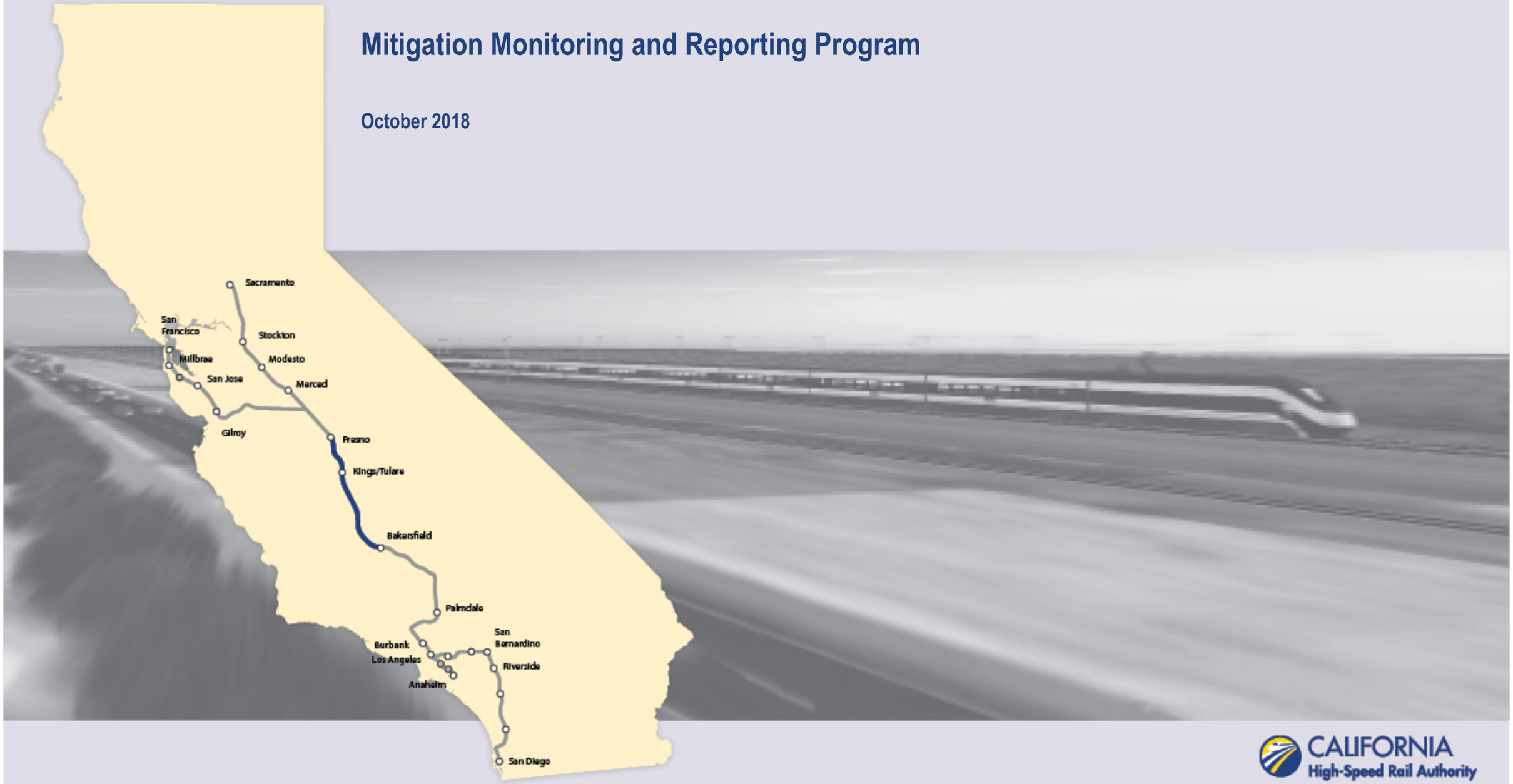
California High-Speed Rail Authority

Fresno to Bakersfield Project Section

Mitigation Monitoring and Reporting Program

October 2018



CALIFORNIA High-Speed Rail Authority

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1 INTRODUCTION

In October 2018, the California High-Speed Rail Authority (Authority) prepared a Final Supplemental Environmental Impact Report (EIR) for the Fresno to Bakersfield Section of the California High-Speed Rail (HSR) Project (Project). The Final Supplemental EIR satisfies the requirements of the California Environmental Quality Act (CEQA) and is the basis for the Authority's decision. In its decision, the Authority has selected the F-B LGA to the intersection of 34th Street and L Street including the F Street Station.

This Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the Fresno to Bakersfield Section (including the F-B LGA) of the HSR Project and adheres to CEQA Guidelines section 15097. This MMRP builds on the 2014 MMRP (as amended since) by adding impacts and mitigation unique to the F-B LGA, but also including impacts and mitigation for the portion of the Project (north of Poplar Avenue) already approved and unchanged by the F-B LGA. Such approach allows the Authority to have a single MMRP for reference for the entire Fresno to Bakersfield Section.

Table 1 of the MMRP describes mitigation measures that would mitigate for potential adverse environmental impacts to construct and operate. The table includes columns indicating whether the measure applies only north of Poplar Avenue in Shafter, only south of Poplar Avenue, or both. Any mitigation measures specific to the portion of the alignment from south of the F Street Station to the intersection of 34th Street and L Street including the F Street Station would not be implemented until the Bakersfield to Palmdale Section of the HSR Project is approved. Table 2 describes measures that would avoid or minimize potential impacts to construct and operate the HSR Project. These measures were developed by the FRA and the Authority in consultation with appropriate agencies, to meet the requirements of CEQA, and all apply both north and south of Poplar Avenue.

The Final Supplemental EIR identified certain mitigation measures, specific to the Fresno to Bakersfield Locally Generated Alternative (F-B LGA), required to comply with CEQA. The Authority is required to comply with all mitigation measures adopted with the approval of the project. The HSR Project incorporates impact avoidance and minimization measures and best management practices (BMPs) identified in the Final Supplemental EIR and described in detail in a series of technical reports that accompanied preparation of the environmental document. As a result of applying these impact avoidance and minimization measures and BMPs, the HSR Project will avoid potential adverse environmental impacts in several resource areas, including electromagnetic fields/electromagnetic interference (EMF/EMI), public utilities and energy, hazardous materials and wastes, and station planning, land use, and development. In addition, the regulatory requirements, including permitting and coordination with regulatory agencies, for many project-related activities provide additional assurance that potential adverse environmental impacts will not occur. Representative agencies include the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and Environmental Protection Agency[1] with jurisdiction under the Endangered Species Act and the Clean Water Act, respectively. Like the mitigation measures listed in Table 1, the project impact avoidance and minimization measures (see Table 2) and compliance with regulatory requirements are a condition of project approval and must be implemented by the Authority during design, construction, and operation of the Project.

The laws and orders the project is subject to and the impact avoidance and minimization measures that are part of the HSR Project are described for the following resource areas in more detail in the corresponding chapters of the Final Supplemental EIR, which incorporates by reference the Draft Supplemental EIR/EIS; chapter references below refer to the Draft Supplemental EIR/EIS as revised by the Final Supplemental EIR:

- Transportation – Sections 3.2.1 and 3.2.5
- Air Quality and Global Climate Change – Sections 3.3.1 and 3.3.7
- Noise and Vibration – Sections 3.4.1 and 3.4.5
- Electromagnetic Fields and Electromagnetic Interference – Sections 3.5.1 and 3.5.5
- Public Utilities and Energy – Sections 3.6.1 and 3.6.5
- Biological Resources and Wetlands – Sections 3.7.1 and 3.7.5
- Hydrology and Water Resources – Sections 3.8.1 and 3.8.5
- Geology, Soils, Seismicity, and Paleontological Resources – Sections 3.9.1 and 3.9.5
- Hazardous Materials and Wastes – Sections 3.10.1 and 3.10.5
- Safety and Security – Sections 3.11.1 and 3.11.5
- Socioeconomics and Communities – Sections 3.12.1 and 3.12.5
- Station Planning, Land Use, and Development – Sections 3.13.1 and 3.13.5
- Agricultural Lands – Sections 3.14.1 and 3.14.5
- Parks, Recreation, and Open Space – Sections 3.15.1 and 3.15.5
- Aesthetics and Visual Resources – Sections 3.16.1 and 3.16.5
- Cultural Resources – Sections 3.17.1 and 3.17.5
- Regional Growth – Section 3.18.1
- Cumulative Impacts – Section 3.19.1

[1] EPA delegated authority under Section 401 of the Clean Water Act to the State of California.

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2 MITIGATION MONITORING AND REPORTING PROGRAM

The environmental effects of the Preferred Alternative and the Bakersfield F Street Station location for the Fresno to Bakersfield Section of the HSR Project would result in impacts that would be considered significant under CEQA. Mitigation measures that would reduce or eliminate potential adverse environmental impacts as described in Chapter 3 of Volume I of the Final Supplemental EIR. The specific provisions contained in the MMRP are presented as a table and include mitigation measures identified in the Final Supplemental EIR and the 2014 Fresno to Bakersfield Final EIR/EIS, organized by environmental issue and topical areas addressed in the Final Supplemental EIR. In collaboration with the appropriate agencies, the 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 Final Supplemental EIR and 2014 Fresno to Bakersfield Final EIR/EIS, including:

Significant Impact: Provides a brief description of the impact expected to occur from the F-B LGA as identified in the Final Supplemental EIR or from the previously Approved Project north of Poplar Avenue as identified in the 2014 Fresno to Bakersfield Section Final EIR/EIS.

Mitigation Measures: Provides the mitigation measure and monitoring requirements as identified for south of Poplar Avenue in the Final Supplemental EIR, or as identified for north of Poplar Avenue in the 2014 Fresno to Bakersfield 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 Design Build Contractor (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 the responsibility of the Authority. The following roles are utilized in the text of mitigation measures in the MMRP:

Roles and Responsibilities

- 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 extended 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.

- Authority: Implementation and reporting on mitigation, avoidance and minimization measures as specified in the this MMRP as the responsibility of the Authority may be carried out by an Authority representative or a contractor hired independent of the Design Build Contractor or the Environmental Team. Authority responsible implementation and reporting may include certain measures outside of the scope of the Design Build Contractor such as future studies or operations-phase implementation. In addition, oversight of implementation and reporting may be provided by Authority contractor or representatives as lead agency representatives to facilitate regulatory oversight agency coordination and compliance during implementation and reporting.
- Contractor: Design Build Contractor or the Environmental Team provided by the Design Build Contractor responsible for implementing or monitoring mitigation, avoidance and minimization measures as specified in this MMRP.
- Mitigation Manager: Design Build Contractor's representative responsible for overseeing their Environmental Team's implementation and reporting of environmental commitments. Reports the status of each mitigation measure to Authority in accordance with this MMRP.
- Biological Monitor(s): The Design Build Contractor provided Biological Monitor(s) will be approved by and report directly to the Contractor's Biologist. The Project Biological Monitor(s) will be present onsite within a reasonable monitoring distance during all ground-disturbing activities that have the potential to affect biological resources as directed by the Project Biologist and will be the principal agent(s) in the direct implementation of the MMRP and compliance assurance.
- Cultural Resources Compliance Manager/Principal Investigator: The Design Build Contractor provided Archaeologist, who meets the Secretary of the Interior (SOI) Standards of Archaeologist, is responsible for implementing mitigation measures in compliance with the terms and conditions outlined in the MMRP and treatment plans, and coordinating the status of archaeological mitigation with the Authority in accordance with this MMRP, PA, and MOA.
- Cultural Resources Monitor(s): The Design Build Contractor provided Cultural Resources Monitor(s) will be approved by and report directly to the Cultural Resources Compliance Manager/Principal Investigator. The Archaeological Monitor(s) will be present onsite within a reasonable monitoring distance during ground disturbing activities in areas indicated as culturally sensitive and will be the principal agent(s) in the direct implementation of the MMRP and compliance assurance as directed by the Cultural Resources Compliance Manager/Principal Investigator.
- Paleontological Resources Specialist: The Design Build Contractor provided Paleontological Resources Specialist is responsible for implementing mitigation measures in compliance with the terms and conditions outlined in the MMRP including preparation of the Paleontological Resources Management Plan and approval and direction of the Paleontological Resource Monitor(s).
- Paleontological Resources Monitor(s): The Design Build Contractor provided Paleontological Resources Monitor(s) will be approved by and report directly to the Paleontological Resources Specialist. The Paleontological Resources Monitor(s) will be present onsite within a reasonable monitoring distance during ground disturbing activities in areas indicated as resource sensitive and will be the principal agent(s) in the direct implementation of the MMRP and compliance assurance as directed by the Paleontological Resources Specialist.
- Contractor's Biologist/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.

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3 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The Authority will implement an Environmental Management System (EMS) consisting of strategic planning, policies, and procedures, organizational structure, staffing and responsibilities, milestones, schedule, and resources devoted to achieving the Authority's environmental commitments. The EMS will also include a component that tracks the implementation of mitigation measures (as well as environmental commitments, BMPs, and impact avoidance and minimization measures) and can produce reports on compliance. FRA will receive periodic reports on compliance and may request additional reports as necessary to ensure that the MMRP is fully implemented. This system will rely on data provided by the design build contractor, regional consultants, and others to produce status reports regarding construction status, permitting activities, monitoring, inspections, and other compliance activities.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
3.2 Transportation												
TR-MM#1	Access Maintenance for Property Owners	If a proposed permanent road closure restricts current access to a property, the Authority will provide alternative access via connections to existing roadways. If adjacent road access is not available, the Authority will prepare new road connections, if feasible. Alternative access shall maintain the viability of the property use as it was used prior to the initiation of HSR project construction. If alternative road access is not feasible for a permanent loss of property access, the property will be acquired by the Authority. This mitigation measure would be effective, given the listed approaches available to address all potential scenarios encountered.	✔	✔	Pre-construction/ Construction/Post-construction	Reporting/Compensation	Weekly	Contractor	Contractor	Prepare construction management plan/maintain weekly reporting schedule	Contract Requirements/ Specifications	Impact TR #12 Loss of Property Access as a Result of Road Closures
All other traffic mitigation measures are listed in Appendix A.												
3.3 Air Quality and Global Climate Change												
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 for the current calendar year, as set forth in California Air Resources Board's (CARB) OFFROAD 2011 database, and no less than a 40 percent reduction compared to a Tier 2 engine	✔	✔	Construction	Reporting	Weekly	Contractor	Contractor	Daily Record Keeping and Weekly Reporting	A copy of each unit's certified tier specification and any required California Air Resources Board (ARB) 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.	Impact AQ #1: Construction of the HSR alternatives would exceed the CEQA emissions thresholds for VOCs, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, it could potentially cause violations of NO_2, O_3, PM_{10}, and $PM_{2.5}$ air quality standards or contribute substantially to NO_2 O_3, PM_{10}, and $PM_{2.5}$ existing or projected air quality violations.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		standard for nitrogen oxides (NO_x) emissions. The contractor will document efforts undertaken 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 will 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 San Joaquin Valley Air Pollution Control District (SJVAPCD) operating permit will be made available at the time of mobilization of each piece of equipment. The contractor will keep a written record (supported by equipment-hour meters, where available) of equipment usage during project construction for each piece of equipment.	✔	✔								Impact AQ #2: Construction of the HSR alternatives would exceed the CEQA emissions thresholds for VOC, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, it would conflict with the 1-hour Ozone Attainment Plan, the 8-hour Ozone Attainment Plan, and the PM_{10} and $PM_{2.5}$ Attainment Plans.
			✔									Impact AQ #7: Construction of the HSR stations could expose sensitive receptors at schools to TAC pollutant concentrations.
			✔									Impact LU #1: Temporary and intermittent disruption of access to some properties, temporarily inconvenience nearby residents, and temporarily change the intensity of agricultural operations on some lands along 31 miles of the Preferred Alternative.
AQ-MM#2	Reduce Criteria Exhaust Emissions from On-Road Construction Equipment	This mitigation measure applies to all 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, but no less than the average fleet mix for the	✔	✔	Construction	Reporting	Weekly	Contractor	Contractor	Weekly reporting	Contract Requirement/ Specification	Impact AQ #1: Construction of the HSR alternatives would exceed the CEQA emissions thresholds for VOCs, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, it could potentially cause violations of

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		current calendar year as set forth in CARB's Emission Factors Model 2011 database. The contractor will provide documentation of efforts to secure such a fleet mix. The contractor will keep a written record of equipment usage during project construction for each piece of equipment.										NO_2, O_3, PM_{10}, and $PM_{2.5}$ air quality standards or contribute substantially to NO_2 O_3, PM_{10}, and $PM_{2.5}$ existing or projected air quality violations.
			✔	✔								Impact AQ #2: Construction of the HSR alternatives would exceed the CEQA emissions thresholds for VOC, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, it would conflict with the 1-hour Ozone Attainment Plan, the 8-hour Ozone Attainment Plan, and the PM_{10} and $PM_{2.5}$ Attainment Plans.
			✔	✔								Impact AQ #3: Material hauling outside the SJVAB would exceed CEQA emission thresholds for NOx in the BAAQMD, Mojave Desert AQMD, Eastern Kern County APCD, and the South Coast AQMD, and would exceed the VOC threshold in South Coast AQMD 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

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												violations in those air basins.
			✔									Impact LU #1: Temporary and intermittent disruption of access to some properties, temporarily inconvenience nearby residents, and temporarily change the intensity of agricultural operations on some lands along 31 miles of the Preferred Alternative.
AQ-MM#3	Reduce the Potential Impact of Concrete Batch Plants	Concrete batch plants would 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. The concrete batch plant will utilize typical control measures to reduce fugitive dust, such as water sprays, enclosures, hoods, curtains, shrouds, movable and telescoping chutes, central dust collection systems and other suitable technology, to reduce emissions to be equivalent to the U.S. Environmental Protection Agency (USEPA) AP-42 controlled emission factors for concrete batch plants.	✔	✔	Pre-construction	Design/Reporting	Weekly	Contractor	Contractor	Weekly Reporting	Contract Requirements/ Specifications	Impact AQ #8: Construction of the alignment may expose sensitive receptors to temporary substantial pollutant concentrations from concrete batch plants.
			✔									Impact LU #1: Temporary and intermittent disruption of access to some properties, temporarily inconvenience nearby residents, and temporarily change the intensity of agricultural operations on some lands along 31 miles of the Preferred Alternative.
AQ-MM#4	Offset Project Construction Emissions Through an SJVAPCD VERA	The California High-Speed Rail Authority (Authority) and SJVAPCD will enter into a contractual agreement to mitigate the project's	✔	✔	Pre-construction	Reporting/Funding	Weekly	Authority	Contractor	Weekly Reporting	The Authority and SJVAPCD will enter into a contractual agreement to mitigate the project's emissions by providing	Impact AQ #1: Construction of the HSR alternatives would exceed the CEQA emissions

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		emissions (by offsetting) to net zero the project's actual emissions from construction equipment and vehicle exhaust emissions of volatile organic compounds (VOC), NO_X, particulate matter smaller than or equal to 10 microns in diameter (PM_{10}), and particulate matter smaller than or equal to 2.5 microns in diameter ($PM_{2.5}$). The agreement will provide funds for the SJVAPCD's Emission Reduction Incentive Program (SJVAPCD 2011) to fund grants for projects that achieve emission reductions, with preference given to highly impacted communities, thus offsetting project impacts on air quality. Projects funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps); replacement of old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks; and replacement of old farm tractors. The project will commit to reducing construction emissions for NO_X and VOC through the Voluntary Emission Reduction Agreement (VERA) program. To lower overall cost, funding for the VERA program to cover estimated construction emissions for any funded construction phase will be provided at the beginning of the construction phase, if feasible. At a minimum, funding shall be provided so that mitigation/offsets will occur in the year of impact, or as otherwise permitted by 40									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.	thresholds for VOCs, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, it could potentially cause violations of NO_2, O_3, PM_{10}, and $PM_{2.5}$ air quality standards or contribute substantially to NO_2 O_3, PM_{10}, and $PM_{2.5}$ existing or projected air quality violations.
			✔	✔								Impact AQ #2: Construction of the HSR alternatives would exceed the CEQA emissions thresholds for VOC, NO_x, PM_{10}, and $PM_{2.5}$. Therefore, it would conflict with the 1-hour Ozone Attainment Plan, the 8-hour Ozone Attainment Plan, and the PM_{10} and $PM_{2.5}$ Attainment Plans.
			✔	✔								Impact LU #1: Temporary and intermittent disruption of access to some properties, temporarily inconvenience nearby residents, and temporarily change the intensity of agricultural operations on some lands along 31 miles of the Preferred Alternative.

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		C.F.R. Part 93 Section 93.163.		✔								
AQ-MM#5	Purchase Offsets and Offsite Mitigation for Emissions Associated with Hauling Ballast Material in Certain Air Districts	This mitigation measure will apply if ballast material is hauled from quarries outside the San Joaquin Valley Air Basin (SJVAB) and the hauling activities result in the exceedance of applicable annual General Conformity (GC) threshold(s) or local air basin California Environmental Quality Act (CEQA) threshold(s) for NO_X. To determine whether an exceedance will occur based on actual hauling activities, the Authority shall at the beginning of each calendar year, or as soon as practicable thereafter, (1) obtain the most up-to-date information based on actual or projected contractor-specific information about hauling in the Mojave Desert Air Quality Management District (AQMD), South Coast AQMD, and Bay Area AQMD; and (2) calculate the expected NO_X emissions from hauling activities in those districts using the same methodology used in this F-B LGA Draft Supplemental Environmental Impact Report/Environmental Impact Statement (EIR/EIS). The analysis methodology shall specify the location, the year in which the emissions would be released, and the quantity of emissions. If, based on that calculation, exceedance of the applicable NO_X threshold(s) is anticipated to occur in that next calendar year, the Authority will secure from the	✔	✔	Pre-construction/Construction	Reporting/Funding	Weekly	Contractor and Authority	Contractor and Authority	Weekly Reporting	Authority to coordinate the purchase of offsets with the pertinent AQMDs per contractor reports.	Impact AQ #3: Material hauling outside the SJVAB would exceed CEQA emission thresholds for NOx in the BAAQMD, Mojave Desert AQMD, Eastern Kern County APCD, and the South Coast AQMD, and would exceed the VOC threshold in South Coast AQMD 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 basins.

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		appropriate air district(s) or other appropriate source the production or generation of a sufficient quantity of NO_X offsets for that calendar year necessary to achieve conformity (in the case of exceedance of GC thresholds) and/or to offset NO_X emissions below the applicable CEQA threshold(s). At a minimum, mitigation/offsets will occur in the year of impact, or as otherwise permitted by Code of Federal Regulations (C.F.R.) Title 40, Part 93, Section 93.163. The Mojave Desert AQMD's emission bank has 3,274 tons of NO_X credits (Mojave Desert AQMD 2016); therefore, there should be enough NO_X credits to offset approximately 6 tons per year from this project in the Mojave Desert Air Basin. The exact number of NO_X credits in the South Coast AQMD RECLAIM program is unknown, but 810.5 tons of NO_X credits were traded in 2015 and 43.3 tons of NO_X credits were traded in 2012 (South Coast AQMD 2016). Therefore, there should be enough available NO_X credits in the program to offset approximately 75 tons of NO_X per year from this project in the South Coast AQMD. In the Bay Area AQMD, any material emissions above the district's significance threshold will be mitigated through an off-site emission mitigation program to achieve emission reduction due to material hauling in the Bay Area										

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		AQMD. Potential off-site 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. Depending on the final location selected to obtain ballast material, this would amount to a maximum of 3 tons per year of NO_X credits.										
AQ-MM#6	Localized Air Quality Impacts During Guideway/Alignment Construction	This mitigation measure will apply to heavy maintenance facility(HMF)[2]/maintenance of infrastructure facility (MOIF) operation for all site options to ensure that the nearest sensitive receptor has a health risk less than the applicable threshold of 10 in 1 million cancer risk and a hazard index of 1, with final decisions on the range of mitigation measures to achieve emission reductions to meet this standard to be selected before the issuance of the Authority to construct permit for the HMF[2]/MOIF. These measures may include the following options: ▪ Use of electric or hybrid trucks to serve the facility. ▪ Use of an electric or clean switcher locomotive to minimize the emissions from HMF operation. ▪ When advertising for a train set vendor, a preference for the use of highly polished external manufactured aluminum for train sets will	✔		Pre-construction/ Construction/Post-construction	Reporting	Monthly	Contractor	Contractor	Monthly	Contract Requirements/ Specifications	Impact AQ #9: Construction Air emissions associated with construction of the MOIF would result in localized air quality emissions.

[2] It should be noted that the F-B LGA does not include the development of a heavy maintenance facility site.

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		be stated in the proposal. ▪ Adjustment of the facility operation and orientation to move emission activities to areas where impacts on the surrounding sensitive areas are lessened, thus reducing localized impacts on surrounding sensitive receptors. ▪ A minimum buffer distance of 1,300 feet from sensitive receptors for diesel vehicles, limitations on idling of diesel vehicles at the facility, or preparation of a detailed health risk assessment that shows cancer risk to less than 10 in 1 million when the site design is refined.										
3.4 Noise and Vibration												
N&V-MM#1	Construction Noise Mitigation Measures	During construction, the contractor will monitor construction noise to verify compliance with the noise limits shown in Table 3.4-1 of the Final EIR/EIS. The contractor would be given the flexibility to meet the FRA construction noise limits in the most efficient and cost-effective manner. This would be done by either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. A noise-monitoring program will be developed to meet required noise limits, and the following noise control mitigation measures will be implemented as necessary, for nighttime and daytime:	✔ ✔	✔	Construction	Reporting	Weekly	Contractor	Contractor	Weekly	Contract Requirements/ Specifications	Impact N&V #1: Construction Noise Impact LU #1: Temporary and intermittent disruption of access to some properties, temporarily inconvenience nearby residents, and temporarily change the intensity of agricultural operations on some lands along 31 miles of the Preferred Alternative.

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		▪ Install a temporary construction barrier near the noise source ▪ Avoid nighttime construction in residential neighborhoods ▪ Locate stationary construction equipment as far as possible from noise sensitive sites. ▪ During nighttime work use smart backup alarms, which automatically adjust the alarm levels 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.										

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		▪ 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 pile driving, the use of an auger 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-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 pile driving occurs more than 77 feet from fragile or historic buildings, 55 feet from residential structures 25 to 50 feet from buildings, or if alternative methods such as push piling, or auger piling, or cast-in-drill-hole (CIDH) 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 are conducted at locations within 50 feet of pile driving to document the existing condition of buildings in case	✔	✔	Pre-construction/Construction/ Post-construction	Reporting	Weekly	Contractor	Contractor	Ongoing monitoring during construction/post-construction monitoring as needed to assess damage to buildings.	Contract Requirements/ Specifications	Impact N&V #2: Construction Vibration
			✔									Impact LU #1: Temporary and intermittent disruption of access to some properties, temporarily inconvenience nearby residents, and temporarily change the intensity of agricultural operations on some lands along 31 miles of the Preferred Alternative.
				✔								Impact LU #1: The generation of noise would temporarily inconvenience nearby residents on some lands along 23.13 miles of the F-B LGA

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		damage is reported during or after construction. The Authority will arrange for the repair of damaged buildings or will pay compensation to the property owner. Although vibration impacts would occur during construction activities, the construction activities are considered temporary, as they would cease after completion.		✔								Impact PK #1: Construction activities would increase noise exposure at Weill Park and the Kern River Parkway.
N&V-MM#3	Implement Proposed California High-Speed Rail Project Noise Mitigation Guidelines	To determine the appropriate mitigation measure for properties experiencing severe noise impacts, noise mitigation guidelines would be applied as follows: ▪ Prior to operation of the HSR, the Authority will install sound barriers where they can achieve between 5 and 15 dBA of noise reduction, depending on their height and location relative to the tracks. 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 the bottom. Because many materials meet these requirements, aesthetics, durability, cost, and maintenance considerations usually determine the selection of materials for sound barriers (examples are shown in	✔		Pre-construction/Construction/ Post-construction	Reporting	Weekly	Authority	Authority	Ongoing monitoring during construction/post-construction monitoring as needed to assess damage to buildings	Contract Requirements/ Specifications Noise and Vibration Mitigation Guidelines	Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors
				✔								Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors: 7,263 moderate and 4,697 severe impacts
			✔									Impact N&V #6: The Hanford East Station Alternative and the BNSF through Corcoran would result in increases in traffic volume that would result in an increase in the future peak-hour noise level.
				✔								PK#4: Weill Park. Project impacts from operation of the HSR would increase noise exposure.
				✔								PK#4: Kern River Parkway. Project impacts from operation of the HSR would increase noise exposure.
			✔	✔								Impact BIO #6:

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		Figure 3.4-14 of the Final EIR/EIS). 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, and made of various colors, materials, and surface treatments. ▪ The minimum number of affected sites should be at least 10, and the length of a sound barrier should be at least 800 feet. 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 to achieve 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 will still be designed to be as low as possible to achieve a substantial noise reduction. Sound barriers on both										Project impacts from the HSR would permanently impact suitable habitat that has the potential to support special-status invertebrate species through the creation of noise that would reduce the desirability of the habitat.
			✔	✔								Impact BIO #6: Project impacts from the HSR would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species through the creation of noise that would reduce the desirability of the habitat.
			✔	✔								Impact BIO #6: Project impacts from the HSR would permanently impact suitable habitat that has the potential to support special-status bird species through the creation of noise that would reduce the desirability of the habitat.
			✔	✔								Impact BIO #6: Project impacts from the HSR would permanently impact suitable habitat that has the potential to support special-status mammal

Table 1
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		aerial structures and at-grade structures could consist of solid, semitransparent, or transparent materials. ▪ The Authority will work with the communities to identify 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 noise thresholds than the FRA's current noise thresholds. ▪ If sound walls are not proposed or do not reduce sound levels to below a severe impact level, building sound insulation can be installed. 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 dBA) 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										species through the creation of noise that would reduce the desirability of the habitat.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		concern. Substantial improvements in building sound insulation (on the order of 5 to 10 dBA) 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. Performance criteria would be established to balance existing noise events and ambient roadway noise conditions as factors for determining mitigation measures. ▪ If sound walls or sound installation is not effective, the Authority can 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 impacted by HSR 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.										
N&V-MM#4	Vehicle Noise Specification	In the procurement of an HSR vehicle technology, the Authority will require bidders to meet the federal regulations (40 CFR Part 201.12/13) at the time of procurement for locomotives (currently a 90-	✔	✔	Pre-construction/Construction/ Post-construction	Reporting	Weekly	Authority	Authority	Ongoing monitoring during construction/post-construction monitoring as needed	Contract Requirements/ Specifications Noise and Vibration Mitigation Guidelines	Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		dBA-level 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.										
N&V-MM#5	Special Track Work	Because the impacts of HSR wheels over rail gaps at turnouts increases HSR noise by approximately 6 dBA 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 track work that eliminate the gap. Table 3.4-29 provides additional mitigation measures that would reduce operational vibration levels when the train, railway, and railway structures are already in good condition. As shown in Table 3.4-29, mitigation would take place at the source, sensitive receptor, or along the propagation path from the source to the sensitive receptor. If mitigation measures provided in Table 3.4-29 are not feasible, the Authority would attempt to negotiate a vibration easement with property owners or the Authority would negotiate to relocate the property owner outside of the area subject to significant vibration impacts.	✔		Pre-construction/ Construction/ Post-construction	Reporting	Weekly	Authority	Authority	Ongoing monitoring during construction/post-construction monitoring as needed	Contract Requirements/ Specifications Noise and Vibration Mitigation Guidelines	Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors
				✔								Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors. Project Noise Impacts Preferred Alternative: 7,263 moderate and 4,697 severe impacts.
N&V-MM#6	Additional Noise and Vibration Analysis Following Final Design	If final design or final vehicle specifications result in changes to the assumptions underlying the noise and vibration analysis (including analysis regarding resident and business displacements),	✔	✔	Pre-construction/Design/ Operation	Reporting	Final design/Final vehicle specification	Contractor/Authority (vehicle)	Contractor/Authority (vehicle)	Final design/Final vehicle specification	Submit assessment and supplemental environmental documentation	Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors
				✔								Impact N&V #6: The Hanford East Station

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		reassess noise and vibration impacts and recommendations for mitigation and provide supplemental environmental documentation, as required by law. Several single-family homes will be subject to traffic peak-hour noise levels in excess of 66 dBA Leq. These noise levels would exceed the Caltrans Noise Abatement Criteria and potentially require the preparation of Noise Study Reports and noise abatement measures. In determining the reasonableness of abatement, FHWA highway traffic noise regulation requires, among other factors, the feasibility of the noise mitigation measure as well as the consideration of the viewpoints of the affected residents and property owners. Feasibility generally deals with considering whether it is possible to build an abatement measure, given site constraints; and whether the abatement measure provides a minimum reduction in noise levels. Feasibility also requires that all of the homes potentially affected face the roadway from which the noise emanates. As a result, noise mitigation measures would be infeasible for any home with a driveway for which access must be maintained. The noise barrier would not be continuous, and subsequently would not provide the minimum 5 dBA of noise reduction. A noise abatement measure is not feasible unless the measure achieves a noise										Alternative and the BNSF through Corcoran would result in increases in traffic volume that would result in an increase in the future peak-hour noise level.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		reduction of at least 5 dBA for front-row receivers. Highway noise barriers are designed to protect areas of "frequent human use," which generally do not include the front yards of homes. Also, Caltrans does not generally put noise barriers across the front yards of homes because they are acoustically infeasible and because most homeowners wish to maintain the views from the fronts of their homes.										
N&V-MM#7	Station, Maintenance of Infrastructure Facility, and Traction Power Supply Station	In order to reduce the noise from the facilities, the following noise mitigation measures are recommended: ▪ Enclose as many of the activities within the facility as possible. ▪ Eliminate windows in the building that would face toward noise sensitive land uses adjacent to the facility. If windows are required to be located on the side of the facility facing noise-sensitive land uses, they should be the fixed type of windows with a sound transmission class (STC) rating of at least 35. If the windows must be operable, they should be closed during nighttime activities. ▪ Close facility doors where the rails enter the facility during nighttime activities. ▪ Locate Tracks that cannot be located within the facility should be located on the far side of the facility from adjacent noise-sensitive receivers. ▪ For tracks that cannot be	✔		Pre-construction/Design/ Construction/Operation	Reporting	Final design	Contractor/Authority	Contractor/Authority	Final design and Construction/ Weekly reporting	Contract Requirements/ Specification	Impact N&V #7: Noise from HSR Stationary Facilities
				✔								Impact N&V #3: Moderate and severe noise impacts from project operation to sensitive receptors. Project Noise Impacts Preferred Alternative: 7,263 moderate and 4,697 severe impacts.
				✔								Impact N&V#6: The F Street Station would result in increases in traffic volume that would result in an increase in the future peak-hour noise level.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		installed away from noise-sensitive receivers, install sound barrier along the maintenance tracks in order to protect the adjacent noise-sensitive receivers. ▪ Locate all mechanical equipment (compressors, pumps, generators, etc.) should be located within the facility structure. ▪ Locate any mechanical equipment located exterior to the facility (compressors, pumps, generators, etc.) should be located on the far side of the facility from adjacent noise-sensitive receivers. If this is not possible, this equipment should be located within noise enclosures to mitigate the noise during operation. ▪ Point all ventilation ducting for the facility should be pointed away from the adjacent noise-sensitive receivers.										
3.5 EMI/EMF												
No significant impacts on EMI/EMF have been identified.												
3.6 Public Utilities and Energy												
PU&E-MM#1	Reconfigure or relocate substations and/or ancillary components	The Authority will relocate the adjacent electrical lines and related ancillary components of the existing Mascot substation prior to operation. The reconfiguration will be performed in coordination and cooperation with the utility owner, Southern California Edison, so that the relocation would not result in prolonged disruption of services.	✔		Pre-construction/ Design/Construction	Reporting	Final Design	Contractor/Authority	Contractor/Authority	Final Design and Construction/Monthly Reporting	Contract Requirements/ Specifications	Impact PU&E #5: Adjacent lines leading into the Southern California Edison's Mascot substation are within the HSR construction footprint.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
3.7 Biological Resources and Wetlands												
BIO-MM#1	Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor(s)	A Project Biologist shall be designated by the Environmental Compliance Manager to oversee regulatory compliance requirements and monitor the restoration activities associated with ground-disturbing activities in accordance with the adopted mitigation measures and applicable laws. The Project Biologist, Regulatory Specialist, and Project Botanist are responsible for the timely implementation of the biological mitigation measures as outlined in the MMEP, construction documents, and pertinent resource agency permits. Resumes for the Designated Project Biologist(s), Regulatory Specialists (Waters), and Project Botanists, and Project Biological Monitors(s) must be submitted to the USFWS during final design. Additional duties of the Project Biologist, Regulatory Specialist (Waters) and Project Botanist include reviewing design documents and construction schedules, determining project biological monitoring needs, and guiding and directing the work of the Project Biological Monitors. The duties of the Project Biological Monitor include monitoring construction crew activities, as needed, to document applicable mitigation measures and permit conditions. The Project Biologist(s), Regulatory	✔		Pre-construction	Mitigation Manager will identify Project Biologist, Regulatory Specialist (Waters), Project Botanist. Contractor will identify Project Biological Monitors and provide resumes to regulatory agencies as required.	Final Design	Contractor	Contractor	Final Design	Condition of Design Build Contract	BIO-MM#1 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		Specialist(s) (Waters), Project Botanist(s) and the Project Biological Monitor(s) report to the Mitigation Manager. The Project Biologist(s), Regulatory Specialist(s) (Waters), Project Botanist(s) and/or the Project Biological Monitor(s) may require special approval from the USFWS and CDFW to implement certain mitigation measures. In these circumstances, they are referred to as agency-approved biologist(s).										
BIO-MM#2	Regulatory Agency Access	If requested, before, during, or on completion of ground-disturbing activities, the Contractor will allow access by USFWS, USACE, SWRCB, and CDFW staff to the construction site. Because of safety concerns, all visitors will be required to check in with the Contractor before accessing the construction site. If agency personnel access the construction site, the Project Biologist will prepare a memorandum within 1 day of the visit to document agency access and the issues raised during the field meeting. This memorandum will be submitted to the Mitigation Manager. Any non-compliance issues will be reported to the Contractor and Authority.	✔		Pre-construction/Construction/ Post-construction	Access Granted to Regulatory Agencies	1 day following agency site visit	Contractor, Project Biologist	Contractor	1 day following agency site visit	Condition of Design Build Contract	BIO-MM#2 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern
BIO-MM#3	Prepare and Implement a Worker Environmental Awareness Program	Before the start of ground-disturbing activities, the Project Biologist, Regulatory Specialist (Waters) and Project Botanist will prepare	✔		Pre-construction/Construction	Training of all crew/construction personnel prior to start of construction. Provide daily/ weekly/ monthly	Daily Tracking	Contractor	Contractor	Monthly training forms submitted monthly.	Condition of Design/Build Contract	BIO-MM#3 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		and implement a WEAP for construction crews. WEAP training materials will include the following: discussion of the federal Endangered Species Act (federal ESA), the California Endangered Species Act (CESA), the Bald and Golden Eagle Protection Act (BGEPA), the Migratory Bird Treaty Act (MBTA), and the Clean Water Act (CWA); the consequences and penalties for violation or noncompliance with these laws and regulations and project permits; identification of special-status plants, special-status wildlife, jurisdictional waters, and special-status plant communities and explanations about their value; 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, construction timing in relation to species' habitat and life-stage requirements will be detailed and discussed on project maps, which will show areas of planned minimization and avoidance measures. A fact sheet conveying this information will be prepared by the Project Biologist, Regulatory Specialist (Waters) and Project Botanist for distribution to the construction crews and to others who enter the construction footprint. On completion of the WEAP training, construction crews will sign a form stating that				report as required by permit conditions or as additional crew/ construction personnel receive training.						Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		they attended the training, understood the information presented, and will comply with the WEAP requirements. The Project Biologist, Regulatory Specialist (Waters) and Project Botanist will submit the signed WEAP training forms to the Mitigation Manager on a monthly basis. Construction crews will be informed during the WEAP training that, except when necessary as determined in consultation with the Project Biologist, Regulatory Specialist (Waters) and Project Botanist travel within the marked project site will be restricted to established roadbeds. Established roadbeds include all pre-existing and project-constructed unimproved and improved roads.										
BIO-MM#4	Prepare and Implement a Weed Control Plan and Annual Vegetation Control Plan	A construction-phase Weed Control Plan and an operation phase Annual Vegetation Control Plan will be developed and implemented. Before the start of ground-disturbing activities, the Project Botanist will prepare and oversee the implementation 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 noxious weed surveys to be conducted in coordination with the Biological Resources Management Plan (BRMP) (BIO-MM#5).· The success criteria for	✔		Pre-construction/Construction/ Post-construction/Operation	Plan to be prepared prior to construction followed by Monthly memorandum to document the progress and implementation of the Weed Control Plan	Monthly	Contractor/Authority	Contractor/Authority	Monthly	Condition of the Design/Build Contract	BIO-MM#4 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		noxious and invasive weed control, as established by a qualified biologist. The success criteria will be linked to the Biological Resources Management Plan [BRMP] (BIO-MM#5) standards for onsite work during construction. In particular, the criteria will limit the introduction and spread of highly invasive species, as defined by the California Invasive Plant Council (CalIPC), to less than or equal to the pre-disturbance conditions in areas temporarily impacted by construction activities. If invasive species cover is found to exceed by 10% the pre-disturbance conditions during monitoring—or is 10% more compared with a similar, nearby reference site with similar vegetation communities and management—a control effort will be implemented. If the target, or other success criteria identified in the Comprehensive Mitigation and Monitoring Plan (CMMP), has not been met by the end of the BRMP monitoring and implementation period, the Authority or its designee will continue the monitoring and control efforts, and remedial actions would be identified and implemented until the success criteria are met. Depending on monitoring results, additional or revised measures may be needed to ensure that the introduction and spread of noxious weeds are not promoted by the construction and operation of		✔								Wildlife Species Impact BIO#7: Project Effects on Habitats of Concern

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		the project. 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. Identification of weed control treatments, including the use of permitted herbicides, and manual and mechanical removal methods. Herbicide application will be restricted from use in Environmentally Sensitive Areas and on compensatory mitigation sites, which are defined in BIO-MM#7, Delineate Environmentally Sensitive Area and Environmental Restricted Area (on plans and in field). Determination of timing of the weed control treatment for each plant species. Identification of fire prevention measures. During operation, the Authority will generally follow the procedures established in Chapter C2 of the Caltrans Maintenance Manual to manage vegetation on Authority property (Caltrans 2010). Vegetation would be controlled by chemical, thermal, biological, cultural, mechanical, structural, and manual methods. A separate plan, the Annual Vegetation Control Plan, would also be developed									

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		each winter for implementation no later than April 1 of each year. That plan would consist of site-specific vegetation control methods, as outlined below: Chemical vegetation control noting planned usage. Mowing program. Other non-chemical vegetation control plans (manual, biological, cultural, thermal (includes the use of propane heat or steam and is not specific to controlled burning) and structural). List of sensitive areas. Other chemical pest control plans (e.g., insects, snail, rodent).Only Caltrans-approved herbicides will be used in the vegetation control program. Pesticide application will be conducted in accordance with all requirements of the California Department of Pesticide Regulation and County Agricultural Commissioners by certified pesticide applicators. Noxious/invasive weeds will be treated where requested by County Agricultural Commissioners. The Authority will cooperate in area-wide control of noxious/invasive weeds if established by local agencies. Farmers/landowners who request weed control on state right-of-way that is not identified in the annual vegetation control plan will be encouraged to submit a permit request application for weed control that identifies the target weeds and control method desired. The Contractor will implement the										

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		Weed Control Plan during the construction period. The Authority will require that HSR maintenance crews follow the guidelines in the Weed Control Plan and Annual Vegetation Control Plan during project operation. The Authority or its designee will appoint the responsible party during the operations period to ensure the Annual Vegetation Control Plan is being carried out appropriately and effectively. A monthly memorandum will be prepared by the Project. Botanist to document the progress of the plan and its implementation.										
BIO-MM#5	Prepare and Implement a Biological Resources Management Plan	During final design, the Mitigation Manager, or its designee (Project Biologist, Regulatory Specialist or Project Botanist) will prepare the Biological Resources Management Plan (BRMP) and assemble the biological resources mitigation measures. The BRMP 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 parameters for the BRMP will be formed with the mitigation	✔		Plan required Pre-construction. Implementation will occur during Construction and Post-construction.	Plan to be prepared prior to construction followed by reporting schedule established by agency permit conditions.	Monthly	Contractor/Authority	Contractor/Authority	Monthly	Condition of the Design/Build Contract	BIO-MM#5 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		measures from this project-level EIR/EIS, including terms and conditions as applicable from the USFWS, USACE, SWRCB, and CDFW permits. The goal of the BRMP is to provide an organized reporting tool to ensure that the mitigation measures and terms and conditions are implemented in a timely manner and are reported on. These measures, terms, and conditions 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, terms, and conditions are tracked through final design, implementation, and post-construction phases. The BRMP will help the long-term perpetuation of biological resources within the temporarily disturbed areas and protect adjacent targeted habitats. The BRMP will be submitted to the Contractor and will contain, but not be limited to, the following information: a. A master schedule that shows that construction of the project, Pre-construction surveys, and establishment of buffers and exclusions zones to protect sensitive biological resources. b. Specific measures for the protection of special-status species. c. Identification (on construction plans) of the										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		locations and quantity of habitats to be avoided or removed, along with the locations where habitats are to be restored. d. Procedures for vegetation analyses of temporarily affected habitats to approximate their relative composition and 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. e. Sources of plant materials and methods of propagation. f. Identification of specific parameters consistent with mitigation ratios and permit conditions for determining the amount of replacement habitat for temporary disturbance areas. g. 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. h. Specification of performance standards for the re-established plant communities within										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		the construction limits. i. Specification of the remedial measures to be taken if performance standards are not met (e.g., a form of adaptive management). j. Methods and requirements for monitoring restoration/replacement efforts, which will be a combination of qualitative and quantitative data consistent with mitigation measures and permit conditions. k. Measures to preserve topsoil and control erosion. l. Design of protective fencing around Environmentally Sensitive Areas (ESA), environmentally restricted areas (ERA), and the construction staging areas. m. Specification of the locations and quantities of gallinaceous guzzlers (catch basin/artificial watering structures) and the monitoring of water levels in them. n. Locations of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees. o. Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance										

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		within sensitive habitat areas. p. Specific construction monitoring programs for habitats of concern and special-status species, as needed. q. Specific measures for the protection of vernal pool habitat and riparian areas. These measures may include erosion and siltation control measures, protective fencing guidelines, dust control measures, grading techniques, construction area limits, and biological monitoring requirements. r. 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 methods (for each habitat and sensitive species to be monitored); (3) list required qualifications of biological monitor(s), and (4) identify the reporting requirements.										
BIO-MM#6	Prepare and Implement a Restoration and Revegetation Plan	During final design, the Project Botanist will prepare a Restoration and Revegetation Plan (RRP) for temporarily disturbed upland communities. (Site restoration will also be	✔		Prepare the plan Pre-construction. Implement the plan during construction, Monitoring during Post-construction	Prepare and implement RRP	Monthly	Contractor/Authority	Contractor/Authority	Monthly	Condition of the Design/Build Contract Restoration and Revegetation Plan (RRP) Compliance report to document	BIO-MM#6 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

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		conducted to restore temporary impacts on valley foothill riparian areas [BIO-MM#47] and jurisdictional waters [BIO-MM#48].) In the RRP, impacts on habitat subject to temporary ground disturbances that will require decompaction or regrading will be addressed, if appropriate. The Project Biologist will approve the seed mix. The standards for onsite work during construction will limit highly invasive species, as defined by the California Invasive Plant Council, to less than 10% greater than the pre-disturbance condition or as determined through a comparison with an appropriate reference site with similar natural communities and management. During ground-disturbing activities, the Contractor will implement the RRP in temporarily disturbed areas. The Project Biologist will prepare and submit compliance reports to the Mitigation Manager to document implementation and performance of the RRP.		✔							implementation and performances standards	Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern
BIO-MM#7	Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in field)	Before the start of ground-disturbing activities, the Project Biologist, Regulatory Specialist (Waters), and Project Botanist will verify that ESAs and ERAs are delineated on final construction plans (including grading and landscape plans) and in the field and will update as necessary. ESAs are areas within the construction zone, or on compensatory mitigation sites, containing suitable	✔		Pre-construction/Construction	Identify and Establish ESAs and ERAs; Remove Fencing, Memo to Mitigation Manager	In accordance with reporting schedule established by agency permit requirements	Contractor	Contractor	In accordance with reporting schedule established by agency permit requirements	Condition of Design/Build Contract	BIO-MM#7 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		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 sensitive areas that are typically outside the construction footprint that must be protected in place during all construction activities. Before and during the implementation of ground-disturbing activities, the Project Biologist, Regulatory Specialist (Waters), and Project Botanist, will mark ESAs and ERAs with high-visibility temporary fencing, flagging, or other agency-approved barriers to prevent encroachment of construction personnel and equipment. Sub-meter accurate Global Positioning System (GPS) equipment will be used to delineate all ESAs and ERAs. The Contractor will remove ESA and ERA fencing when construction is complete or when the resource has been cleared according to agency permit conditions in the MMRP and construction drawings and specifications. The Project Biologist, Regulatory Specialist (Waters), and Project Botanist, will submit a memorandum regarding the field delineation and installation of all ESAs/ERAs to the Mitigation Manager.										Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern
BIO-MM#8	Wildlife Exclusion	The Contractor, under the supervision of the Project		✔	Pre-construction/Construction	Installation of wildlife-specific exclusion	In accordance with reporting	Contractor	Contractor	In accordance with reporting schedule established by	Condition of Design/Build	Impact BIO#2: Construction Effects

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
	Fencing	Biologist will install wildlife-specific exclusion barriers at the edge of the construction footprint. Exclusion barriers will be made of durable material, regularly maintained, and installed below-grade by the Contractor under the supervision of the Project Biologist. Wildlife exclusion fencing will be installed along the outer perimeter of ESAs and ERAs and below-grade (e.g., 6 to 10 inches below-grade). The design specifications of the exclusion fencing will be determined through consultation with USFWS and/or CDFW. The wildlife exclusion barrier will be monitored, maintained at regular intervals throughout construction, and removed after the completion of major construction activities. The Project Biologist will submit a memorandum to the Mitigation Manager to document compliance with this measure.				barriers; Memo to Mitigation Manager	schedule established by agency permit requirements			agency permit requirements	Contract	on Special-Status reptiles and amphibian species.
				✔								Impact BIO#2: Construction Effects on Special-Status mammal species.
			✔	✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status mammal species.
BIO-MM#9	Equipment Staging Areas	Before the start of ground-disturbing activities, the Project Biologist, Regulatory Specialist (Waters), and Project Botanist will confirm that staging areas for construction equipment are outside areas of sensitive biological resources, including habitat for special-status species, habitats of concern, and wildlife movement corridors, to the extent feasible. The Project Biologist, Regulatory Specialist (Waters), and Project Botanist will submit a memorandum to the Mitigation Manager to	✔	✔	Pre-construction/Construction	Monitoring and Reporting	In accordance with reporting schedule established by agency permit requirements	Contractor	Contractor	In accordance with reporting schedule established by agency permit requirements	Condition of Design/Build Contract	BIO-MM#9 applies to all BIO Impacts

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		document compliance with this measure.										
BIO-MM#10	Mono-Filament Netting	Before and during the implementation of ground-disturbing activities, the Project Biologist will verify that that the Contractor is not using plastic mono-filament netting (erosion-control matting) or similar material in erosion control materials; acceptable substitutes include coconut coir matting, tackified hydroseeding compounds, rice straw wattles (e.g., Earthsaver wattles: biodegradable, photodegradable, burlap), and other reusable erosion, sediment, and wildlife control systems that may be approved by the regulatory agencies (e.g., ERTEC Environmental Systems products). The Project Biologist will submit memoranda to the Mitigation Manager to document compliance with this measure; the memoranda will be submitted monthly or as appropriate throughout project construction.	✔		Pre-construction/Construction	Monitoring and Reporting	Monthly or in accordance with reporting schedule established by agency permit requirements	Project Biologist	Project Biologist	Monthly or in accordance with reporting schedule established by agency permit requirements	Condition of Design/Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptile and amphibian species.
			✔									Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
				✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status wildlife species.
			✔									Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status reptiles and amphibian species.
			✔									Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												support special status mammal species.
				✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status wildlife species.
BIO-MM#11	Vehicle Traffic	During ground-disturbing activities, the contractor will restrict project vehicle traffic within the construction area to established roads, construction areas, and other designated areas. The contractor will establish vehicle traffic in locations disturbed by previous activities to prevent further adverse effects, require observance of a 15 mile per hour (mph) speed limit for construction areas with potential special-status species habitat, clearly flag and mark access routes, and prohibit off-road traffic. The Project Biologist will submit a memorandum to the Mitigation Manager to document compliance with this measure; memoranda will be submitted on a weekly basis or as appropriate throughout project construction.	✔		Construction	Establish vehicle routes, clearly flag and mark access routes, and prohibit off-road traffic, monitor and report	Weekly	Contractor	Contractor	Weekly	Condition of Design/Build Contract	BIO-MM#11 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern
BIO-MM#12	Entrapment Prevention	To prevent inadvertent entrapment of protected species, the Contractor, under the guidance of the Project Biologist, will cover all excavated, steep-sided holes or trenches more than 8	✔		Construction	Cover holes and trenches and protect pipes >3 inches in diameter	Weekly	Contractor	Contractor	Weekly	Condition of Design/Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		inches deep at the close of each work day with plywood or similar materials or provide a minimum of one escape ramp per 10 feet of trenching (with slopes no greater than a 3:1) constructed of earth fill or wooden planks. The Project Biologist will thoroughly inspect holes and trenches for trapped animals before leaving the construction site each day. The Contractor will either screen, cover, or store more than 1 foot off the ground all construction pipe, culverts, or similar structures with a diameter of 3 inches or greater that are stored at the construction site for one or more overnight periods and these pipes, culverts, and similar structures will be inspected by the Project Biologist for wildlife before the material is moved, buried, or capped. The Project Biologist will clear stored material reserved for common and special-status wildlife species before the pipe is subsequently buried, moved, or capped (covered). The Project Biologist will submit memoranda to the Mitigation Manager to document compliance with this measure; the memoranda will be submitted on a weekly basis or as appropriate throughout project construction.									status reptile and amphibian species.
			✔									Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
				✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status wildlife species.
			✔									Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
				✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												has the potential to support special status wildlife species.
BIO-MM#13	Work Stoppage	During ground-disturbing activities, the Project Biologist, Regulatory Specialist (Waters), Project Botanist or Biological Monitor 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 Contractor will suspend ground-disturbing activities in the immediate construction area where the potential construction activity could result in "take" of special-status wildlife species or until non-listed species, including mammals, are relocated; work may continue in other areas. Written permission will be obtained from CDFW to relocate any non-listed mammals before their being relocated. The Contractor will continue the suspension until the individual leaves voluntarily, or is relocated to a release area using USFWS- and/or CDFW-approved handling techniques and relocation methods, or as required by USFWS or CDFW. The Project Biologist, Regulatory Specialist (Waters), and Project Botanist will submit a memorandum to the Mitigation Manager to document compliance within 1 day of the work stoppage and	✔		Construction	Stop Work, relocate species (if possible), and report	1 day following work stoppage	Contractor	Contractor	1 day following work stoppage	Condition of Design/Build Contract	BIO-MM#13 applies to all BIO Impacts
				✔								Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		subsequent action.										
BIO-MM#14	"Take" Notification and Reporting	The Project Biologist, Regulatory Specialist (Water), or Project Botanist will immediately notify the Mitigation Manager in the event of an accidental death or injury to a federal- or state-listed species during project activities. The Project Biologist will then notify USFWS and/or CDFW within 24 hours in the event of an accidental death or injury to a federal- or state-listed species during project activities. The Project Biologist will submit a memorandum to the Mitigation Manager to document compliance with this measure. The memorandum will also identify suggested revisions to the construction activities or additional measures that will be implemented to minimize or prevent future impacts.		✔	Construction	Notification of Mitigation Manager, USFWS and/or CDFW and recommendation of additional measures	Immediate notification of Mitigation Manager; Notify USFWS and/or CDFW within 24 hours	Contractor	Contractor	Immediate notification of Mitigation Manager; Notify USFWS and/or CDFW within 24 hours	Condition of Design/Build Contract	Impact BIO#1: Construction Effects on Special-Status Plant Species
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptile and amphibian species.
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status bird species.
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5 Project Effects on Special-

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												Status Plant Species:
			✔	✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status invertebrate species.
			✔	✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status reptiles and amphibian species.
			✔	✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status bird species (Including raptors).
			✔	✔								Impact BIO#6: Project impact from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special status mammal species.
				✔								Impact BIO#7: Project Effects on Habitats of Concern
BIO-MM#15	Post-Construction	After each construction package, construction phase,	✔		Post-construction	Compliance Reporting	In accordance with reporting	Contractor	Contractor	In accordance with reporting schedule established by	Condition of Design/Build Contract	BIO-MM#15 applies to all BIO Impacts

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
	Compliance Reports	permitting phase, or other portion of the HSR section as defined by Authority is completed, the Mitigation Manager, or their designee, will submit post-construction compliance reports consistent with the requirements of the protocols of each appropriate agency (e.g., UFSWS, CDFW), including compliance with regulatory agency permits. The Mitigation Manager will submit a memorandum to the regulatory agencies to document compliance with this measure. The frequency of the memorandum compilation and submission will be consistent with the requirements in the regulatory agency permits.		✔			schedule established by agency permit requirements			agency permit requirements		Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
				✔								Impact BIO#7: Project Effects on Habitats of Concern
BIO-MM#16	Conduct Protocol-Level Preconstruction Surveys for Special-Status Plant Species and Special-Status Plant Communities	The Project Botanist will conduct protocol-level, Pre-construction botanical surveys for special-status plant species and special-status plant communities in all potentially suitable habitats where permission to enter was not granted during the spring and summer 2010 field surveys or 2011 supplemental surveys. The surveys will be conducted during the appropriate blooming period(s) for the species before the start of ground-disturbing activities for salvage and relocation activities. The Project Botanist will mark the locations of all special-status plant species and special-status plant communities observed for the	✔	✔	Pre-construction/Construction/ Post-construction	Conduct protocol level surveys for special-status plant species; Report findings; Restore temporary disturbed areas	Report findings at least 30 days prior to ground disturbance	Contractor	Contractor	Report findings at least 30 days prior to ground disturbance	Condition of Design/Build Contract Following requirements established by regulatory compliance permits	Impact BIO#1: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status plant species.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would disturb special-status plant species or suitable habitat that has the potential to support these species.
			✔	✔								Impact BIO#5: Project impacts from the Preferred Alternative would permanently impact

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		Contractor to avoid. Before the start of ground-disturbing activities, all populations of special-status plant species and special-status plant communities identified during Pre-construction surveys within 100 feet of the construction footprint will be protected and delineated by the Contractor (directed by the Project Botanist) as ERAs. As appropriate, the Project Botanist will update the mapping of special-status species or habitats of concern within the construction limits based on resource agency permits. Portions of the construction footprint that support special-status plant species that will be temporarily disturbed will be restored onsite to Pre-construction conditions. Before disturbance, Pre-construction conditions, including species composition, species richness, and percent cover of key species will be documented, and photo points will be established. If special-status plant species cannot be avoided, mitigation for impacts on these species will be documented (density, percent cover, key habitat characteristics, including soil type, associated species, hydrology, topography, and photo documentation of Pre-construction conditions) and incorporated into a relocation/compensation program, as defined in BIO-MM#17. The Project Botanist will provide verification of survey results and report									special-status plant species or suitable habitat that has the potential to support these species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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		findings through a memorandum to the Mitigation Manager to document compliance with this measure.										
BIO-MM#17	Prepare and Implement Plan for Salvage, Relocation and/or Propagation of Special-Status Plant Species	The Project Botanist will prepare a plan before the start of ground-disturbing activities to address monitoring, salvage, relocation, and propagation of special-status plant species. The relocation or propagation of plants and seeds will be performed at a suitable mitigation site approved by the appropriate regulatory agencies, and as appropriate per species. Documentation will include provisions that address the techniques, locations, 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, CDFW) will guide the development of the plan and performance standards. The Project Botanist will submit a memorandum to the Mitigation Manager to document compliance with this measure.	✔	✔	Pre-construction (Plan), Implementation during construction, Monitoring post-construction	Prepare/ Implement Plan and Report Compliance	Follow reporting requirements as established by regulatory compliance permits.	Contractor	Contractor	Follow reporting requirements as established by regulatory compliance permits.	Condition of Design Build Contract Salvage, Relocation, and Propagation of Special Status Plant Species Following requirements established by regulatory compliance permits	Impact BIO#1: Construction of the Preferred Alternative would directly or indirectly impact suitable habitat that has potential to support special-status plant species.
				✔								Impact BIO#3: Construction Effects on Habitats of Concern
			✔	✔								Impact BIO#5: Project impacts from the Preferred Alternative would permanently impact special-status plant species or suitable habitat that has the potential to support these species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#18	Conduct Pre-construction Sampling and Assessment for Vernal Pool Fauna	Before the start of ground-disturbing activities, the Project Biologist will conduct pre-construction aquatic assessment and sampling in seasonal wetlands and vernal pools in the construction	✔									Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		footprint. The approved biologists will visit the sites after initial storm events to determine when seasonal wetlands and vernal pools have been inundated. A seasonal wetland/vernal pool is considered to be inundated when it holds greater than 3 cm of standing water 24 hours after a rain event. Approximately 2 weeks after the pools are inundated, the biologists will conduct general aquatic surveys in appropriate seasonal wetland and vernal pool habitats. The sampling is an assessment that will be useful in understanding the species present and will help guide the implementation of the performance standards to be consistent with BIO-MM#20: Implement and Monitor Vernal Pool Protection. The Project Biologist will submit a report to the Mitigation Manager and Authority or its designee within 30 days of completing the field work. The report will provide the documentation and the results of the sampling, including the results of the data collection and a comparison with the performance standards.										status invertebrate species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#19	Seasonal Vernal Pool Work Restriction	For seasonal avoidance of special-status vernal pool branchiopods and vernal-pool-dependent species (e.g., vernal pool branchiopods, western spadefoot toads, California tiger salamanders), the Contractor will not work within 250 feet of suitable aquatic habitats (e.g., vernal	✔									Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔									Impact BIO#6:

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		pools, 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 and it is after April 15. If any work remains to be completed after October 15, the Contractor (under the direction of the Project Biologist) will install exclusion fencing and erosion control measures in those areas where construction activities need to be completed. The Project Biologist will document compliance through memoranda to the Mitigation Manager during the establishment of the fencing activities.										Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#20	Implement and Monitor Vernal Pool Protection	Although all temporary impacts on vernal pools are considered to be permanent and will be mitigated through offsite compensatory mitigation (see BIO-MM#63), vernal pools within the temporary construction footprint will be protected by erecting exclusion fencing, if they can be avoided. The Contractor will erect and maintain the exclusion fencing. For impacts on vernal pools within the temporary construction footprint that cannot be avoided, the Contractor, under the guidance of the Regulatory Specialist (Waters), will place rinsed gravel within the affected vernal pools and will	✔									Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#7: Project impacts from the Preferred

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		cover the affected vernal pools with geotextile fabric before the start of ground-disturbing activities to minimize damage to the soils and protect the contours. The Contractor, under the direction of the Regulatory Specialist (Waters), will collect a representative sampling of soils from the vernal pools before initiating ground-disturbing activities within the vernal pools. The representative soil samples will contain viable plant seeds and vernal pool branchiopod cysts to be preserved from the vernal pools. These samples may be incorporated into other vernal pools, as applicable, with USFWS and/or CDFW consultation. The Contractor will implement these measures within temporary impact areas adjacent to or within the construction footprint. Resource agency consultations with the USFWS and USACE will occur as needed and based on permit conditions. The Regulatory Specialist (Waters) will submit a memorandum on a weekly basis or at other appropriate intervals to the Mitigation Manager to document compliance with this measure. Because impacts to vernal pools within the temporary construction footprint are considered to be permanent impacts, these impacts will be mitigated through offsite mitigation, as described in BIO-MM#63. The Contractor will obtain approval from USACE, before the										Alternative would disturb portions of recovery plans.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		implementation of the above-described mitigation measures, for any unanticipated temporary impacts on vernal pools. If unanticipated temporary impacts last more than one full wet-dry season cycle, offsite mitigation will be implemented.										
BIO-MM#21	Implement Avoidance and Minimization Measures for the Valley Elderberry Longhorn Beetle	Before and during the implementation of ground-disturbing activities, the Project Biologist will direct the Contractor to implement the avoidance and minimization measures detailed in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999a). These measures include conducting protocol-level presence/absence surveys for this species, establishing and maintaining appropriate buffer areas around elderberry plants, restricting the use of chemicals that might harm beetles, and mowing restrictions. After ground-disturbing activities are completed, any damage to temporarily disturbed buffer areas surrounding elderberry shrubs will be restored as detailed in the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999a). The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔									Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#22	Conduct	Before the start of ground-	✔	✔	Pre-construction/ Construction	Pre-construction surveys	Weekly or at	Contractor	Contractor	Surveys conducted 30 days	Condition of Design Build	Impact BIO#2:

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
	Preconstruction Surveys for Special-Status Reptile and Amphibian Species	disturbing activities, the Project Biologist will conduct Preconstruction surveys in suitable habitats to determine the presence or absence of special-status reptiles and amphibian species within the construction footprint. Surveys will be conducted no more than 30 days before the start of ground-disturbing activities and will be phased with project build-out. The results of the Pre-construction survey will be used to guide the placement of the environmentally sensitive areas, ERAs, and wildlife exclusion fencing. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.				for special-status species, and establishment of ESAs and ERAs	other appropriate interval			prior to ground disturbance, During construction submit weekly reports or reporting requirements as established by regulatory compliance permits	Contract Following requirements established by regulatory compliance permits	Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#23	Conduct Special-Status Reptile and Amphibian Monitoring, Avoidance, and Relocation	During ground-disturbing activities, the Project Biological Monitor will observe all construction activities in habitat that supports special-status reptiles and amphibians. If suitable habitat is present and environmentally sensitive areas are deemed necessary, the Project Biological Monitor will conduct a clearance survey within the area for special-status reptiles and amphibians after wildlife exclusion fencing is installed. If a special-status reptile or amphibian is present during construction, the Contractor will avoid the special-status reptile or amphibian specie. Otherwise, the Project Biological Monitor will relocate	✔	✔	Construction	Monitoring during construction, reporting	Daily monitoring, weekly or reporting requirements as established by regulatory compliance permits	Contractor	Contractor	Daily monitoring, weekly or reporting requirements as established by regulatory compliance permits	Condition of Design Build Contract Following requirements established by regulatory compliance permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		special-status reptiles or amphibians (other than California tiger salamander) found in the Environmentally Sensitive Area or construction footprint to an area outside the construction area as determined through consultation with USFWS and/or CDFW. If necessary, clearance surveys will be conducted daily. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										Alternative would disturb portions of recovery plans.
BIO-MM#24	Conduct Protocol and Pre-construction Surveys for California Tiger Salamander	In the annual grassland and pasture habitats in the Cross Creek grassland region, protocol-level surveys will be conducted 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 and CDFG 2003). The purpose of these surveys will be to determine presence or absence of the California tiger salamander within the study area. Before the start of ground-disturbing activities, a qualified, agency-approved biologist (designated by the Project Biologist) will conduct visual pre-construction surveys in suitable habitats in the Cross Creek grassland region. Surveys will be conducted no more than 30 days before the start of ground-disturbing activities and will be phased with	✔		Pre-construction	Protocol and Pre-construction level surveys	Protocol level surveys, Pre-construction 30 day prior to construction; Weekly reporting or reporting requirements as established by regulatory compliance permits	Contractor	Contractor	Protocol level surveys (at least 1 year prior to ground disturbance), pre-construction 30 day prior to construction; Weekly reporting or reporting requirements as established by regulatory compliance permits	Condition of Design Build Contract Following requirements established by regulatory compliance permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		project build-out. In the unlikely event that California tiger salamander individuals are found within the project footprint during protocol-level pre-construction surveys, the Project Biologist will contact the USFWS and CDFW to identify appropriate avoidance and minimization measures to be implemented for this species. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#25	Implement Avoidance and Minimization Measures for California Tiger Salamander	The measures listed below will be implemented in the Cross Creek grassland region to avoid and minimize potential adverse effects to this species: ▪ The Contractor, under the direction of the Project Biologist will install, and maintain exclusion fencing along the perimeter of the construction footprint. The Project Biological Monitor will monitor the exclusion fencing to ensure that no take of California tiger salamander or destruction of their potential habitat outside of the project footprint occurs. Exclusion fencing will be composed of a combination of high-visibility construction fence and wildlife exclusion fence. Exclusion fencing must be trenched into the soil at least 4 inches in depth, with the soil compacted against both	✔		Construction	Establish exclusion fencing	Daily or Twice per week inspections (non-consecutive days), weekly reporting	Contractor	Contractor	Daily or twice per week inspections (non-consecutive days), weekly reporting	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		sides of the fence for its entire length to prevent central California tiger salamanders from passing under the fence. Barriers must be inspected by an USFWS-approved Project Biological Monitor at least twice weekly on non-consecutive days outside of the breeding season. Barriers will be inspected daily following any rain event and during months when juvenile central California tiger salamanders are most likely emigrating from their breeding ponds in search of burrows in surrounding upland habitat. Barriers will be installed by the Contractor with turn-arounds at any access openings needed in the fencing, to redirect central California tiger salamanders away from openings. ▪ The Contractor will not conduct construction activities within 250 feet of potential California tiger salamander breeding habitat during the wet season (October 15 through June 1); however, construction activities may begin once the habitat is no longer inundated for the season and it is after April 15. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		document compliance with this measure.										
BIO-MM#26	Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard	The Project Biologist will conduct protocol-level surveys in suitable habitats for the blunt-nosed leopard lizard within 1 year of each construction phase. These surveys will be conducted in areas of potential blunt-nosed leopard lizard habitat in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFG 2004). The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔		Pre-construction	Conduct Protocol level surveys; Reporting	Surveys within 1 year prior to construction; Reporting weekly or in Survey Methodology	Contractor	Contractor	Within 1 year prior to construction or as required in Survey Methodology	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibian species.
				✔								Impact BIO#2 – Construction effects on special-status reptiles and amphibian species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
				✔								Impact BIO#6: Project effects on special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
				✔								Impact BIO#7: Project effects would

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												disturb portions of recovery plans.
BIO-MM#27	Phased Pre-construction Surveys for Blunt-Nosed Leopard Lizard	The Project Biologist will conduct visual pre-construction surveys in areas of potential blunt-nosed leopard lizard habitat no more than 30 days before ground-disturbing activities. The Project Biological Monitor will conduct daily clearance surveys before construction activities. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure	✔		Construction	Pre-construction Surveys; Daily clearance surveys; reporting	Surveys within 30 days prior to ground disturbance; daily clearance surveys; weekly reporting or reporting requirements as established by regulatory compliance permits	Contractor	Contractor	Surveys within 30 days prior to ground disturbance; daily clearance surveys; weekly reporting or reporting requirements as established by regulatory compliance permits	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibian species.
				✔								Impact BIO#2 – Construction effects on special-status reptiles and amphibian species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
				✔								Impact BIO#6: Project effects on special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
				✔								Impact BIO#7: Project effects would disturb portions of recovery plans.
BIO-MM#28	Blunt-Nosed Leopard Lizard Avoidance	During the active season (April 15 through October 15), in areas where blunt-nosed leopard lizards or blunt-nosed leopard lizard signs are	✔		Construction	Establish buffers, vegetation removal, pre-construction survey, and passive relocation; erect barriers; monitoring and	Weekly reporting	Contractor	Contractor	Weekly reporting	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		present, the following measures will be implemented: ▪ Following the phased pre-construction survey for blunt-nosed leopard lizard within the construction footprint (see BIO-MM#27), if active burrows or egg clutch sites are identified within the construction footprint, the Contractor and Project Biologist will establish, maintain, and monitor 50-foot buffers around active burrows and egg clutch sites. The 50-foot buffers will be established around the active burrow and clutch sites in a manner that allows for blunt-nosed leopard lizard to leave the construction footprint after the young have hatched. Project activities within the 50-foot buffers, including vegetation clearing and grubbing (as described below), will be prohibited until the eggs have hatched and blunt-nosed leopard lizard have been allowed to leave the construction footprint, as determined by the Project Biologist. ▪ Following the phased pre-construction survey for blunt-nosed leopard lizard within the construction footprint (see BIO-MM#27), if no active burrows or egg clutch sites are identified within the construction footprint, the Contractor, under the direction of the Project Biologist will				reporting						has potential to support special-status reptiles and amphibian species. Impact BIO#2 – Construction effects on special-status reptiles and amphibian species. Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species. Impact BIO#6: Project effects on special-status reptiles and amphibian species. Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans. Impact BIO#7: Project effects would disturb portions of recovery plans.
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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		conduct vegetation clearing and grubbing activities with hand tools. Cleared vegetation will be cut to 4 inches above the ground level, and all trimmings will be removed from the construction footprint. The vegetation-free work area will be allowed to sit undisturbed for a minimum of 72 hours to allow blunt-nosed leopard lizards to passively relocate from the site. A follow-up pre-construction survey will be conducted in the vegetation-free work area to look for blunt-nosed leopard lizards or their sign. Any blunt-nosed leopard lizards observed during the follow-up survey will be allowed to leave the work site on their own accord. Immediately after the follow-up pre-construction survey of the vegetation-free work area, the construction footprint will be delineated with high-visibility construction fence and a wildlife exclusion fence with "a non-gaping, non-climbable barrier using a rigid and non-climbable material." The vegetation-free work area within the wildlife exclusion fence will be maintained by the Contractor and monitored daily by the Project Biologist. ▪ The Contractor will conduct ground-disturbing activities when air temperatures are between 75 and 95										

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		degrees Fahrenheit. The temperature range corresponds to the period when this species is moving around and can avoid danger. During the non-active season (October 16 through April 14), suitable blunt-nosed leopard lizard burrows identified during protocol-level and pre-construction surveys will be avoided by the Contractor. A 50-foot no-work buffer will be established around burrows to prevent impacts until the active season, when blunt-nosed leopard lizards will be able to leave the vegetation-free work area on their own accord. The no-work buffer will be established by routing the high-visibility construction fence and wildlife exclusion fence around the suitable burrow sites in a manner that allows for a connection between the burrow site and the suitable natural habitat adjacent to the footprint so that blunt-nosed leopard lizard individuals are able to leave the construction footprint during the active season. If construction activities are required during this period, the appropriate measures will be established through consultation with USFWS and CDFW. Non-disturbance exclusion zones will be maintained by the Contractor and monitored by USFWS-approved biological monitor(s) to avoid the possibility for take of lizards, their burrows/nests, or										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		the species' habitat outside of the project footprint. If blunt-nosed leopard lizards are observed at any time during protocol-level surveys, phased pre-construction surveys, or during construction, USFWS and CDFW will be contacted. Appropriate measures to avoid take of the species will be established through consultation with the USFWS and CDFW. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#29	Conduct Preconstruction Surveys and Delineate Active Nest Exclusion Areas for Other Breeding Birds	Before the start of ground-disturbing activities, the Project Biologist will conduct visual Preconstruction surveys where suitable habitats are present for nesting birds protected by the MBTA if construction and habitat removal activities are scheduled to occur during the bird breeding season (February 1 to August 15). In the event active bird nests are encountered during the Pre-construction survey, the Project Biologist in conjunction with the Contractor will establish nest avoidance buffer zones as appropriate. The buffer distances will be consistent with the intent of the MBTA. The Project Biologist will delineate nest avoidance buffers established for ground-nesting birds in a manner that does not create predatory bird perch points in	✔	✔	Pre-construction	Pre-construction surveys, and establish nest buffers	Surveys conducted prior to disturbance; Report weekly or as established by regulatory compliance permits	Contractor	Contractor	Surveys conducted prior to disturbance; Report weekly or as established by regulatory compliance permits	Condition of Design Build Permit	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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		close proximity (150 feet) to the active nest site. The Project Biologist or Biological Monitor will periodically monitor active bird nests. The Project Biologist will maintain the nest avoidance buffer zone until nestlings have fledged and are no longer reliant on the nest or parental care for survival or the nest is abandoned (as determined by the Project Biologist). The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#30	Conduct Preconstruction Surveys and Monitoring for Raptors	No more than 14-days before the start of ground-disturbing activities, the Project Biologist will conduct visual Pre-construction surveys where suitable habitats are present for nesting raptors if construction and habitat removal activities are scheduled to occur during the bird-breeding season (February 1 to August 15). Surveys will be conducted in areas within the construction footprint and, where permissible, within 500 feet of the construction footprint for raptor species (not Fully Protected species) and 0.5 mile of the construction footprint for Fully Protected raptor species. The required survey dates will be modified based on local conditions. If breeding raptors with active nests are found, the Project Biologist in conjunction with the Contractor will establish a	✔	✔	Pre-construction/ Construction	Pre-construction surveys, and establishment of nest buffers	Surveys conducted no more than 14 days prior to construction; Report weekly or as established by regulatory compliance permits	Contractor	Contractor	Surveys conducted no more than 14 days prior to construction; Report weekly or as established by regulatory compliance permits	Condition of Design Build Permit	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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		500-foot buffer around the nest to be maintained until the young have fledged from the nest and are no longer reliant on the nest or parental care for survival or the nest fails (as determined by the Project Biologist). If fully protected raptors (e.g., white tailed-kite) with active nests are found, the Project Biologist in conjunction with Contractor will establish a 0.5-mile buffer around the nest to be maintained until the young have fledged from the nest or the nest fails (as determined by the Project Biologist). Adjustments to the buffer(s) will require prior approval by USFWS and/or CDFW. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#31	Bird Protection	During Final Design, the Project Biologist will verify that the catenary system, masts, and other structures such as fencing are designed to be bird and raptor-safe in accordance with the applicable recommendations presented in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006 (APLIC 2006) and Reducing Avian Collisions with Power Lines: State of the Art in 2012 (APLIC 2012). The Project Biologist will check the final design drawings and submit a memorandum to the Mitigation Manager to document	✔	✔	Construction	Verify structures are raptor safe in accordance with APLIC guidance; Compliance Reporting	Prior to Final Design	Contractor	Contractor	Prior to Final Design	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		compliance with this measure.	✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#32	Conduct Protocol and Pre-construction Surveys for Swainson's Hawks	The Project Biologist will conduct Pre-construction surveys for Swainson's hawks as described in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee [SHTAC] 2000). Surveys will be performed during the nesting season (March 1 through August 1) in the year before ground-disturbing activities within the construction footprint and within a 0.5-mile buffer, where access is permitted. The Pre-construction nest surveys following the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Technical Advisory Committee 2000) will be phased with project build-out. The Pre-construction surveys will determine the status (i.e., active, inactive) of observed nests. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔	✔	Pre-construction	Conduct Protocol and Pre-construction Surveys; Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#33	Swainson's Hawk Nest Avoidance and	If active Swainson's hawk nests (defined as a nest used one or more times in the last 5	✔	✔	Construction	Establish active nest buffers; Compliance	Weekly or as established by	Contractor	Contractor	Weekly or as established by	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
	Monitoring	years) are found within 0.5-mile of the construction footprint during the nesting season (March 1 to August 1), the active nests within the 0.50-mile buffer of the construction footprint will be monitored daily by the Project Biological Monitor to assess whether the nest is occupied. If the nest is occupied, the health and status of the nest will be monitored until the young fledge or for the length of construction, whichever occurs first. The Project Biologist in conjunction with the Contractor, will implement buffers restricting construction activities, following CDFW'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) may be made in consultation with CDFW. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.				Reporting	regulatory compliance permits			regulatory compliance permits	Condition of regulatory permits	would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#34	Monitor Removal of Nest Trees for Swainson's Hawks	Before the start of ground-disturbing activities, the Project Biological Monitor will monitor nest trees for Swainson's hawks in the construction footprint following the guidelines and methods presented in the Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (SHTAC 2000). If an occupied	✔	✔	Construction	Monitor Swainson's hawk nest trees; Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		Swainson's hawk nest must be removed, the Authority will obtain take authorization through a Section 2081 Incidental Take Permit (including compensatory mitigation to offset the loss of the nest tree) from CDFW. If ground-disturbing activities or other project activities may cause nest abandonment by a Swainson's hawk or forced fledging within the specified buffer area, monitoring of the nest site by the Project Biological Monitor will be conducted to determine if the nest is abandoned. Removal of nesting trees outside of the nesting season (generally between October 1 and February 1) does not require authorization under the Section 2081 Incidental Take Permit. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#35	Conduct Protocol Surveys for Burrowing Owls	Before the start of ground-disturbing activities a qualified, agency-approved biologist, designated by the Project Biologist, will conduct protocol-level surveys in accordance with CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012c). The Project Biologist or designee will conduct these surveys at appropriate timeframes within suitable habitat located in the construction footprint. Results of the surveys will be used to inform BIO-MM#36. These	✔	✔	Pre-construction	Protocol level surveys; Compliance Reporting	Weekly or at other appropriate interval	Contractor	Contractor	Weekly or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		surveys will be conducted within suitable habitat of the construction footprint and within a 150-meter (approximately 500-foot) buffer. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#36	Burrowing Owl Avoidance and Minimization	The Project Biologist will implement burrowing owl avoidance and minimization measures following CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012). During the nesting season (February 1 through August 31) occupied burrowing owl burrows will not be disturbed unless it is verified that either the birds have not begun egg-laying and incubation or the juveniles from the occupied burrows are foraging independently and are capable of independent survival (as determined by the Project Biologist). Unless otherwise authorized by CDFW, the Project Biologist in conjunction with the Contractor, will establish buffers (as an ESA) between the construction work area and occupied burrowing owl nesting sites as described in Table 3.7-19. Adjustments to the buffer(s) will require prior approval by CDFW. Eviction of burrowing owls outside the nesting season may be permitted pending evaluation of eviction plans and receipt of formal written approval from	✔	✔	Construction	Establish exclusion zones or buffers; Compliance Reporting	Weekly or at other appropriate interval	Contractor	Contractor	Weekly or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
				✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		the CDFW authorizing the eviction. If burrowing owls must be moved from the project area, the Project Biologist will undertake passive relocation measures, including monitoring, in accordance with CDFW's (CDFG 2012) guidelines. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure. Table 3.7-19 California Department of Fish and Wildlife recommended restricted activity dates and setback distances by level of disturbance for burrowing owls Location Time of Year Level of Disturbance Low Medium High Nesting Sites April 1–Aug 15 200 m 500 m 500 m Nesting Sites Aug 16-Oct 15 200 m 200 m 500 m Nesting Sites Oct 16-March 31 50 m 100 m 500 m										
BIO-MM#37	Conduct Surveys for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse	Before the start of construction, the Project Biologist will conduct a habitat assessment in potentially suitable habitat within the project footprint to determine presence of special-status small mammal species burrows or their signs. The habitat assessment surveys will be conducted within 2 years, and no more than 14 days before the start of construction or ground-disturbing activities and may be phased with project build-out. If no burrows or signs of special-status small mammal	✔ ✔	✔ ✔	Pre-construction	Habitat Assessment	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species. Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		species are detected, no further measures will be required. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.[3]										species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#38	Implement Avoidance and Minimization Measures for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse	If during the habitat assessment, burrows or signs of special-status small mammal species are detected, the Project Biologist will establish non-disturbance exclusion zones (i.e., wildlife exclusion fencing [e.g., a silt fence or similar material]) in areas where special-status small mammal species are believed to be present. Non-disturbance exclusion zones will be established at least 14 days before the start of ground-disturbing activities. The non-disturbance exclusion fence with one-way exit/escape points will be placed to exclude the special-status small mammals from the construction area. The wildlife exclusion fence will be established around burrows in a manner that allows state-listed species to leave the construction footprint. Additional measures such as one or both of the following will be implemented after the exclusion fencing is installed. ▪ The Contractor will trim and clear vegetation to the ground by hand or using hand-operated equipment to discourage the presence	✔	✔	Pre-construction	Protocol level surveys; Compliance Reporting	Weekly or at other appropriate interval	Contractor	Contractor	Weekly or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

[3] This measure is applicable to the F-B LGA, except for the portion of the measure specific to Dulzura pocket mouse, as no suitable habitat for this species is present in the habitat study area; therefore, the F-B LGA would not affect this species.

Table 1
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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		of special-status small mammal species in the construction footprint. The cleared vegetation will remain undisturbed by project construction equipment for 14 days to allow species to passively relocate through the one-way exit/escape points along the wildlife exclusion fencing. ▪ A qualified, agency-approved biologist, designated by the Project Biologist, will conduct small-mammal trapping and relocation in general accordance with the survey protocols in the California Valley Solar Ranch Project: Plan for Relocation of Giant Kangaroo Rats (*Dipodomys ingens*) (H.T. Harvey & Associates 2011) or as determined in consultation with CDFW and USFWS.[4]									
BIO-MM#39	Implement Avoidance and Minimization Measures for Fresno Kangaroo Rat	Before the start of ground-disturbing activities, a qualified agency-approved biologist, designated by the Project Biologist, will conduct a habitat assessment on any parcels within the project footprint that may support the Fresno kangaroo rat to determine presence of kangaroo rat burrows or their signs. If no burrows or signs of kangaroo rats are detected and kangaroo rats are confirmed to be absent from the construction footprint, the following actions will be	✔		Pre-construction	Habitat assessment; Agency Coordination; Compliance Reporting	Weekly Reporting or at other appropriate interval	Contractor	Contractor	Weekly Reporting or at other appropriate interval	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-

[4] This measure is applicable to the F-B LGA, except for the portion of the measure specific to Dulzura pocket mouse, as no suitable habitat for this species is present in the habitat study area; therefore, the F-B LGA would not affect this species.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		implemented: ▪ The Project Biologist will install, maintain, and monitor exclusion fencing along the perimeter of the construction footprint to ensure that no take of Fresno kangaroo rat or destruction of their potential habitat outside of the project footprint occurs. ▪ The Contractor, under the supervision of the Project Biologist, will trim and clear vegetation to the ground by hand or using hand-operated equipment to discourage small-mammal presence in the construction footprint. The area from which the vegetation was cleared will remain undisturbed by project construction equipment for 14 days to allow other small-mammal species to passively relocate through the one-way exit/escape points along the wildlife exclusion fencing. In the unlikely event that kangaroo rat individuals, their burrows, or signs of them are found within the project footprint during the habitat assessment, the USFWS and CDFW will be notified immediately and the FRA will reinitiate consultation to identify appropriate avoidance and minimization measures to be implemented for this species, such as: ▪ With agency permission, small-mammal trapping may be conducted by a	✔									status mammal species. Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		qualified biologist(s) with the necessary permits. The trapping surveys will be conducted in general accordance with California Valley Solar Ranch Project: Plan for Relocation of Giant Kangaroo Rats (*Dipodomys ingens*) (H.T. Harvey & Associates 2011) or as determined in consultation with either USFWS or CDFW and will be limited to the dry, summer months on evenings when the nightly low temperature is forecast to exceed 50°F. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#40	Conduct Preconstruction Surveys for Special-Status Bat Species	Before the start of ground-disturbing activities, a qualified, agency-approved biologist, designated by the Project Biologist, will conduct a visual and acoustic Pre-construction survey for roosting bats. A minimum of one day and one evening will be included in the visual Pre-construction survey. The Project Biologist, in coordination with the Mitigation Manager and Authority, will contact CDFW if any hibernation roosts or active nurseries are identified within or immediately adjacent to the construction footprint, as appropriate. The Project Biologist will submit a memorandum, on a weekly	✔	✔	Pre-construction	Pre-construction Surveys, Compliance Reporting	Weekly or at other appropriate interval	Contractor	Contractor	Weekly or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#41	Bat Avoidance and Relocation	During ground-disturbing activities, if active or hibernation roosts are found, the Contractor will avoid them, if feasible, for the period of activity. If avoidance of the hibernation roost is not feasible, the Project Biologist, will prepare a relocation plan and coordinate the construction of an alternative bat roost with CDFW. The Contractor, under the direction of the Project Biologist will implement the Bat Roost Relocation Plan before the commencement of construction activities. The Contractor, under the supervision of the Biological Monitors, will remove roosts with approval from CDFW before hibernation begins (October 31), or after young are flying (July 31), using exclusion and deterrence techniques described in BIO-MM#42, below. The timeline to remove vacated roosts is between August 1 and October 31. All efforts to avoid disturbance to maternity roosts will be made during construction activities. The Project Biologist will submit a memorandum to the Mitigation Manager, on a weekly basis or at other appropriate intervals, to document compliance with this measure.	✔	✔	Construction	Bat Roost Relocation Plan; Compliance Reporting	Weekly or at other appropriate interval	Contractor	Contractor	Weekly or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#42	Bat Exclusion and Deterrence	During ground-disturbing activities, if non-breeding or non-hibernating individuals or	✔	✔	Construction	Bat Exclusion and Deterrence; Compliance	Weekly or at other appropriate	Contractor	Contractor	Weekly or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative

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		groups of bats are found within the construction footprint, the Project Biologist will direct the Contractor to safely exclude the bats by either opening the roosting area to change the lighting and air-flow conditions or installing one-way doors or other appropriate methods specified by CDFW. The Contractor will leave the roost undisturbed by project activities for a minimum of 1 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 Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.				Reporting	interval					would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#43	Conduct Preconstruction Surveys for American Badger and Ringtail	Before the start of ground-disturbing activities, the Project Biologist will conduct Pre-construction surveys for den sites within suitable habitats in the construction footprint. These surveys will be conducted no more than 30 days before the start of ground-disturbing activities and phased with project build-out. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔	✔	Pre-construction	Conduct Pre-construction surveys; Compliance Reporting	Weekly Reporting or at other appropriate interval	Contractor	Contractor	Weekly Reporting or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#44	American Badger and Ringtail Avoidance	The Contractor, under the direction of the Project Biologist, will establish a 50-foot buffer around occupied dens. The Contractor and Project Biologist will establish a 100-foot buffer around maternity dens through the pup-rearing season (American badger: February 15 through July 1; Ringtail: May 1 through June 15). Adjustments to the buffer(s) will require prior approval by CDFW as coordinated by the Project Biologist, under the supervision of the Mitigation Manager. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔	✔	Construction	Establish buffer around active dens; Compliance Reporting	Weekly Reporting or at other appropriate interval	Contractor	Contractor	Weekly Reporting or at other appropriate interval	Condition of Design Build Contract	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#45	Conduct Preconstruction Surveys for San Joaquin Kit Fox	Before the start of ground-disturbing activities, the Project Biologist will conduct Preconstruction surveys in accordance with USFWS' San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999b). Preconstruction surveys for the kit fox will be conducted between May 1 and September 30 within the	✔	✔	Pre-construction	Conduct Pre-construction Survey for San Joaquin kit fox; Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		study area in suitable habitat areas (alkali desert scrub, annual grassland, pasture, barren, and compatible-use agricultural lands) to identify known or potential San Joaquin kit fox dens. Pre-construction surveys will be conducted by a USFWS-approved project biologist within 30 days before the start of construction or ground-disturbing activities and will be phased with project build-out. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#46	Minimize Impacts on San Joaquin Kit Fox	The Contractor, under direction of the Project Biologist, will implement USFWS' Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS [1999] 2011) to minimize ground disturbance-related impacts on this species. The Project Biologist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔	✔	Construction	Implement Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance; Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
BIO-MM#47	Restore Temporary Riparian Impacts	During post-construction, the Contractor, under the direction of the Project Botanist, will revegetate all disturbed valley foothill riparian areas using appropriate plants and seed mixes. The Project Botanist will monitor restoration activities consistent with provisions in the RRP, as described in BIO-MM#6. The Project Botanist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager documenting compliance and other reporting requirements required by the regulatory agency permits (e.g., 1600 Streambed Alteration Agreement).		✔	Post-construction	Restoration of temporary disturbance areas; Compliance Reporting	Weekly Reporting or as established by regulatory compliance permits (BIO-MM# 62)	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#1 Construction Effects on Special-Status Plant Species
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would disturb special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters.
				✔								Impact BIO#5: Project impacts from Preferred Alternative would permanently impact special-status plant species or suitable habitat that has potential to support these species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect jurisdictional waters.
			✔	✔								Impact BIO#7: Project impacts from

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#48	Restore Temporary Impacts on Jurisdictional Waters	During or after the completion of construction, the Contractor, under direction of the Regulatory Specialist (Waters) and Project Botanist, will restore disturbed jurisdictional waters to original topography using stockpiled and segregated soils. In areas where gravel or geotextile fabrics have been placed to protect substrate and minimize impacts on jurisdictional waters, these materials will be removed and affected features will be restored. The Contractor, under supervision of the Project Botanist, will conduct revegetation using appropriate plants and seed mixes. The Authority will conduct maintenance monitoring consistent with the provisions in the RRP (BIO-MM#6). The Project Botanist will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.	✔	✔	Construction or Post-construction	Restoration of temporary disturbance areas; Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor, Authority	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#3: Construction of the Preferred Alternative would disturb special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#49	Monitor Construction Activities within Jurisdictional Waters	During ground-disturbing activities, the Regulatory Specialist (Waters) and Project Biological Monitor will conduct monitoring within and adjacent to jurisdictional waters, including monitoring of the installation of protective devices (silt fencing, sandbags, fencing, etc.), installation and/or removal of	✔		Construction	Compliance Monitoring, Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔									Impact BIO#2: Construction of the

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		creek crossing fill, construction of access roads, vegetation removal, and other associated construction activities. The Project Biological Monitor will conduct biological monitoring to document adherence to habitat avoidance and minimization measures addressed in the project mitigation measures, including, but not limited to, the provisions outlined in BIO-MM#5, BIO-MM#7, BIO-MM#8, BIO-MM#10, BIO-MM#12 through BIO-MM#15, BIO-MM#47, and BIO-MM#48. The monitor will also document adherence to all relevant conservation measures as listed in the USFWS, CDFW, SWRCB, and USACE permits. The Regulatory Specialist (Waters) will submit a memorandum, on a weekly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										Preferred Alternative would disturb the suitable habitat that has potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would disturb special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												permanently impact special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect jurisdictional waters.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#50	Mitigation and Monitoring of Protected Trees	Before, during, and after construction, the following methods to preserve and/or mitigate for impacts on protected trees will be implemented: ▪ A qualified biologist, designated by the Project Botanist, will conduct surveys before removal or disturbance to evaluate the condition of all protected trees found within areas directly and indirectly affected by the Fresno to Bakersfield Section. ▪ The Authority will compensate for impacts and effects to protected tree resources, including removal or trimming of naturally occurring native protected trees and landscape or ornamental trees (see BIO-MM#64, Compensate for Impacts on Protected Trees). ▪ The Contractor, under the direction of the Project		✔	Pre-construction/ Construction/ Post-construction	Conduct Surveys prior to removal; Provide tree protection; Authority Compensate for Impacts	Monthly	Contractor	Contractor	Monthly	Condition of Design Build Contract	Impact BIO#3: Construction of the Preferred Alternative would disturb portions of recovery plans.
				✔								Impact BIO#3: Construction of the Preferred Alternative would permanently affect protected trees.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect protected trees.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		Botanist, will fence protected trees that may be indirectly affected by construction activities 5 feet from their drip lines to form ERAs. ▪ The Authority will prepare and implement a monitoring and maintenance program that monitors transplanted trees for reestablishment of root systems. The Project Botanist will submit a memorandum to the Mitigation Manager to document compliance with this measure.										
BIO-MM#51	Install Flashing or Slats within Security Fencing	During construction , the Contractor, under the direction of the Project Biologist, will install permanent security fencing consistent with the final design along portions of the project that are adjacent to wildlife movement corridors and natural habitats (e.g., alkali desert scrub, annual grassland). The security fencing will be enhanced with flashing or slats for 6 inches below ground surface to 12 inches above to prevent special-status reptiles and mammals from moving into the right-of-way. The fencing flashing or slats will be maintained during operation of the HSR project. The Project Biologist will verify that the installation is consistent with the designated terms and conditions in the applicable permits. The design of the reptile and mammal-proof fencing and the exact locations where reptile and	✔	✔	Construction	Install fencing enhanced with flashing or slats; Reporting	Yearly	Contractor	Contractor	Yearly	Condition of Design Build Contract Requirement of Regulatory Agency Permits	Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#4: Construction of the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
			✔	✔								Impact BIO#6: Project Effects on Special-Status Wildlife
				✔								Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		mammal-proof fencing will be installed will be determined in consultation with USFWS and CDFW. The Project Biologist will submit a memorandum, on a yearly basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#52	Construction in Wildlife Movement Corridors	Before the start of ground-disturbing activities, the Project Biologist will submit a construction avoidance and minimization plan for wildlife movement linkages (e.g., SR 43–Garces Highway and Deer Creek–Sand Ridge linkages, Kern River linkage) to the Authority via the Mitigation Manager for concurrence. The plan will limit the use of construction and avoid permanent fencing in wildlife movement linkages where the viaducts (e.g., elevated platforms) or bridges are included in the final design. The Contractor will minimize ground-disturbing activities within the wildlife linkages (e.g., SR 43–Garces Highway and Deer Creek–Sand Ridge linkages) during nighttime hours to the extent practicable. The Contractor will also keep nighttime illumination (e.g., for security) from spilling into the linkages or shield nighttime lighting to avoid illumination spilling into the linkages. Inspections by the Project Biologist will verify compliance with this measure. The Project Biologist will submit a memorandum, on a weekly basis or at other	✔	✔	Pre-construction	Prepare Avoidance and Minimization Plan for Construction in Wildlife Movement linkages	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Construction in Wildlife Movement Linkages Plan	Impact BIO#2: Construction Effects on Special-Status Wildlife
				✔								Impact BIO#4: Construction of the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		appropriate intervals, to the Mitigation Manager to document compliance with this measure.										
BIO-MM#53	Compensate for Impacts on Special-Status Plant Species	Before final design, the Authority will mitigate the impacts on special-status plants in accordance with the USFWS Biological Opinion (USFWS 2013) by implementing the following measures: ▪ Compensation for federally listed plant species that are observed within the project footprint and that cannot be avoided will be compensated at a 1:1 ratio based on actual acres of direct effects by the following: a. Identification of suitable sites to receive the listed plants. i. Pixley National Wildlife Refuge, Allensworth Ecological Reserve/State Historic Park, Kern National Wildlife Refuge, Atwell Island, Alkali Sink Ecological Reserve, Semitropic Ecological Reserve, and Kern Water Bank. ii. Authority-proposed permittee-	✔	✔	Pre-construction/ Construction/ Post-construction	Compliance Report	Before final design	Authority	Authority	Before final design	Authority to compensatory based on extent of special-status plant species impacted by the Contractor Regulatory agency permit requirements	Impact BIO#1: Construction of the Preferred Alternative would directly or indirectly impact suitable habitat that has potential to support special-status plant species.
				✔								Impact BIO#3: Construction of the Preferred Alternative would permanently impact special-status plant communities, and riparian areas.
				✔								Impact BIO#3: Construction of the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#5: Project impacts from Preferred Alternative would permanently impact special-status plant species or suitable habitat that has potential to support these species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plant communities, and riparian areas.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		responsible mitigation sites. iii. Other locations approved by USFWS. b. Collection of seeds, plant materials, and top soil from the project footprint before construction impacts. The Authority or its designee will submit a memorandum to the USFWS and or CDFW to document compliance with this measure.[5]	✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#54	Compensate for Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp	The Authority will mitigate direct and indirect impacts, including temporary and permanent, on vernal pool branchiopod habitat through compensation determined in consultation with the USFWS and USACE. Compensation for vernal pool branchiopod habitat (e.g., vernal pools, seasonal wetlands) is addressed under compensation for impacts on jurisdictional waters (BIO-MM#63). The Authority or its designee will submit a memorandum to the USFWS to document compliance with this measure.	✔		Pre-construction, Construction, Post-construction	Compliance Report	Prior to Operation	Authority	Authority	Prior to Operation	Authority to compensatory based on amount suitable habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would

[5] This measure is applicable to the F-B LGA, except for the portion of the measure specific to Dulzura pocket mouse, as no suitable habitat for this species is present in the habitat study area; therefore, the F-B LGA would not affect this species.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												disturb portions of recovery plans.
			✔									Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
BIO-MM#55	Compensate for Impacts on Valley Elderberry Longhorn Beetle	The Authority will provide compensatory mitigation for the valley elderberry longhorn beetle, including transplantation and replacement of elderberry shrubs and maintenance for replacement shrubs following the Conservation Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999a). The performance criteria include a minimum survival rate of at least 60% of the elderberry plants, and 60% of the associated native plants must be maintained throughout the monitoring period. If survival drops below 60%, failed plantings shall be replaced. The Authority will submit a memorandum to the USFWS to document compliance with this measure.	✔		Pre-construction, Construction, Post-construction	Compliance Report	Transplant Pre-construction; Compensatory prior to Operation	Authority	Authority	Transplant Pre-construction; Compensatory prior to Operation	Authority to compensatory based on number of host plants for the valley elderberry longhorn beetle impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔									Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
BIO-MM#56	Compensate for Impacts on California Tiger Salamander	If compensatory mitigation is required to offset the loss of habitat for California tiger salamander, the Authority will determine the compensation through consultation with the USFWS. 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 USFWS. The Authority will submit a memorandum to the USFWS and CDFW to document compliance with this measure	✔		Pre-construction, Construction, Post-construction	Compliance Report	Prior to Operation	Authority	Authority	Prior to Operation	Authority to compensatory based on amount suitable habitat for California tiger salamander impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb the suitable habitat that has potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔									Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
BIO-MM#57	Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel	The Authority will determine compensatory mitigation to offset the permanent and temporary loss of suitable habitat for the blunt-nosed leopard lizard, Tipton kangaroo rat, and Nelson's antelope squirrel through consultation with the USFWS and/or CDFW. Compensatory mitigation could include one of	✔	✔	Pre-construction/ Construction/ Post-construction	Compliance Report	Prior to operation	Authority	Authority	Prior to operation	Authority to compensatory based on amount suitable habitat for Blunt-nosed leopard lizard, Tipton kangaroo rat and Nelson's Antelope Squirrel impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb the suitable habitat that has potential to support special-status reptiles and amphibian species.
				✔								Impact BIO#4: Construction impacts

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		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 USFWS. The Authority will submit a memorandum to the USFWS and or CDFW to document compliance with this measure.										from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
BIO-MM#58	Compensate for Loss of Swainson's Hawk Nesting Trees	To compensate for the loss of occupied Swainson's hawk nesting trees or mortality to offspring, the Authority will provide project specific compensatory mitigation that replaces nesting trees and provides natural lands for foraging. Compensatory mitigation for Swainson's hawk will be based on the number of trees with "active" nests that are removed by	✔	✔	Pre-construction/ Construction/ Post-construction	Compliance Report	Prior to operation	Authority	Authority	Prior to operation	Authority to compensatory based on amount of habitat for Swainson's hawks impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
				✔								Impact BIO#4: Construction impacts from the Preferred

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		construction activities, or where construction activities create a significant habitat modification that leads to a reduction in reproductive success, or nest abandonment. If project construction occurs within 0.5 mile of a documented or observed active nest, the Authority will acquire and preserve 150 acres of natural habitat, per active nest tree removed by construction activities, or where construction activities create a significant habitat modification that leads to reduce reproductive success or nest abandonment. At a minimum, the habitat preserved will contain trees suitable to support nesting and natural foraging habitat for Swainson's hawk. The Authority will submit a memorandum to the CDFW to document compliance with this measure.										Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
BIO-MM#59	Compensate for Loss of Burrowing Owl Active Burrows and Habitat	To compensate for permanent impacts on nesting, occupied, and satellite burrows and/or burrowing owl habitat, the Authority will provide compensatory mitigation based on CDFW's (CDFG 2012) Staff Report on Burrowing Owl Mitigation. The Authority will submit a memorandum to the CDFW to document compliance with this measure.	✔	✔	Pre-construction/Construction/ Post-construction	Compliance Report	Prior to operation	Authority	Authority	Prior to operation	Authority to compensatory based on number of burrowing owl burrows impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support nesting special-status bird species (including raptors).
				✔								Impact BIO#4: Construction impacts from the Preferred Alternative would

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
												permanently reduce the functionality of wildlife movement corridors and habitat linkages.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
BIO-MM#60	Compensate for Destruction of San Joaquin Kit Fox Habitat	The Authority will mitigate the destruction of San Joaquin kit fox habitat by the purchase of suitable, approved habitat (USFWS and CDFW). Habitat will be replaced at a minimum ratio of 1:1 for natural lands and a ratio of 0.1:1 for suitable urban or agricultural lands to provide additional protection and habitat in a location that is consistent with the recovery of the species. The Authority will mitigate the impacts on San Joaquin kit fox in accordance	✔	✔	Post-construction	Compliance Memo	Prior to operation	Authority	Authority	Prior to operation	Authority to compensatory based on area of habitat for San Joaquin kit fix impacted by the Contractor Regulatory agency permit requirements	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#3: Construction of the Preferred Alternative would disturb areas located in USFWS recovery plans.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		with the USFWS Biological Opinion (USFWS 2013) and/or CDFW 2081(b). The Authority will submit a memorandum to the USFWS and CDFW to document compliance with this measure.		✔								Impact BIO#4: Construction impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔									Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
			✔	✔								Impact BIO#8: Project impacts from the Preferred Alternative would permanently reduce the functionality of wildlife movement corridors and habitat linkages.
BIO-MM#61	Compensate for Permanent Riparian Impacts	The Authority will compensate for permanent impacts on riparian habitats (i.e., valley foothill riparian), as determined in consultation with the appropriate agencies (e.g., CDFW), by restoring nearby areas to suitable habitat and/or by purchasing credits in a mitigation bank.		✔	Post-construction	Compliance Memo	Prior to operation	Authority	Authority	Prior to operation	Authority to compensatory based on area of permanent riparian habitat impacted by the Contractor Regulatory agency permit requirements	Impact BIO#1 Construction Effects on Special-Status Plant Species
				✔								Impact BIO#2: Construction Effects on Special-Status Wildlife
			✔	✔								Impact BIO#3: Construction of the

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		The Comprehensive Mitigation and Monitoring Plan will provide the planning details. Compensation will be based on the following ratio (acres of mitigation to acres of impact), pending agency confirmation: Valley Foothill Riparian: 2:1. The Authority will submit a memorandum to the SWRCB to document compliance with this measure.										Preferred Alternative would disturb special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters.
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect jurisdictional waters.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.
BIO-MM#62	Prepare and Implement a Site-Specific Comprehensive	As part of the USFWS, USACE, SWRCB, and CDFW permit applications and before the start of ground-disturbing		✔	Pre-construction/ Construction/ Post-construction	Authority responsible for the preparation of and implementation of the CMMP, monitoring, and	Prepare CMMP Pre-construction; Implement	Authority	Authority	Prepare CMMP Pre-construction; Implement CMMP During Construction	Requirement to acquire regulatory agency permits Authority to compensate based on	Impact BIO#1 Construction Effects on Special-Status Plant Species

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
	Mitigation and Monitoring Plan	activities, the Authority will prepare a CMMP to mitigate for temporary and permanent impacts on biological resources (i.e., special-status wildlife, jurisdictional waters, and riparian areas). In the CMMP, performance standards, including percent cover of native species, survivability, tree height requirements, wildlife utilization, the acreage basis, restoration ratios, and the combination of onsite and/or offsite mitigation will be detailed; preference will be given to conducting the mitigation within the same HUC-8 or HUC-6 watershed where the impact occurs. The Project Biologist will work with the USACE, SWRCB, and CDFW to develop appropriate avoidance, minimization, mitigation, and monitoring measures to be incorporated into the CMMP. The CMMP will outline the intent to mitigate for the lost conditions, 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. The CMMP will incorporate the following standard requirements consistent with USACE, SWRCB, and CDFW guidelines: ▪ Description of the project impact/site. ▪ Goal(s) (i.e., functions and		✔		reporting. Implement CMMP, and prepare Monitoring Reports and Compliance Memos	CMMP During Construction and Post-Construction			and Post-Construction	area of temporary and permanent jurisdictional waters impacted by the Contractor	Impact BIO#2: Construction Effects on Special-Status Wildlife
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative alternatives would disturb special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters.
				✔								Impact BIO#5: Project Effects on Special-Status Plant Species
				✔								Impact BIO#6: Project Effects on Special-Status Wildlife Species
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plant communities and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect jurisdictional waters.
			✔	✔								Impact BIO#7: Project impact from the Proffered Alternative would

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		values or conditions) 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. ▪ Financial assurances. ▪ Contingency measures. ▪ Also, 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 mitigation site. ▪ Specifications for site maintenance to establish the habitats, including but not limited to weeding and										disturb portions of recovery plans.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

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		temporary irrigation. Habitat preservation, enhancement, and/or establishment or restoration 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 CMMP. It is recognized that several CMMPs will be developed consistent with the selected mitigation sites and the resources mitigated at each. The primary engineering and construction Contractor will ensure, through coordination with the Project Biologist, that construction is implemented in a manner that minimizes disturbance of such areas. Temporary fencing will be used during construction to avoid sensitive biological resources that are located 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). The performance standards are developed so that progress towards meeting final success criteria can be assessed on an annual basis; the standard for each year is progressively closer to the final criteria (e.g., vegetation cover standards										

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		may increase annually until reaching the success criteria objective in the final year of monitoring). 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 standards or success criteria are not met during a particular monitoring interval. The performance standards 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 standards 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 standards will be developed in consultation with the permitting agencies and described in the CMMP. The final success criteria will be developed in coordination with the regulatory agencies and presented in the CMMP. Examples of success criteria, which could be included in the CMMP, and would be assessed at the end of the monitoring period (assumed to be 5 years or as directed by agencies), include: ▪ Percent survival of planted										

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		trees (65–85%, depending on species and habitat). ▪ Percent absolute cover of highly invasive species, as defined by the California Invasive Plant Council (<5%). ▪ Percent total absolute cover of plant species (50-80%, depending on habitat type). ▪ Designed wetlands will meet U.S. Army Corps of Engineers criteria for hydrophytic vegetation, hydric soils, and hydrology as defined in the "Corps of Engineers wetland delineation manual" (Environmental Laboratory 1987). ▪ Designed vernal pools and seasonal wetlands will meet inundation and seasonal drying requirements as specified in the design and indicated by agencies. ▪ 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 standards 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 CMMPs.										

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		To be deemed successful, the site will be required to meet the performance standards established for the year in which monitoring is being conducted (e.g., monitoring conducted at intervals with increasing performance requirements). However, if performance standards are not met in specific years, remedial measures, such as regrading, adjustment to modify the hydrological regime, and/or replacement planting or seeding, must be implemented and that year's monitoring must be repeated the following year until the performance standards 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 CMMPs for maintenance during the establishment period. The Project Biologist will oversee the implementation of all CMMP elements and monitor consistent with the prescribed maintenance and performance monitoring requirements. The Authority, or its designee, 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. The Authority will submit a memorandum to the regulatory agencies to document compliance with										

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		this measure.										
BIO-MM#63	Compensate for Permanent and Temporary Impacts on Jurisdictional Waters	The Authority will mitigate permanent and temporary wetland impacts through compensation determined in consultation with the USACE, SWRCB, USFWS, and CDFW, in order to be consistent with the CMMP (BIO-MM#62).	✔		Pre-construction/Construction/ Post-construction	Compliance Report	Prior to operation	Authority	Authority	Prior to operation	Condition of Regulatory Agency Permits Authority to compensate based on area of permanent and temporary impacts on jurisdictional waters impacted by the Contractor	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
		Regulatory compliance for jurisdictional waters includes relevant terms and conditions from the USACE 404 Permit, SWRCB 401 Permit, and CDFW 1600 Streambed Alteration Agreement.		✔								Impact BIO#3: Project impacts for the Preferred Alternative would permanently disturb portions of recovery plans.
		Compensation shall include aquatic resources restoration, establishment, enhancement, or preservation through one or more of the following methods: ▪ Purchase of credits from an agency-approved mitigation bank. ▪ Fee-title-acquisition of natural resource regulatory agency-approved property. ▪ Permittee-responsible mitigation through the establishment, re-establishment, restoration, enhancement, or preservation of aquatic resources and the establishment of a conservation easement or other permanent site protection method, along with financial assurance for long-term management of the property-specific conservation values.	✔	✔								Impact BIO#3: Construction of the Preferred Alternative would disturb special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters
			✔									Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
		In lieu fee contribution	✔									Impact BIO#6: Project impacts from the Preferred

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		determined through negotiation and consultation with the various natural resource regulatory agencies. The following ratios are proposed as a minimum for compensation for permanent impacts; final ratios will be determined in consultation with the appropriate agencies: ▪ Vernal pools: 2:1. ▪ Seasonal wetlands: between 1.1:1 and 1.5:1 based on impact type and function and values lost.- 1:1 offsite for permanent impacts.- 1:1 onsite and 0.1:1 to 0.5:1 offsite for temporary impacts. The Authority will mitigate impacts on jurisdictional waters by replacing, creating, restoring, enhancing or preserving aquatic resource at the ratios presented above or other ratios, as determined in consultation with the appropriate agencies, which compensates for functions and values lost. The Authority will consider modifying the vernal pool mitigation ratios in the final permits based on site-specific conditions and the specific life history requirements of vernal pool branchiopods, California tiger salamander, and western spadefoot toad. Where an HSR alternative affects an existing conservation area (e.g., Allensworth ER), the Authority will modify the mitigation ratio to meet the										Alternative would permanently impact suitable habitat that has the potential to support special-status reptiles and amphibian species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plant communities, and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect jurisdictional waters
			✔	✔								Impact BIO#7: Project impacts for the Preferred Alternative would permanently disturb portions of recovery plans.

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		vernal pool mitigation requirement. Either the affected portion of the conservation area will be relocated or compensation will be provided to the holder of Allensworth ER in accordance with the Uniform Relocation and Real Property Policy Act of 1970, as amended. Through the CMMP reporting program and the applicable terms and conditions from the USACE 404 Permit, SWRCB 401 Permit, and the CDFW 1600 Streambed Alteration Agreement, the Authority, or its designee, will document compliance and submit it to the regulatory agencies.[6]										
BIO-MM#64	Compensate for Impacts on Protected Trees	The Authority will compensate for impacts, including removal or trimming of naturally occurring native protected trees and landscape or ornamental protected trees, in accordance with the local regulatory body (city or county government). The local regulations and laws allow for a number of potential mitigation opportunities. The Authority will provide mitigation commensurate with the regulations and laws in that jurisdiction such that the resulting impact on protected trees is less than significant and may include, but is not limited to, the following, depending on the local jurisdiction:	✔	✔	Pre-construction/ Construction/ Post-construction	Compliance Report	Prior to operation	Authority	Authority	Transplanting/ Replacement/ Compensation per Local Regulations	Local Regulation Requirement	Impact BIO#3: Construction of the Preferred Alternative would disturb protected trees
			✔	✔								Impact BIO#7: Project impacts for the Preferred Alternative would permanently disturb portions of recovery plans.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanent affect protected trees.

[6] This measure is applicable to the F-B LGA, except for the portions of the measure specific to vernal pool branchiopods and California tiger salamander as no suitable habitat for these species is present in the habitat study area; therefore, the F-B LGA will not affect these species. In addition, the portion of the measure specific to conservation areas is not applicable to the F-B LGA, as the project footprint will not affect any conservation areas.

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		▪ Transplant directly affected protected trees that are judged by an arborist to be in good condition to a suitable site outside the zone of impact. ▪ Replace directly affected protected trees at an onsite or offsite location, based on the number of protected trees removed, at a ratio not to exceed 3:1 for native trees or 1:1 for landscape or ornamental trees. ▪ Contribute to a tree-planting fund. The Authority will submit a memorandum to the local regulatory body to document compliance with this measure.										
BIO-MM#65	Offsite Habitat Restoration, Enhancement, and Preservation	Before site preparation at a mitigation site, the Authority will consider the offsite habitat restoration, enhancement, and 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 plant and wildlife. Appropriate seasonal restrictions (e.g., breeding season) on activities that result in physical alteration of the site may be applicable if suitable habitats for special-status species and sensitive habitats exist onsite. Activities resulting in the physical alteration of the site include	✔	✔	Pre-construction/Construction/ Post-construction	Compliance Report	Prior to operation or as established by regulatory compliance permits	Authority	Authority	Prior to operation or as established By regulatory compliance permits	Authority to provide compensatory mitigation for impacts on biological resources impacted by the Contractor Offsite habitat restoration, enhancement, and preservation program will be designed, implementation and monitored consistent with the terms and conditions of regulatory permit requirements they apply to their jurisdiction and resources onsite	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status invertebrate species.
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status reptiles and amphibians
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-

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		grading/modifications to onsite topography, stockpiling, storage of equipment, installation of temporary irrigation, removal of invasive species, and alterations to drainage features. In general, the long-term improvements to habitat functions and values will offset temporary effects during restoration, enhancement, and preservation activities. The offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored in ways that are consistent with the terms and conditions of the USACE Section 404 Permit, CDFW 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 a Storm Water Pollution Prevention Plan (SWPPP) will be implemented as appropriate. The Authority will report on compliance with the permitting requirements. The Authority, or its designee, will be responsible for the monitoring and tracking of the program, will prepare a memorandum of compliance, and will submit it to the appropriate regulatory agency.										status bird species
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species.
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would disturb special-status plant communities, and riparian areas
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would have direct and indirect impacts on jurisdictional waters
			✔	✔								Impact BIO#3: Construction of the Preferred Alternative would disturb protected trees
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status invertebrate species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact

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												suitable habitat that has the potential to support special-status reptile and amphibian species.
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status bird species (including raptors).
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently impact special-status plants communities, and riparian areas.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect jurisdictional waters.
			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would disturb portions of recovery plans.

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			✔	✔								Impact BIO#7: Project impacts from the Preferred Alternative would permanently affect protected trees.
BIO-MM#66	Implement Avoidance and Minimization Measures for BVLOS	The following Avoidance and Minimization Measures will be implemented for BVLOS: 1. The FRA and Authority will conduct habitat suitability determinations in potentially suitable BVLOS habitat not subject to previous field assessments to determine if the area falls into the suitable more xeric or suitable more mesic habitat categories. A report documenting the result of the habitat assessment and concluding if the area is either not suitable, marginal habitat or suitable mesic or xeric habitat will be prepared and submitted to the USFWS for review and concurrence. 2. In all suitable habitat areas, all above-ground herbaceous vegetation within the construction footprint will be cleared using hand tools (which can include weed whackers or mowers)under the supervision of a USFWS-approved BVLOS biological monitor. All leaf litter will be removed using rakes, or similar hand tools. All woody vegetation will be cut as	✔	✔	Pre-construction, Construction, Post-construction	Conduct Habitat Suitability Determinations, Vegetation Removal and Small Mammal Trapping; Compliance Reporting	Weekly or as established by regulatory compliance permits	Contractor	Contractor	Weekly or as established by regulatory compliance permits	Condition of Design Build Contract Condition of regulatory permits	Impact BIO#1 Construction Effects on Special-Status Plant Species
			✔	✔								Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special-status mammal species
				✔								Impact BIO#5 Project Effects on Special-Status Plant Species
			✔	✔								Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.

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		closely to the ground as possible using hand tools (which can include chainsaws). Vegetation will be removed immediately and stored away from suitable BVLOS habitat. Such vegetation hand-removal efforts will be implemented in those areas that require vegetation removal in order to clearly detect Buena Vista Lake ornate shrew, and will continue at each habitat area until it is reasonably certain that Buena Vista Lake ornate shrew can be detected within the cleared areas. 3. After vegetation has been cleared from BVLOS suitable habitat areas, non-disturbance exclusion fencing will be installed. In those areas where installation of fencing may not be feasible, the USFWS will be contacted and will provide direction on a case-by-case basis. The fencing will be installed under the supervision of the USFWS-approved biologist along the project footprint within BVLOS suitable habitat areas. Fencing will be placed between areas of active construction and adjacent or nearby suitable habitat to preclude BVLOS from running across the construction site and into harm's way. The										

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		configuration of the fencing will likely vary between areas, and placement will be at the direction of the USFWS-approved biologist with input from the USFWS, as required. Fencing may consist of a combination of both Environmentally Sensitive Area fencing and Wildlife Exclusion fencing with one way exit/escape points. 4. If a shrew is subsequently found within the fenced work area, work will cease immediately and a section of fence removed so that the shrew may leave the fenced area on their own volition. The USFWS-approved biologist will monitor the shrew to ensure that any shrew has moved and remains outside the fence. 5. Prior to the start of construction activities in areas of marginal and suitable habitat (more mesic and more xeric) for BVLOS, the FRA and Authority will prepare a BVLOS monitoring and relocation plan. The plan will identify the handling and relocation methodology for any BVLOS encountered during construction activities. Handling and relocation will be conducted consistent with the USFWS's									

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		Survey Protocol for Determining Presence of the Buena Vista Lake Ornate Shrew (USFWS 2012). The plan will identify the process for the relocating of any captured BVLOS and will be approved by the USFWS prior to construction.										
BIO-MM#67	Compensate for Impacts on BVLOS	The compensatory mitigation ratios for BVLOS are based on the type of habitat being affected (more mesic or more xeric) by the project. Impacts to more mesic suitable habitat will be compensated at a 3:1 ratio through acquisition and preservation into perpetuity of occupied more mesic suitable habitat, or creation of occupiable more mesic suitable habitat. All proposed suitable BVLOS habitat compensation properties will be reviewed and approved by the USFWS. Impacts to more xeric suitable habitat will be compensated at a 1:1 ratio by providing one acre of more xeric suitable habitat directly associated with (within 200 feet of) more mesic suitable habitat within a preserved or created mitigation parcel; or at a 0.33:1 ratio by preserving or creating one acre of more mesic suitable habitat for every three acres of more xeric suitable habitat disturbed. Final habitat compensation may consist of a combination of these, as	✔ ✔	✔ ✔	Pre to Construction, Construction, Post-construction	Compliance Report	Prior to Operation or as established by regulatory compliance permits	Authority	Authority	Prior to Operation or as established by regulatory compliance permits	Authority to provide compensatory mitigation for impacts on biological resources impacted by the Contractor Offsite habitat restoration, enhancement, and preservation program will be designed, implementation and monitored consistent with the terms and conditions of regulatory permit requirements they apply to their jurisdiction and resources onsite	Impact BIO#2: Construction of the Preferred Alternative would disturb suitable habitat that has potential to support special status mammal species Impact BIO#6: Project impacts from the Preferred Alternative would permanently impact suitable habitat that has the potential to support special-status mammal species.

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		approved by the USFWS. The overall goal is to provide contiguous blocks of more mesic habitat accompanied by more xeric habitat which supports the more mesic areas, or to provide suitable habitat of either type to serve as dispersal corridors among larger occupied or occupiable areas.										
3.8 Hydrology and Water Resources												
HWR-MM#1	Floodplain Protection: Construction	The following measures shall be implemented during the construction period to mitigate potential impacts to floodplains, including the following: ▪ Implement standard floodplain measures, including best management practices (BMPs), during construction. BMPs may include preservation of existing vegetation to the maximum extent practicable, limiting the number of equipment trips across floodplain crossing, selecting equipment that exerts the least amount of ground surface pressure, use of vegetated buffers on slopes, and application of hydraulic mulch on disturbed streambanks. ▪ Designated construction employees and local districts shall monitor weather for heavy storms and potential flood flows. If a heavy storm or flood event is identified, construction equipment shall be relocated outside of the floodplain.		✔	Construction	Reporting and Monitoring	Weekly	Contractor Local Districts	Contractor	Construction/ Weekly Reporting	Reporting Contract Requirements /Specifications	Impact HWR#4: Temporary Impacts to Floodplains

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HWR-MM#2	Floodplain Protection: Operation	The following measures shall be implemented as part of the project to reduce impacts to floodplains: ▪ A Conditional Letter of Map Revision to Federal Emergency Management Agency shall be required for all construction activities inside the Kern River. ▪ Potential impacts and mitigation measures for the Kern River shall require coordination with the Central Valley Flood Protection Board, the United States Army Corps of Engineers, the City of Bakersfield, and County of Kern.		✔	Pre-construction, Construction	Reporting and Monitoring	Weekly	Contractor Hazardous Materials Monitor	Contractor	Construction/Weekly Reporting	Reporting Contract Requirements/ Specifications	Impact HWR#8: Permanent Impacts on Floodplains
3.9 Geology, Soils, Seismicity, and Paleontological Resources												
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. No additional mitigation measures are applicable to address geology, soils, and seismicity impacts resulting specifically from the F-B LGA. With the implementation of Mitigation Measures CUL-MM #16 through CUL-MM #18, adverse effects associated with disturbance of paleontological resources during project construction would be mitigated by ensuring appropriate monitoring and cessation of ground-disturbing activities, as needed. These mitigation measures identify responsible parties for each project phase (pre-construction, and construction) to ensure that the requirements are appropriately implemented.											
Paleontological Resources												
CUL-MM #16	Engage a Paleonto-logical Resources Specialist to Direct Monitoring during Construction	A paleontological resources specialist (PRS) will be designated for the project who will be responsible for determining where and when paleontological resources monitoring should be conducted. Paleontological resources monitors (PRM) 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 Worker Environmental Awareness Program training.	✔	✔	Pre-construction/Construction	Reporting	Daily Logs (during active monitoring)	Contractor	Contractor	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)	Impact CUL#3: Potential Adverse Effects on Paleontological Resources due to Construction Activities Like archaeological resources, construction activities that may impact paleontological resources include ground-disturbing activities. Surficial activities such as staging and clearing usually do not affect paleontological resources because

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		All management and supervisory personnel and construction workers involved with ground-disturbing activities will be required to take this training before beginning work on the project and will be provided with the necessary resources for responding 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.										the associated disturbance does not extend deep enough to affect paleontologically sensitive deposits.
CUL-MM #17	Prepare and Implement a Paleontological Resource Monitoring and Mitigation Plan	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; and procedures for reporting the results of the monitoring and mitigation program. The monitoring program will be designed to accommodate site-specific construction of the selected option. The PRMMP will be consistent with Society of Vertebrate Paleontology (SVP	✔	✔	Construction	Reporting	Monthly	Contractor	Contractor	Construction/Monthly Reporting	PRMMP Worker Environmental Awareness Program training	Impact CUL#3: Potential Adverse Effects on Paleontological Resources due to Construction Activities Like archaeological resources, construction activities that may impact paleontological resources include ground-disturbing activities. Surficial activities such as staging and clearing usually do not affect paleontological resources because the associated disturbance does not extend deep enough to affect paleontologically sensitive deposits.

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		1995) guidelines for the mitigation of construction 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.										
CUL-MM #18	Halt Construction When Paleonto-logical 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 WEAP. 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.	✔	✔	Construction	Reporting	Daily logs during active monitoring	Contractor	Contractor	Construction/Weekly reporting (if resource is identified during construction)	PRMMP, WEAP	Impact CUL#3: Potential Adverse Effects on Paleontological Resources due to Construction Activities Like archaeological resources, construction activities that may impact paleontological resources include ground-disturbing activities. Surficial activities such as staging and clearing usually do not affect paleontological resources because the associated disturbance does not extend deep enough to affect paleontologically sensitive deposits.
3.10 Hazardous Materials and Wastes												
HMW-MM#1	Limit Use of Extremely Hazardous Materials near Schools during Construction	The Contractor shall not handle or store an extremely hazardous substance (as defined in California Public Resources Code Section 21151.4) or a mixture containing extremely hazardous substances in a	✓		Construction	Reporting and Monitoring	Weekly	Contractor Hazardous Materials Monitor	Contractor	Construction/ Weekly Reporting	Reporting Contract Requirements/ Specifications	Impact HMW#4: Temporary Hazardous Material and Waste Activities in the Proximity of Schools Twenty-nine schools are within 0.25 mile of the

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

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		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. Prior to construction activities, signage will be installed to delimit all work areas within 0.25 mile of a school, informing the Contractor not to bring extremely hazardous substances into the area. The Contractor would be required to monitor all use of extremely hazardous substances. The above construction mitigation measure for hazardous materials and wastes is consistent with California Public Resources Code Section 21151.4, and would be effective in reducing the impact to a less-than-significant level.		✓								construction footprint of the Preferred Alternative. Impact HMW#4: Temporary Hazardous Material and Waste Activities in the Proximity of Schools Sixteen schools are within 0.25 mile of the construction footprint of the Preferred Alternative.
3.11 Safety and Security												
S&S-MM#1	Monitor Response of Local Fire, Rescue, and Emergency Service Providers to Incidents at Stations and Provide a Fair Share Cost of Service	Monitor response of local fire, rescue, and emergency service providers to incidents at stations and provide a fair share of cost of service. Upon approval of the Fresno to Bakersfield Section, the Authority will monitor service levels in the vicinity of the Fresno and Kings/Tulare stations 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 in the station site service areas. Prior to operation of the	✔	✔	Construction/Post-construction/ Operation	Monitor/Fair Share Agreement	Annually	Authority	Authority	Monitoring of service levels during construction in the vicinity of the Fresno, Kings/Tulare, and Bakersfield stations to determine baseline service demands. Prior to the operation of the stations for HSR service.	Authority to fund through fair share of services agreement.	Impact S&S#10: Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities.

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		stations for HSR 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 (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 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 (i.e., police substation, additional fire vehicle, on-site defibrillators, etc.) 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										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		the stations, new local revenues derived from station area development, and any services that the Authority may be providing at the station.[7]										
S&S-MM#2	Halliburton-Specific Safety and Security	The following site-specific mitigation shall be implemented based on the Authority's Policy for Elevated Structures to allow continued use of the Halliburton Facility with development of the F-B LGA over a portion of the facility's parcel: ▪ The Authority shall be required to purchase the property underneath the F-B LGA viaduct, plus a 10-foot maintenance access buffer on each side of the viaduct. An easement will then be negotiated with Halliburton for its continued use of the parcel, subject to conditions set forth by the Authority. The easement negotiated with Halliburton shall include the following stipulations: – Relocation of all privately controlled structures such as the old office building, acid dock, and truck wash from underneath the F-B LGA viaduct. – Relocation of all hazardous materials from underneath the F-B LGA viaduct. This includes the diesel fuel storage tanks, the nitrogen tank, the		✔	Construction/Post-construction/Operation	Property acquisition and easement negotiation	Weekly	Authority Contractor	Authority Contractor	Property purchase and easement negotiation	Easement negotiation with outlined stipulations	Impact S&S#7: Risk of Fire and Explosions at Specific Parcels

[7] The F-B LGA does not include an HMF; therefore, this portion of S&S-MM #1 would not apply to the F-B LGA.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

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		radioactive material bunker, the acid dock, and all of the storage of hazmat totes. – The existing height of the barrier for the explosives bunker shall be increased to provide line-of-sight protection for the HSR trainway on the F-B LGA viaduct, per Bureau of Alcohol, Tobacco, Firearms, and Explosives regulatory requirements. – Maintenance of the space underneath the F-B LGA viaduct to remove all hazardous materials and to minimize combustible materials such as wood, debris, and vegetation. – Allow audits of security protocols and processes to ensure security measures continue the level of protection warranted. – Allow HSR security personnel access, with notice, to the grounds around the F-B LGA viaduct to ensure security measures are being followed. – Allow only trucks that can be visually verified to be empty may be parked under the F-B LGA viaduct. These trucks include flatbeds and trucks with equipment that would										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		not allow hidden materials. – Notice must be provided to the Authority by Halliburton in the event of any missing explosives or shortage in explosives inventory.										
S&S-MM#3	Rain-for-Rent Safety and Security	The following site-specific mitigation shall be implemented based on the Authority's Policy for Elevated Structures to allow continued use of the Rain-for-Rent Facility with development of the F-B LGA over a portion of the facility's parcel: ▪ The Authority shall be required to purchase the property underneath the F-B LGA viaduct, plus a 10-foot maintenance access buffer on each side of the viaduct. An easement will then be negotiated with Rain-for-Rent for its continued use of the parcel, subject to conditions set forth by the Authority. The easement negotiated with Rain-for-Rent shall include the following stipulations: – Restriction against storage or temporary location of regulated quantities of hazardous materials from underneath the F-B LGA viaduct. – Maintenance of the space underneath the viaduct to eliminate all flammable and		✔	Construction/Post-construction/Operation	Property acquisition and easement negotiation	Weekly	Authority Contractor	Authority Contractor	Property purchase and easement negotiation	Easement negotiation with outlined stipulations	Impact S&S#7: Risk of Fire and Explosions at Specific Parcels

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		hazardous materials. – Allow the Authority to audit Rain-for-Rent security protocols and processes to ensure security measures continue the level of protection warranted. – Allow HSR security personnel access, with notice, to the area around the F-B LGA viaduct to ensure security measures are being followed. – Allow only trucks that can be visually verified to be empty may be parked under the F-B LGA viaduct. These trucks include flatbeds and trucks with equipment that would not allow hidden materials. – Allow only passenger cars and small trucks and vans to be parked in the employee parking under the F-B LGA viaduct on the Rain-for-Rent parcel.										
S&S-MM#4	Golden Empire Gleaners Safety and Security	The following site-specific mitigation shall be implemented in all subsequent property transactions for the Golden Empire Gleaners Facility: ▪ Upgrade of the fire alarm and suppression system to current fire code regulations, per Office of State Fire Marshall requirements and approval. ▪ Prohibition of regulated amounts of hazardous		✔	Construction/Post-construction/Operation	Property acquisition and easement negotiation	Weekly	Authority Contractor	Authority Contractor	Property purchase and easement negotiation	Easement negotiation with outlined stipulations	Impact S&S#7: Risk of Fire and Explosions at Specific Parcels

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		materials in the structure. ▪ Annual inspection by the Office of the State Fire Marshal. ▪ Public ownership and control of the entire facility. This could be Authority ownership, or City of Bakersfield ownership with restrictions on use and access of the facility to enforce the above mitigations. Note: State owned property requires additional conditions by the Office of the State Fire Marshal that must be incorporated. ▪ Restrict access to the facility by uncontrolled or uninspected trucks or step vans. ▪ Allow audits of security protocols and processes to ensure security measures continue the level of protection warranted. ▪ Allows HSR security personnel access, with notice, to ensure security measures are being followed. ▪ Allow only trucks that can be visually verified to be empty may be parked under the F-B LGA viaduct. These trucks include flatbeds and trucks with equipment that would not allow hidden materials. ▪ Only passenger cars and small trucks and vans can be parked in the employee parking under the structure. ▪ Any change of use would require reassessment and										

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		approval.										
3.12 Socioeconomics and Communities												
SO-MM#1	Implement Measures to Reduce Impacts Associated With the Division of Existing Communities in the Unincorporated Areas East Of Hanford, Northeast of Corcoran, and South of Shafter	The Authority will minimize impacts associated with the Preferred Alternative in the rural residential areas around Ponderosa Road/Edna Way east of Hanford, the Newark Avenue vicinity northeast of Corcoran, and Crome by conducting special outreach to affected homeowners and residents to fully understand their special relocation needs. The Authority will make every effort to locate suitable replacement properties that are comparable to those occupied by these residents, including constructing suitable replacement facilities if necessary. In cases where residents wish to remain in the immediate vicinity, the Authority will take measures to purchase vacant land or buildings in the area, and consult with local authorities over matters such as zoning, permits, and moving of homes and replacement of services and utilities, as appropriate. Before land acquisition, the Authority will conduct community workshops to obtain input from those homeowners whose property would not be acquired, but whose community would be substantially altered by construction of HSR facilities, including the loss of many neighbors, to identify measures that could be taken to mitigate impacts on those who remain (including placement of sound walls and	✔ ✔		Pre-construction/Construction/ Post-construction	Reporting	Monthly	Authority	Authority	Monthly Reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts	Impact SO#6: Division of existing community Ponderosa Road/Edna Way east of Hanford, the Newark Avenue vicinity northeast of Corcoran, and Crome. Impacts associated with the Preferred Alternative would relocate and displace residents of small, rural residential communities. Impact SO#7: Effects to the regional agricultural community and displacement of homes in the unincorporated areas of the region of the four affected counties.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		landscaping, and potential uses for remnant parcels that could benefit the community in the long term).										
SO-MM#1	Implement measures to reduce impacts associated with the division of residential neighborhoods	The Authority will minimize impacts associated with the F-B LGA in the rural residential areas around the community of Oildale as well as in urban residential areas in Shafter and Bakersfield by conducting special outreach to affected homeowners and residents to fully understand their special relocation needs. The Authority will make every effort to locate suitable replacement properties that are comparable to those currently occupied by these residents, including constructing suitable replacement facilities if necessary. In cases where residents wish to remain in the immediate vicinity, the Authority will take measures to purchase vacant land or buildings in the area, and consult with local authorities over matters such as zoning, permits, and moving of homes and replacement of services and utilities, as appropriate. Before land acquisition, the Authority will conduct community workshops to obtain input from those homeowners whose property would not be acquired, but whose community would be substantially altered by construction of HSR facilities, including the loss of many neighbors, to identify measures that could be taken		✔	Pre-construction/Construction/ Post-construction	Reporting	Monthly	Authority	Authority	Monthly Reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts	Impact SO#6: Disruption to Community Cohesion or Division of Existing Communities from Project Operation.

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

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		to mitigate impacts on those who remain (including placement of sound walls and landscaping, and potential uses for remnant parcels that could benefit the community in the long term).										
SO-MM#2	Implement measures to reduce impacts associated with the division of existing communities	The Authority will minimize impacts associated with Preferred Alternative in the existing communities through a program of additional outreach to homeowners, residents, business owners, and community organizations in affected neighborhoods. As a part of this program, before land acquisition, the Authority will consult with officials and representatives of community facilities affected by significant noise impacts (e.g., churches and schools) to identify suitable noise abatement measures or to help affected businesses and organizations find more-suitable locations in the community. Similarly, the Authority locate suitable replacement housing for displaced residents, as discussed in SOMM#1. Before the completion of final design, the Authority will also conduct community workshops about the future use of the area beneath the rail guideway. These meetings will provide residents the opportunity to identify design and use options that could strengthen community cohesion and be compatible with the character of the impacted community. A minimum of three facilitated	✔		Pre-construction/Construction/ Post-construction	Reporting	Monthly	Authority	Authority	Monthly Reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts	Impact SO#6: Division of existing community Ponderosa Road/Edna Way east of Hanford, the Newark Avenue vicinity northeast of Corcoran, and Crome. Impacts associated with the Preferred Alternative would relocate and displace residents of small, rural residential communities.
			✔									Impact SO#7: Effects to the regional agricultural community and displacement of homes in the unincorporated areas of the region of the four affected counties.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		workshops will be held in each of community where elevated rail guideway would be constructed. To maximize attendance and generate awareness of the workshops, the Authority will work with either community organizations, or community leaders within the neighborhoods. A location and time will be selected based on the needs of the community to increase attendance. Information will be presented at the workshops that give the community options for the future use of the area beneath the rail guideway, as well as an opportunity for individuals to provide feedback. For example, if safety considerations prohibit such uses as bike paths or community gardens, alternatives, such as sculpture gardens or managed landscaping, could be considered. The comments and feedback will be considered in planning for the future use of the sites. Upon gathering feedback from the community, the Authority will report the finds either through a fourth public workshop, or written report that would be made available to the public. The Authority will be responsible for implementing the results of the community workshops through project design and through the long-term management of the area beneath the elevated rail guideway. This will involve										

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Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

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		documenting the desired design concepts, incorporating them into the final design, and facilitating ongoing maintenance. The Authority will identify potential uses that may be developed in the project right-of-way. These uses will be compatible with the character of the adjacent community and sensitive to project needs (as outlined in the Final EIR/EIS, Section 3.11, Safety and Security). The costs associated with the development of these associated uses and how costs will be paid will be determined during consultations with the affected city, county, or parks district. Furthermore, the parties or entities (i.e., the Authority, local government, park or recreation district, or nonprofit organization.										
SO-MM#3	Implement measures to reduce impacts associated with the relocation of important facilities	The Authority will minimize impacts resulting from the disruption to key community facilities: Fresno Rescue Mission, the Wasco Amtrak station, community churches, and an important livestock rendering facility (Baker Commodities) in the Hanford area. The Authority will consult with the appropriate respective parties before land acquisition to assess potential opportunities to reconfigure land use and buildings and/or relocate affected facilities, as necessary, to minimize the disruption of facility activities and services, and also to ensure relocation that allows	✔		Pre-construction/Construction/ Post-construction	Reporting	Monthly	Authority	Authority	Monthly Reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts	Impact SO#6: Displacement of the Mercado Latino Tianguis. Displacement of the Fresno Rescue Mission, Bakersfield Homeless Shelter and associated facilities and programs. Displacement of the Mercy Medical Plaza building associated with the Mercy Hospital medical complex. Displacement of religious facilities. Displacement of

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		the community currently served to continue to access these services. Because many of these community facilities are located in Hispanic communities, the Authority will continue to implement a comprehensive Spanish-language outreach program for these communities as land acquisition begins. This program will facilitate the identification of approaches that would maintain continuity of operation and allow space and access for the types of services currently provided and planned for these facilities. Also, to avoid disruption to these community amenities, the Authority will ensure that all reconfiguring of land uses or buildings, or relocating of community facilities is completed before the demolition of any existing structures. In regard to the impacted Amtrak station, relocation of the facilities would be completed before demolition of the existing structures and no disruption to Amtrak service would occur. Because the unique services provided by the rendering facility in Kings County are critical to agricultural operations in the region, relocation of this facility will occur before the existing facility is closed or steps will be taken to ensure that sufficient capacity is available at other facilities so there is no interruption to the services provided.										government facilities—Bakersfield public works corporation yard and a Kern Mental Health office—as well as parking associated with the Bakersfield Convention Center.
SO-MM#3	Implement	The Authority will minimize		✔	Pre-construction/Construction/	Reporting	Monthly	Authority	Authority	Monthly Reporting	The Authority will meet	Impact SO#1:

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	measures to reduce impacts associated with the relocation of important facilities	impacts resulting from the disruption to key community facilities including the Mercado Latino Tianguis, Golden Empire Transit District, Valley Oaks Charter School, Bakersfield Department of Motor Vehicles, Golden Empire Gleaners (a food bank), Bakersfield Homeless Center, the Golden Living Center (a nursing facility), Kern County Veterans Service Department, Iglesia de Dios Pentecostes La Hermosa (a religious facility). The Authority will consult with the appropriate respective parties before land acquisition to assess potential opportunities to reconfigure land use and buildings and/or relocate affected facilities, as necessary, to minimize the disruption of facility activities and services, and also to ensure relocation that allows the community currently served to continue to access these services. Because many of these community facilities are located in Hispanic communities, the Authority will continue to implement a comprehensive Spanish-language outreach program for these communities as land acquisition begins. This program will facilitate the identification of approaches that would maintain continuity of operation and allow space and access for the types of services currently provided and planned for these facilities. Also, to avoid			Post-construction						with affected residents and property owners and design appropriate measures to minimize impacts	Disruption to Community Cohesion or Division of Existing Communities from Project Construction
				✔								Impact SO#18: Potential for Physical Deterioration

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		disruption to these community amenities, the Authority will ensure that all reconfiguring of land uses or buildings, or relocating of community facilities is completed before the demolition of any existing structures.										
SO-MM#4	Provide access modifications to affected farmlands.	In cases where partial-property acquisitions result in division of agricultural parcels, the Authority will evaluate with property owner input the effectiveness of providing overcrossings or undercrossings of the HSR track to allow continued use of agricultural lands and facilities. This would include the design of overcrossings or undercrossings to allow farm equipment passage. (Refer to Section 3.14, Agricultural Lands, of the Final EIR/EIS for additional information.) This mitigation measure will be effective because it will maintain access to farmlands for farmers whose property is bisected.	✔	✔	Pre-construction/Construction	Reporting/Monitoring	Monthly	Authority	Authority	Monthly reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts The Authority will hold workshops and create reports based on workshop and design findings	Impact SO#7: Effects to the regional agricultural community and displacement of homes in the unincorporated areas of the region of the four affected counties.
SO-MM#5	Develop measures to minimize the potential for physical deterioration.	The Authority will work with the communities on the design of project features consistent with Technical Memorandum 200.6, Aesthetic Guidelines for Non-Station Structures (Authority 2011a). The guidelines for station and non-station structures allow for contextual design responses to site-specific or unique conditions, or “context sensitive solutions”. Context sensitive solutions mean structural aesthetics must respond to local settings with	✔		Pre-construction/Construction	Reporting/Monitoring	Monthly	Authority	Authority	Monthly reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts The Authority will hold workshops and create reports based on workshop and design findings	Impact SO#6: Division of existing community Ponderosa Road/Edna Way east of Hanford, the Newark Avenue vicinity northeast of Corcoran, and Crome. Impacts associated with the Preferred Alternative would relocate and displace residents of small, rural residential

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		concern for the human scale, building scale, and the vantage points from which the structures will be viewed. Included in the Authority's design principles is the requirement that the structures enhance local environments and community context. Landscaping will be used to visually integrate project structures into the local context with plantings that recreate the natural setting into which they are placed. The aesthetic design of project structures, in combination with landscape and urban design that serve the local community can create a positive contribution to the surrounding visual context and minimize the potential for physical deterioration.										communities. Impact SO#7: Effects to the regional agricultural community and displacement of homes in the unincorporated areas of the region of the four. Impact SO #18: Potential for Physical Deterioration
			✔									
				✔								
SO-MM#6	Continue outreach to disproportionately and negatively impacted environmental justice populations.	The Authority will continue to conduct substantial EJ 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 the alternatives during ongoing design efforts. 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	✔	✔	Pre-construction/Construction/ Operations	Coordination/Reporting	Monthly	Authority	Authority	Monthly reporting	The Authority will meet with affected residents and property owners and design appropriate measures to minimize impacts. The Authority will hold workshops and create reports based on workshop and design findings	Applies to all environmental justice impacts.

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		with long construction periods and has been found to be effective.										
3.13 Station Planning, Land Use, and Development												
Mitigation measures for station planning, land use and development were incorporated in other sections. See Air Quality and Global Climate Change, Aesthetic and Visual Resources, Noise and Vibration, and Agricultural Land. No additional mitigation measures are required to address land use impacts resulting specifically from the F-B LGA. Overall, land use-related impacts would be less than significant under CEQA, without implementation of mitigation measures specific to land use.												
3.14 Agricultural Land												
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 preserve 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 for lands that are permanently converted to non-agricultural use by the project. In addition, the Authority will provide an additional increment of Important Farmland mitigation acreage, above the 1:1 ratio minimum, at a level consistent with the terms of a settlement agreement the Authority	✔		Pre-construction	Reporting	Monthly	Authority & California Farmland Conservancy	Authority	Prior to construction/Monthly reporting	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.	Impact AG#4: Permanent Conversion of Agricultural Land to Nonagricultural Use. The Preferred Alternative would affect 3,474 acres of Important Farmland.
				✔								Impact AG#4: Permanent Conversion of Agricultural Land to Nonagricultural Use. The Preferred Alternative would affect 372 acres of Important Farmland.
				✔								Impact AG#5: Effects on Agricultural Land from Parcel Severance
			✔									Impact LU#2: The Preferred Alternative would cause a substantial change in intensity of land use incompatible with adjacent land uses.
			✔									Impact LU#3: The Kings/Tulare Regional Station–

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		reached with agricultural interests in County of Madera, et al. v. California High-Speed Rail Authority. This approach will provide a consistent approach to calculating the total amount of acres of agricultural conservation easements across the Central Valley. 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.										East is likely to result in some unplanned changes in the use of existing adjacent land, regardless of the amount of parking provided at the station.
			✔									Impact LU#5: Indirect changes to adjacent lands at the Kings/Tulare Regional Station–East site would substantially change the pattern and intensity of land use in a way that would be incompatible with adjacent land uses.
AG-MM#2:	Conserve Additional Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) for Indirect Impacts	The Authority will fund the purchase of agricultural conservation easements from willing sellers through the California Farmland Conservancy Program at a ratio of not less than 0.5:1 for Important Farmland within a 25-foot-wide area adjacent to permanently fenced HSR		✔	Pre-construction/Construction	Purchase of agricultural conservation easements	Monthly	Authority	Authority	Compliance Memorandum	The Authority will fund purchase of land as outlined in mitigation text	Impact AG#4: Permanent Conversion of Agricultural Land to Nonagricultural Use
				✔								Impact AG#5: Effects on Agricultural Land from Parcel Severance

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	Adjacent to HSR Permanently Fenced Infrastructure	infrastructure, but only to the extent that such acreage is not otherwise subject to mitigation under AG-MM#1. The Authority shall document implementation of this measure through issuance of a compliance memorandum.										
3.15 Parks and Recreation												
According to the MMRP for the Final EIR/EIS, mitigation measures for Parks, Recreation, and Open Space are incorporated into the Aesthetic and Visual Resource Section.												
Park Construction (PC)-MM#1[8]	Provide Alternate Pedestrian and Bicycle Access During Temporary Closures of Portions of Park Property During Construction.	Prior to temporary closures of linear park facilities, the Authority will ensure that connections to the unaffected park portions or nearby roadways are maintained. If a proposed linear park closure restricts connectivity, the Authority will provide alternative pedestrian and bicycle access via existing roadways or other public rights-of-way. The Authority will provide detour signage and lighting and will ensure that the alternative routes meet all public safety requirements.	✔		Pre-construction/Construction	Maintenance of access to parks	Monthly	Authority	Authority	Monthly Reporting	Authority will ensure access as outlined in mitigation text.	Impact PK#1: Kern River Parkway. Construction activities for the Preferred Alternative would create closures of some areas of parkway facilities, including bicycle, pedestrian and equestrian facilities.
			✔									Impact PK#1: Mill Creek Linear Park. Construction activities for the Preferred Alternative would create closures of some areas of park facilities and increase noise exposure.
				✔								Impact PK#1: Temporary (construction-related) access restrictions and park activity disruptions for resources located within 1,000 feet of the F-B LGA

[8] Measures developed to mitigate for impacts to parks and recreation resources in the Fresno to Bakersfield Section EIR/EIS were categorized into “Park Construction” and “Park Project” mitigations, and the shorthand nomenclature reflected this categorization. Thus Parks Construction mitigation measures were referred to as “PC-MMs” and Parks Project mitigation measures were referred to as “PP-MMs”. For the Supplemental EIR/EIS, nomenclature used to describe all measures developed to mitigate for impacts to parks and recreation resources were combined to be consistent with all other resource sections. Parks and recreation mitigation measures in the Supplemental EIR/EIS are therefore referred to as “PP-MMs”. The mitigation measure PC-MM#1 in the Final EIR/EIS became PP-MM#1 in the Supplemental EIR/EIS.

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												centerline, within 300 feet of the F-B LGA centerline, within 0.5 mile of the Shafter MOIF site, and within 0.5 mile of the Bakersfield F Street passenger station site, as well as for specific resources within these areas, includes Kern River Parkway and Weill Park.
Park Project (PP)-MM#1	Acquisition of Park Property.	The Authority will provide financial compensation for purchase and development of replacement park property of at least equal fair market value, or, where appropriate, enhancement to ensure the park retains equivalent usefulness. Where applicable, this process will be consistent with Section 6(f) requirements and provide park enhancement as appropriate.	✔		Pre-construction/Construction	Reporting/Compensation	Weekly	Contractor	Authority/Contractor	Pre-construction/Construction. Authority to coordinate with local jurisdictions	The Authority and Contractor will work with respective jurisdictions (City of Bakersfield) to develop a staging plan and an alternatives access plan to impacted properties.	Impact PK#2: The BNSF Alternative would require the acquisition of 1.7 acres of land at Colonel Allensworth State Historic Park and 7.3 acres of land from Allensworth Ecological Reserve
PP-MM#2	Avoidance of Colonel Allensworth State Historic Park.	Final design will minimize right-of-way impacts in Colonel Allensworth State Historic Park.	✔		Pre-construction	Avoidance of right-of-way impacts in Colonel Allensworth State Historic Park	At final design	Authority	Authority	At final design	Design features	Impact PK#4: Project Changes to Park Character

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PP-MM#3	Collect Additional Maintenance Funds.	The Authority will consult with affected jurisdictions to identify its share of funding to provide additional maintenance, labor, and repairs for the existing park areas to remedy any potential degradation of existing facilities that may result from increased facility use. Prior to project construction, the Authority will enter into an agreement with the affected jurisdictions (City of Bakersfield and Kern County) that establishes the funding share and describes the relative roles of the Authority and the affected jurisdictions in providing continuous maintenance of existing play areas, or compensation for play areas acquired in order to accommodate the project.		✔	Pre-construction/Construction/Post-construction/Operations	Compensation	Monthly	Authority	Authority	Prior to construction/Construction/Post construction/Operations. Authority to coordinate with local jurisdictions	The Authority will coordinate with the affected jurisdictions to identify appropriate funding amounts	Impact PK#2: Project Acquisition of Parks, Recreation, and Open Space Resources
3.16 Aesthetics and Visual Resources												

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AVR-MM#1a	Minimize Visual Disruption from Construction Activities	The project will adhere to local jurisdiction construction requirements (if applicable) regarding construction-related visual/aesthetic disruption. In order to minimize visual disruption, construction will employ the following activities: ▪ Minimize 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, Regrade areas disturbed by construction, staging, and storage to original contours and revegetate with plant material similar in replacement numbers and types to that which was removed based upon local jurisdictional requirements. If there are no local jurisdictional requirements, replace removed vegetation at a 1:1 replacement ratio for shrubs and small trees, and 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 upon the growth rates of the trees) would provide coverage similar to the	✔	✔	Pre-construction/ Construction/ Post-construction	Reporting	Weekly	Contractor	Contractor	Construction/ Weekly Reporting	Contract Requirements/ Specifications	Impact AVR#2: Construction Impacts of Existing Visual Quality. Construction activities would cause visual impacts.
			✔									Impact LU#1: Disruption of access to some properties would temporarily inconvenience nearby residents on some lands along 31 miles of the Preferred Alternative.
			✔									Impact PK#1: Construction activities would cause visual impacts to park, recreation, and open space resources.
			✔									Impact PK#1: Construction activities would cause visual impacts to school district facilities.

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		coverage provided by the trees that were removed for construction. ▪ To the extent feasible, do not locate construction staging sites within the 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.										
AVR-MM#1b	Minimize Light Disturbance during Construction	Where construction lighting will be required during nighttime construction, the Contractor will be required to 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 spill offsite.	✔	✔								Impact AVR#3: Nighttime Lighting during construction. Intrusive nighttime lighting could result in adverse impacts in both rural and urban areas.
			✔									Impact LU#1: Disruption of access to some properties would temporarily inconvenience nearby residents on some lands along 31 miles of the Preferred Alternative.
			✔									Impact PK#1: Construction activities would cause visual impacts to park, recreation, and open space

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												resources.
			✔									Impact PK#1: Construction activities would cause visual impacts to school district facilities.
AVR-MM#2a	Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context	During final design of the elevated guideways and the Fresno, Kings/Tulare Regional, and Bakersfield stations, the contractor partnering with 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. This will include the following activities: ▪ For stations: During the station design process, establish a local consultation process with the Cities of Fresno and Bakersfield, and the cities and communities surrounding the Kings/Tulare Regional Station, as necessary, 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.	✔		Pre-construction/ Design	Reporting	Final design	Contractor and Authority	Contractor and Authority	Final design and Construction/Monthly reporting	Established local consultation process with communities along the alignment	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield

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		▪ 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 that are 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 HSR 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 HSR 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										Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in Bakersfield due to elevated guideways and sound barriers.
				✔								Impact AVR#4: Lower visual quality in the Rural San Joaquin Valley Landscape Unit: Burbank Street
				✔								Impact AVR#4: Lower visual quality in the North Bakersfield Landscape Unit: Norris Road west of SR 99
				✔								Impact AVR#4: Lower visual quality in the Kern River Landscape Unit: Kern River Parkway Bike Trail
				✔								Impact AVR#4: Lower visual quality in the East Bakersfield Landscape Unit: Sumner Street at Baker Street
				✔								Impact AVR#5: Visual Quality Effects to Schools: Valley Oaks Charter School
			✔									Impact AVR#4: Sound Barriers would lower visual quality or block views. The Preferred Alternative

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		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 context. These features could include landscaping,										would require the use of sound barriers along portions of the guideway in urbanized areas, potentially lowering visual quality and/or blocking existing views, depending on the barrier location and materials.
			✔									Impact PK#4: Kern River Parkway. HSR operation for the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Mill Creek Linear Park. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Bakersfield Amtrak Station Playground. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.

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		lighting, and public art. The designs in cities and unincorporated communities will reflect the results of the context-sensitive solutions design process. During the context-sensitive solutions design process, the HSR project's obligations and constraints related to planning, mitigation, engineering, performance, funding, and operational requirements will be taken into consideration.										
AVR-MM#2b	Integrate Elevated Guideway into Affected Cities, Parks, Trail, and Urban Core Designs	During development of the final design, the Authority will work with the affected cities and counties to develop a project site and landscape design plan for the areas disturbed by the project. As a result of following these plans, the design features identified in AVR-MM#2a and the park mitigation measure PK-MM#3 will be implemented.	✔		Pre-construction/Design	Reporting	Monthly	Contractor	Contractor and Authority	Construction/monthly reporting	Contract Requirements/ Specifications Authority will meet with local jurisdictions during development of final design	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent

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												project features.
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in Bakersfield due to elevated guideways and sound barriers.
			✔									Impact AVR#4: Sound Barriers would lower visual quality or block views. The Preferred Alternative would require the use of sound barriers along portions of the guideway in urbanized areas, potentially lowering visual quality and/or blocking existing views, depending on the barrier location and materials.
				✔								Impact AVR#4: Lower visual quality in the Rural San Joaquin Valley Landscape Unit: Burbank Street
				✔								Impact AVR#4: Lower visual quality in the North Bakersfield Landscape Unit: Norris Road west of SR 99

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				✔								Impact AVR#4: Lower visual quality in the Kern River Landscape Unit: Kern River Parkway Bike Trail
				✔								Impact AVR#4: Lower visual quality in the East Bakersfield Landscape Unit: Sumner Street at Baker Street
				✔								Impact AVR#5: Visual Quality Effects to Schools: Valley Oaks Charter School
			✔									Impact PK#4: Kern River Parkway. HSR operation for the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Mill Creek Linear Park. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Bakersfield Amtrak Station Playground. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its

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												surroundings.
AVR-MM#2c	Screen At-Grade and Elevated Guideways Adjacent to Residential Areas	Consistent with the design features developed under AVR-MM#2a, the contractor will plant trees along the edges of the rights-of-way in locations adjacent to residential areas. This will help reduce the visual contrast between the elevated guideway and the residential area. The species of trees to be installed 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 crowns of trees used should ultimately be tall enough so that upon maturity they will partially, or fully, block or screen views of the elevated guideway from adjacent at-grade areas. Trees should allow ground-level views under the crowns (with pruning if necessary) while not interfering with the 15-foot clearance requirement for the guideway. The trees will be continuously maintained and appropriate irrigation systems will be installed within the tree planting areas.	✔		Construction/Post-construction	Reporting	Monthly	Contractor and Authority	Contractor	Construction/monthly reporting	Contract Requirements/ Specifications and 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	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Park Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in

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												Bakersfield due to elevated guideways and sound barriers.
			✔									Impact AVR#4: Sound Barriers would lower visual quality or block views. The Preferred Alternative would require the use of sound barriers along portions of the guideway in urbanized areas, potentially lowering visual quality and/or blocking existing views, depending on the barrier location and materials.
			✔									Impact PK#4: Kern River Parkway. HSR operation for the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Mill Creek Linear Park. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Bakersfield Amtrak Station Playground. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of

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												the site and its surroundings.
	Screen At-Grade, Raised Embankments, and Elevated Guideways Adjacent to Residential Areas	Consistent with the design features developed under AVR-MM#2a, the contractor will plant trees along the edges of the rights-of-way in locations adjacent to residential areas. This will help reduce the visual contrast between the elevated guideway or raised embankment and the residential area. The species of trees to be installed 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 crowns of trees used should ultimately be tall enough so that upon maturity they will partially, or fully, block or screen views of the elevated guideway or raised embankment from adjacent at-grade areas. Trees should allow ground-level views under the crowns (with pruning if necessary) while not interfering with the 15-foot clearance requirement for the guideway. The trees will be continuously maintained and appropriate irrigation systems will be installed within the tree planting areas.		✔	Construction/Post-construction	Reporting	Monthly	Contractor and Authority	Contractor	Construction/monthly reporting	Contract Requirements/ Specifications and 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	Impact AVR#4: Lower visual quality in the Rural San Joaquin Valley Landscape Unit: Burbank Street
				✔								Impact AVR#4: Lower visual quality in the North Bakersfield Landscape Unit: Norris Road west of SR 99
AVR-MM#2d	Replant Unused Portions of Lands Acquired for the HSR	After construction is complete, the Authority will plant vegetation within lands acquired for the project (e.g., shifting roadways) that are not used for the HSR or related supporting infrastructure. Plantings will allow adequate	✔		Post-Construction/Operations	Reporting	Monthly	Authority	Authority	Post-Construction/monthly reporting	Authority to implement appropriate landscape and maintenance plan	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual

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		space between the vegetation and the HSR alignment and catenary lines. All street trees and other visually important vegetation removed in these areas during construction will be replaced with similar vegetation that, upon maturity, will be similar in size and character to the removed vegetation. The Authority will ensure that vegetation will be continuously maintained and appropriate irrigation systems will be installed within the planting areas. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted.										character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Corcoran, Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in Bakersfield due to elevated guideways and sound barriers.
			✔									Impact AVR#4: Sound Barriers would lower visual quality or block views. The Preferred Alternative

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												would require the use of sound barriers along portions of the guideway in urbanized areas, potentially lowering visual quality and/or blocking existing views, depending on the barrier location and materials.
			✔									Impact PK#4: Kern River Parkway. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Mill Creek Linear Park. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Bakersfield Amtrak Station Playground. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
AVR-MM#2e	Provide Offsite Landscape Screening Where Appropriate	Where onsite landscape screening measures as described under AVR-MM#2d cannot provide effective screening to significantly affected high-sensitivity receptors such as nearby rural	✔		Pre-Construction/Operation	Reporting	Monthly	Authority	Contractor/ Environmental Compliance Manager/Mitigation Manager/	Post - Construction/monthly reporting	Contract Requirements/ Specifications and Landscaping and maintenance will be provided by the Contractor for its scope of work until substantial	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the

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		residential areas, provide offsite screening, as appropriate, if desired by affected residential owners.							Authority		completion of the work at which time the Authority shall assume responsibility for landscaping or assign the responsibility to other third parties.	existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in Bakersfield due to elevated guideways and sound barriers.
				✔								Impact AVR#4: Lower visual quality in the Rural San Joaquin Valley Landscape Unit:

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												Burbank Street, Verdugo Lane
				✔								Impact AVR#4: Lower visual quality in the North Bakersfield Landscape Unit: Norris Road west of SR 99
			✔									Impact AVR#4: Sound Barriers would lower visual quality or block views. The Preferred Alternative would require the use of sound barriers along portions of the guideway in urbanized areas, potentially lowering visual quality and/or blocking existing views, depending on the barrier location and materials.
				✔								Impact AVR#5: Visual Quality Effects to Schools: Valley Oaks Charter School
			✔									Impact PK#4: Kern River Parkway. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
			✔									Impact PK#4: Mill Creek Linear Park. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of

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												the site and its surroundings.
			✔									Impact PK#4: Bakersfield Amtrak Station Playground. HSR operation of the Preferred Alternative would substantially degrade the existing visual character of the site and its surroundings.
AVR-MM#2f	Landscape Treatments along the HSR Project Overcrossings and Retained Fill Elements of the HSR	Upon the completion of construction, the contractor 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 proposed, the structure will employ architectural details and low-	✔									Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4:

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		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.										Sound Barriers Would Lower Visual Quality or Block Views
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in Bakersfield due to elevated guideways and sound barriers.
				✔								Impact AVR#4: Lower visual quality in the Shafter Town Landscape Unit: Shafter Depot Museum.
				✔								Impact AVR#5: Visual Quality Effects to Schools: Valley Oaks Charter School
AVR-MM#2g	Provide Sound Barrier Treatments	The contractor 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 (see the description of sound barriers in Table 3.16-2). The Authority will develop the treatments during final design and integrate them into the final project design. The treatments	✔		Pre-construction/Construction	Reporting	Monthly	Contractor	Contractor	Construction/monthly reporting	Contract Requirements/ Specifications	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent

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		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 AVR-MM#2f. Surface enhancements will be consistent with the design features developed under AVR-MM#2a, 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.										project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Sound Barriers Would Lower Visual Quality or Block Views
			✔									Impact AVR#4: Lower visual quality in the Rosedale, Kern River, Central Bakersfield, and/or East Bakersfield Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings in Bakersfield due to elevated guideways and sound barriers.
				✔								Impact AVR#4: Lower visual quality in the Shafter Town Landscape Unit: Shafter Depot Museum.
				✔								Impact AVR#4: Lower visual quality in the North

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												Bakersfield Landscape Unit: Norris Road west of SR 99
				✔								Impact AVR#4: Lower visual quality in the Kern River Landscape Unit: Kern River Parkway Bike Trail
												Impact AVR#4: Lower visual quality in the East Bakersfield Landscape Unit: Sumner Street at Baker Street
				✔								Impact AVR#5: Visual Quality Effects to Schools: Valley Oaks Charter School
AVR-MM#2h	Screen Traction Power Distribution Stations and Radio Communication Towers	Upon completion of station or HMF construction, the contractor will screen the traction power substations (located at approximately 30-mile intervals along any of the HSR alternatives), including radio towers where required, 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	✔		Post-construction/Operation	Reporting	Annually	Contractor	Contractor	Post Construction/ Operations	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.	Impact AVR#4: Lower visual quality in the Rural Valley/Agricultural Landscape Unit. Impacts on the existing visual character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
				✔								Impact AVR#4: Lower visual quality in the Rural San Joaquin Valley Landscape Unit. Impacts on the existing visual

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		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 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. Figure 3.16-66 shows a power substation in an urban environment that is partially screened by landscaping and fencing. None of the mitigation measure options are expected to result in secondary effects. The mitigation measures are typical of visual treatments applied on linear transportation facilities; they have been defined to be specific in range and implementable according to context, and designed in coordination with local jurisdictions.									character and quality of the site and its surroundings, as seen by nearby rural residents due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔									Impact AVR#4: Lower visual quality in Wasco, and Shafter Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
				✔								Impact AVR#4: Lower visual quality in the Shafter Town Landscape Units. Impacts on the existing visual character and quality of the site and its surroundings due to at-grade and elevated structures, HSRs, road overcrossings, or other prominent project features.
			✔	✔								Impact AVR#4: Traction Power Stations would alter visual character or block views. The Preferred Alternative

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												would require the placement of Traction Power Distribution Stations of varying sizes at approximately 5-mile intervals along the alignment, which would potentially alter the visual character of adjacent lands and/or block views toward areas beyond the alignment.
AVR-MM#2i	Install Decorative Parapet Design at Kern River Crossing. Consistent with Mitigation Measure AVR-MM#2a.	During final design of the elevated viaduct over the Kern River and the Kern River Parkway Bike Trail, the Authority will consult with the City of Bakersfield to design a decorative parapet that fits with the viaduct's visual context. Reveals or recessed surfaces and motifs reflecting the natural environment of the Kern River shall be used on the outside surface of the parapet. The parapet and box girder shall be designed as a unified visual composition.		✔	Final Design	Consultation with City of Bakersfield, Preparation of Final Design	Once	Authority	Authority	Consultation with City and Preparation of Final Design	Incorporation of agreed decorative design elements into final design	Impact AVR#4: Change to visual quality as a result of the elevated viaduct over the Kern River and the Kern River Parkway Bike Trail.
3.17 Cultural Resources												
CUL-MM #1	Complete Inventory for Archaeological Resources and Comply with the Stipulations Regarding the Treatment of Archaeological Resources in the PA and MOA	The contractor will complete the following management steps for currently inaccessible areas once permission to enter has been obtained: ▪ The contractor will complete an inventory and evaluation report for archaeological resources. ▪ This work will be led or supervised by cultural resources specialists who	✔		Pre-construction	Reporting	Weekly	Contractor	Contractor	Pre-construction/weekly reporting or as dictated by the Archaeological Treatment Plan (ATP)	PA/ MOA	Impact CUL #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities Construction of the HSR would result in possible substantial effects on unknown archaeological deposits or

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		meet the SOI's professional qualification standards provided in 36 C.F.R. Part 61. ▪ All newly identified resources will be mapped and described on DPR forms. Mapping will be completed by recording data with GPS hardware through which data can be imported and managed in Geographic Information Systems. Mapping of previously identified resources will be limited to updates of existing records where necessary to describe the current boundaries of the resource and any change in condition that has occurred after the first recordation. ▪ The contractor will evaluate the eligibility of identified archaeological and built environment resources for listing on the CRHR. ▪ Under delegated authority provided in the PA and MOA the contractor will also evaluate identified archaeological resources for the NRHP. ▪ For archaeological resources that are NRHP eligible the contractor will assess the potential for adverse effects within the meaning of 36 C.F.R. Part 800.5(a)(1). For CRHR eligible resources the contractor shall assess the potential for significant impacts by applying the criteria in CEQA Guidelines										paleontological resources from ground-disturbing construction operations associated with the project, or in areas where PTE has not been granted.

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		15064.5(b). ▪ For CRHR eligible archaeological resources the Authority shall determine if these resources can feasibly be preserved in place, or if data recovery is necessary. The methods of preservation in place shall be considered in the order of priority provided in CEQA Guidelines § 15126.4(b)(3). If data recovery is the only feasible treatment the Authority shall adopt a data recovery plan as required under CEQA Guidelines § 15126.4(b)(3)(C). ▪ For archaeological resources the Authority shall also determine if the resource is a unique archaeological site. If the resource is not an historical resource but is an archaeological site the resource shall be treated as required in California Public Resources Code 21083.2.										
CUL-MM #2	Conduct Archaeological Training	Before the start of ground-disturbing activities within the APE, a qualified professional archaeologist who meets the SOI 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	✔		Pre-construction	Reporting	Monthly	Contractor	Contractor	Prior to ground-disturbing activities/monthly reporting	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	Impact CUL #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities Construction of the HSR would result in possible substantial effects on unknown archaeological deposits or paleontological resources from

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		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 before commencing construction within the APE or and will be repeated as needed as construction crews and supervisors change.									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 treatment plan prepared for the section, to the MOA signatories and MOA concurring parties for review and comment.	ground-disturbing construction operations associated with the project, or in areas where PTE has not been granted.
CUL-MM #3	Conduct Archaeological Monitoring in Areas of Sensitivity, Halt Work in the Event of a Discovery	Prior to ground-disturbing construction the Authority will include a cultural resources discovery plan in the contract conditions of the Contractor, identifying the following steps to be taken in the event of the inadvertent discovery of cultural resources: ▪ An archaeological monitor will be present to observe construction at geographic locations that are sensitive for unidentified cultural resources. Such locations may consist of construction areas near identified cultural resources (within a 200-foot radius around the known boundaries of identified resources) and where ground-disturbing construction will occur within 1,500 feet of major water features, or in other areas of identified sensitivity based on inventory work to be completed when permission to enter is granted.	✔		Construction	Reporting	Daily Logs (during active monitoring)	Contractor/Authority	Contractor	Daily logs (during active monitoring)	ATP/MOA	Impact CUL #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities Construction of the HSR would result in possible substantial effects on unknown archaeological deposits or paleontological resources from ground-disturbing construction operations associated with the project, or in areas where PTE has not been granted.

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		▪ In the event of an archaeological resource discovery, work will cease in the immediate vicinity of the find, based on the direction of the archaeological monitor or the apparent location of cultural resources if no monitor is present. A qualified archaeologist will assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These steps shall include evaluation for the CRHR and NRHP and necessary treatment to resolve significant effects if the resource is an historical resource or historic property. If the resource is eligible for the CRHR an archaeological resource methods of preservation in place shall be considered in the order of priority provided in CEQA Guidelines § 15126.4(b)(3). If data recovery is the only feasible mitigation The Authority shall adopt a data recovery plan as required under CEQA Guidelines § 15126.4(b)(3)(C). ▪ The California State Lands Commission (CSLC) will be notified if the find is a cultural resource on or in the submerged lands of California and consequently under the jurisdiction of the CSLC. The Authority will comply with all applicable rules and										

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		regulations promulgated by CSLC with respect to cultural resources in submerged lands. The project proponent will also comply with the PA. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.										
CUL-MM #4	Comply with State and Federal Law for Human Remains	Discoveries of human remains on private and state agency lands in California are governed by California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. Native American remains discovered on federal lands are governed by NAGPRA (25 US Code Section 3001. If human remains are discovered on state-owned or private lands the contractor shall contact the relevant County Coroner to allow the Coroner to determine if an investigation regarding the cause of death is required. If no investigation is required and the remains are of Native American origin the Authority shall contact the Native American Heritage Commission to identify an MLD. The MLD shall be empowered to reinter the remains with appropriate dignity. If the MLD fails to make a recommendation the remains shall be reinterred in a location not subject to further disturbance and the	✔		Pre-construction/Construction/ Post-construction	Monitoring and reporting	No reporting necessary unless remains are identified	Qualified Professional Archaeologist	Qualified Professional Archaeologist, in coordination with the Authority, SHPO and appropriate consulting agencies	If remains are identified during construction, Weekly reporting	ATP/MOA	Impact CUL #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities. Construction of the HSR would result in possible substantial effects on unknown archaeological deposits or paleontological resources from ground-disturbing construction operations associated with the project, or in areas where PTE has not been granted.
				✔								Impact CUL #1: Potential Adverse Effects on Archaeological Resources Due to Construction Activities: Human Remains

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		location shall be recorded with the Native American Heritage Commission and relevant information center of the California Historical Resources Information System. If human remains are part of an archaeological site the Authority and contractor shall, in consultation with the MLD and other stakeholders, consider preservation in place as the first option, in the order of priority called for in CEQA Guidelines Section 15126.4(b)(3). In consultation with the relevant Native American stakeholders the Authority may conduct scientific analysis on the human remains if called for under a data recovery plan and amenable to all stakeholders. California and the Authority will work with the most likely descendant, to satisfy the requirements of California Public Resources Code Section 5097.98. Performance tracking of this mitigation measure will be based on successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.										
CUL-MM#5	Conduct Additional Testing and Data Recovery	When access is obtained, conduct surveys, testing, and evaluation pursuant to the ATP. Follow treatments and data recovery, as required.	✔		Pre-construction/Construction	Reporting	Weekly	Contractor	Contractor	Pre-construction surveys and Construction/weekly reporting or as dictated by the ATP and the MOA	PA	Impact Cul#1: Potential Adverse Effects on Archaeological Resources due to Construction Activities Construction of the HSR would result in

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												possible substantial effects on unknown archaeological deposits or paleontological resources from ground-disturbing construction operations associated with the project, or in areas where PTE has not been granted.
				✔								Impact CUL #1: Potential Adverse Effects on Archaeological Resources Due to Construction Activities: Unidentified Archaeological Resources
				✔								Impact CUL #1: Potential Adverse Effects on Archaeological Resources Due to Construction Activities: Human Remains
Historic Architectural Resources												
CUL-MM#6	Complete Inventories for Historic Architectural Resources	Because design of the project is currently only at 15%, it may be necessary to conduct additional inventories for historic architectural resources as the design is finalized. The Authority, under delegated responsibility under the PA and MOA, shall complete inventory and evaluate historic architectural properties for the NRHP. The Authority will also evaluate historic architectural	✔		Pre-construction/ Construction	Reporting	Weekly	Contractor	Contractor	Pre-construction surveys and Construction/weekly reporting or as dictated by the BETP and the MOA	PA / Historic Structure Report (HSR) and the relocation plan	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on historic architectural resources can include excavation,

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		resources to determine if they are historical resources (CRHR-eligible). For identified NRHP historic properties the Authority will assess the potential for adverse effects by applying the effects criteria in 36 C.F.R. Part 800.5(a)(1). For CRHR historic resources the Authority shall assess the potential for significant impacts by applying the criteria in CEQA Guidelines 15064.5(b).										staging, heavy-equipment usage and movement, drilling,
CUL-MM #7	Avoid and/or Monitor Adverse Construction Vibration Effects	The BETP will describe the methodology for the avoidance of adverse vibration effects and how such avoidance will be monitored and implemented during construction of the project. Implementation of avoidance measures will be monitored to ensure that damaging vibration levels are avoided during construction adjacent to the historic properties identified as requiring this treatment.	✔		Pre-construction/Construction	Reporting	Weekly	Contractor	Contractor	Pre-construction surveys and Construction/weekly reporting or as dictated by the BETP and the MOA	PA/Historic Structure Report (HSR) and the relocation plan	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.
CUL-MM #8	Implement Protection and/or Stabilization Measures	The BETP will identify historic properties/historical resources that may require treatment, protection and/or stabilization before the start of construction of the project. Treatment will be developed in consultation with the landowner or land-owning agencies as well as the SHPO and the MOA	✔		Pre-construction/Construction	Reporting	Weekly	Contractor	Contractor	Pre-construction surveys and Construction/weekly reporting or as dictated by the BETP and the MOA	BETP PA Historic Structure Report (HSR) and the relocation plan	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on

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		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 from construction activities (e.g., traffic, equipment storage, personnel); shielding of resources from dust or debris; and stabilization of buildings adjacent to construction. For buildings that would be moved, treatment will include stabilization before, during, and after relocation; protection during temporary storage; and relocation at a new site and during subsequent rehabilitation.										historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.
CUL-MM #10	Minimize Adverse Effects through Relocation of Historic Structures	A BETP will identify historic properties/historical resources that could be relocated to help avoid their destruction and minimize the direct adverse effect of their physical damage or alteration. The development of the plan for relocation and the implementation of relocation will take place before 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) and their potential re-use. The properties subject to relocation will be documented in detailed recordation that includes photography. This documentation may consist of preparation of updated recordation forms (DPR 523), or may be consistent with the	✔		Pre-construction/Construction/ Post-Construction	Reporting	Weekly (during physical relocation)	Contractor	Contractor	Pre-construction surveys and Construction/weekly reporting or as dictated by the BETP and the MOA	BETP/Relocation Plan, PA HABS/HAER/HALS/MOA	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.

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		HABS, the Historic American Engineering Record (HAER), or the Historic American Landscape Survey (HALS) programs; or other recordation methods stipulated in the MOA and described in the BETP. The relocation plan will provide for stabilization of the structures before, during, and after the move, as well as inadvertent damage.										
CUL-MM #11	Minimize Adverse Operational Noise Effects	A BETP will identify the historic properties/historical resources that will be subject to treatment to minimize the indirect adverse effects caused by the operational noise of the HSR project. 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). Preliminary project design options, such as noise walls, have been developed to help reduce noise impacts and follow FRA methodologies for noise abatement.	✔		Pre-construction/Construction/Post-Construction	Reporting	Ongoing	Contractor	Contractor	Pre-construction and Construction	BETP PA Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Historic American Landscape Survey (HALS) programs, MOA	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.
CUL-MM #12	Prepare and Submit Additional Recordation and Documentation	A BETP will identify specific historical resources that would be physically altered, damaged, relocated, or destroyed by the project that will be documented in detailed recordation that includes photography. This documentation may consist of preparation of updated recordation forms (DPR 523), or may be consistent with the	✔		Pre-construction/Construction	Reporting	Monthly	Contractor, Authority to coordinate with SHPO	Contractor	Prior to construction/monthly reporting	BETP/ Photographs and nomination document, HABS/HAER/HALS/MOA	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction ActivitiesConstruction activities that may cause impacts on historic architectural resources can include excavation,

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		HABS, the Historic American Engineering Record (HAER), or the Historic American Landscape Survey (HALS) programs; a Historic Structure Report; or other recordation methods stipulated in the MOA and described in the BETP. The recordation undertaken by this treatment would focus on the aspect of integrity that would be affected by the project for each historic property subject to this treatment. For example, historic properties in an urban setting that would experience an adverse visual effect would be photographed to capture exterior and contextual views; interior spaces would not be subject to recordation if they would not be affected.Consultation with the SHPO and the consulting parties will be conducted for the historic architectural resources to be documented. Recordation documents will follow the appropriate guidance for the recordation format and program selected.Copies of the documentation will be provided to the consulting parties and offered to the appropriate local governments, historical societies and agencies, or other public repositories, such as libraries. The documentation will also be offered in printed and electronic form to any repository or organization to which the SHPO, the Authority, and the local agency with jurisdiction over										staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.
				✔								Impact CUL #2: Potential Adverse Effects on Historic Architectural [Built] Resources Due to Construction Activities: Introduction of Visual Elements: MR #00A, MR #00B, MR #042, MR #075.

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Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		the property, through consultation, may agree. The electronic copy of the documentation may also be placed on an agency or organization's website.										
CUL-MM #13	Prepare Interpretive or Educational Materials	Based on the finalization of design and the completed inventory, the BETP will identify historic properties and historical resources that will be subject to historic interpretation or preparation of educational materials. Interpretive and educational materials will provide information regarding specific historic properties or historical resources and will address the aspect of the significance of the properties that would be affected by the project. Interpretive or educational materials could include, but are not limited to: brochures, videos, websites, study guides, teaching guides, articles or reports for general publication, commemorative plaques, or exhibits. Historic properties and historical resources subject to demolition 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. Each plaque will provide a brief history of the subject property, its engineering/architectural features and characteristics, and the reasons for and the date of its demolition. The interpretive or educational materials will utilize images,	✔		Post-construction	Reporting	Annual	Authority	Authority, in consultation with the SHPO and appropriate consulting parties	Post-construction/annual reporting	BETP Photographic documentation Plan for repairs to historic properties	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.
				✔								Impact CUL #2: Potential Adverse Effects on Historic Architectural [Built] Resources Due to Construction Activities: Introduction of Visual Elements: MR #00A, MR #00B, MR #042, MR #075.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		narrative history, drawings, or other material produced for the mitigation described above, including the additional recordation prepared, or other archival sources. The interpretive or educational materials should be advertised, and made available to, and/or disseminated to the public. The interpretive materials may be made available in physical or digital formats, at local libraries, historical societies, or public buildings.										
CUL-MM #14	Plan Repair of Inadvertent Damage	Based on the completed inventory, the BETP will provide a plan for the repair of inadvertent damage to historic properties or historical resources be developed before project construction. The plan will consist of a general protocol for inadvertent damage to historic architectural resources and a listing of specific properties that should be the subject of an individual plan because of their immediate proximity to the project. Inadvertent damage from the project to any of the historic properties or historical resources near construction activities will be repaired in accordance with the SOI's Standards for Rehabilitation. Inadvertent damage will consist of any damage that results in a significant impact to a historical within the meaning of CEQA Guidelines Section 15064.5(b)(2) or adverse effects to historic properties within the meaning of 36	✔		Pre-construction/Construction/ Post-construction	Reporting	Monthly	Authority	Authority, in consultation with the SHPO and appropriate consulting parties	Monthly reporting	BETP, Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Conformance with SOI's Standards of Rehabilitation, Plans for repairs to historic properties	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities Construction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		C.F.R. Part 800.5(a)(1). The plan may utilize photographic documentation prepared for the other mitigation measures (such as the additional recordation) as the baseline condition for assessing damage. The plan will include the protocols for notification, coordination, and reporting to the SHPO and the landowner or land-owning agencies. Before it can be implemented, the repair plan will be submitted for review and comment to the SHPO 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 treatment of historic properties in similar-scale transportation projects. This type of mitigation measure has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this treatment is described in the BETP.										
CUL-MM #15	Visual Screening	Based on the finalization of design and the completed inventory, the BETP will identify historic properties and historical resources that will be subject to visual screening planting. Visual screening will consist of plant material that will minimize the view of the project from the property subject to mitigation. This treatment will minimize adverse effects on historic	✔		Construction/Post-construction	Reporting	Annual	Authority	Authority	Post-construction/annual reporting	BETP Photographic documentationVisual Screening Plan	Impact CUL#2: Potential Adverse Effects on Historic Architectural Resources due to Construction ActivitiesConstruction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		properties/historical resources to the extent possible.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. Visual screen planting may be undertaken in the form of boundary planting on the affected property, planting at affected viewpoints, and/or planting on project property as appropriate. This treatment will be developed in consultation with the landowner or land-owning agencies, as well as the SHPO and the MOA signatories, as required by the PA. The visual screen planting treatment will include preparation of a planting plan that utilizes evergreen tree or shrub species and will take into account both the growth rate and ultimate height and density for the selected species to ensure that the visual screen can be accomplished effectively.									equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements.
3.18 Regional Growth												
No significant impacts on Regional Growth have been identified.												
3.19 Cumulative Impacts												
CUM-N&V-MM#1	Consult with agencies regarding construction activities.	To minimize the potential overlapping noise-generating construction activities within the same area, the Authority	✔	✔	Pre-Construction/ Construction	Notify and consult with departments/agencies	Monthly	Contractor/Authority	Contractor	Monthly, record keeping, and reporting	Meetings with departments/agencies	Impact CUM-N&V: Cumulative noise and vibration impacts of the HSR

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		would consult with local city and county planning departments and other agencies as determined necessary. Consultation would entail notifying the departments/agencies regarding the anticipated HSR construction schedule and would allow for adjustment of construction schedules for adjacent projects or projects in close proximity to the HSR alignment, to the extent feasible.										alternatives and other past, present, and reasonably foreseeable projects during construction
CUM-SO-MM#1	Consult with agencies regarding construction activities.	To minimize the potential cumulative effects of overlapping construction activities within the same area, the Authority would consult with the local city and county planning departments and other agencies as determined necessary, to notify the departments/agencies regarding the anticipated HSR construction schedule and allow for adjustment of construction schedules for adjacent projects or projects in close proximity to the HSR alignment, to the extent feasible, in order to limit the overlap of community disruption.	✔	✔	Pre-Construction/ Construction	Notify and consult with departments/agencies	Monthly	Contractor/Authority	Contractor	Monthly, record keeping, and reporting	Meetings with departments/agencies	Impact CUM-SO: Construction and operation of the HSR project and other past, present, and reasonably foreseeable projects would result in division and/or disruption of communities in the cities of Fresno, Hanford, Corcoran, Wasco, Shafter, and Bakersfield, as well as unincorporated communities in Kings and Kern counties.
CUM-SO-MM#2	Public outreach.	For areas with potentially overlapping construction schedules for the HSR and other projects, the Authority would continue to undertake environmental justice outreach prior to construction, as described in Mitigation Measure SO-6: Continue	✔	✔	Pre-Construction/Construction	Public outreach activities	Monthly	Contractor/Authority	Contractor	Monthly, record keeping, and reporting	Meetings with departments/agencies	Impact CUM-SO: Construction and operation of the HSR project and other past, present, and reasonably foreseeable projects would result in division and/or

Table 1
Fresno to Bakersfield (Including Locally Generated Alternative) Mitigation Monitoring and Reporting Program

Mitigation Measure	Title	Mitigation Text	North of Poplar Ave	South of Poplar Ave	Phase	Implementation Action	Reporting Schedule	Implementation Party	Reporting Party	Implementation Text	Implementation Mechanism	Impact # and Impact Text
		outreach to disproportionately and negatively impacted environmental justice communities of concern. The Authority would obtain feedback from the affected neighborhoods regarding these project construction schedules to address community concerns.										disruption of communities in the cities of Fresno, Hanford, Corcoran, Wasco, Shafter, and Bakersfield, as well as unincorporated communities in Kings and Kern counties.
CUM-VQ-MM#1	Consult with agencies on HSR project design.	Prior to construction, the Authority would consult with local city and county planning departments to provide information about the HSR project design. This would allow for local plans and proposed development projects that could be adversely affected by the HSR project to be modified and potential visual impacts to high-sensitivity viewers to be reduced, as determined feasible by project applicants/planning departments.	✔	✔	Pre-Construction/Construction	Notify and consult with departments/agencies	Monthly	Contractor/Authority	Contractor	Monthly, record keeping, and reporting	Meetings with departments/agencies	Impact CUM-VQ: Cumulative visual effect of the HSR in combination with other past, present, and reasonably foreseeable future projects

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MMRP Attachment A
Transportation Mitigation

Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
Fresno Station									
Intersections									
4 – Van Ness Ave/SR 41 SB Ramp	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
6 – SR 99 NB Ramps/Ventura Ave	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
7 – E St/Ventura Ave	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno, as necessary; contract with station contractor
25 – H St/Tulare St	N/A	**TR MM#2:** Modify Signal Phasing.	✔		Re-time the existing signal in PM to 60 prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#2 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#2:** Prior to Fresno Station opening	**TR MM #2:** MOU with City of Fresno, as necessary; contract with station contractor
30 – U St/Tulare St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7** - Add Exclusive Turn Lanes to Intersections.	✔		Install southbound left-turn lane. Restripe southbound shared through-/left lane to through-lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and #7:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
33– Divisadero St/SR 41 NB Ramps/Tulare St (Existing Plus Project)	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7** - Add Exclusive Turn Lanes to Intersections. [3]	N/A	✔		Widen the westbound approach to provide one exclusive left-turn lane, two through-lanes, and one exclusive right-turn lane at the intersection concurrent with alignment construction.	**Table 3.2-39** Existing Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and 7 - Implementing Party:** Authority and Alignment Contractor; **Monitoring/Reporting Party:** Same	**TR MM#6 and #7** - Concurrent with alignment construction	**TR MM #6 and 7** - MOU with City of Fresno and/or Caltrans, as necessary; Contract with alignment contractor

MMRP Attachment A
Transportation Mitigation

Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
37 – SR 99 Southbound Ramps/ Fresno St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7** - Add Exclusive Turn Lanes to Intersections.	✔		Widen the eastbound approach to provide two exclusive through-lanes and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and #7:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
38 – SR 99 NB Ramps/Fresno St	N/A	**TR MM#4:** Restripe Intersections; **TR MM#7:** Add Exclusive Turn Lanes of Intersections.	✔		Restripe westbound right-turn lane to a shared through-/right-turn lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#4 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#4 and #7:** Prior to Fresno Station opening	**TR MM #4 and 7:** MOU with City of Fresno, as necessary; contract with station contractor
42 – Van Ness Ave/Fresno St	N/A	**TR MM#4:** Restripe Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Install southbound right lane, restripe shared southbound lane to southbound through-lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#4 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#4 and #7:** Prior to Fresno Station opening	**TR MM #4 and 7:** MOU with City of Fresno, as necessary; contract with station contractor
46 – Fresno St/Divisadero St	N/A	**TR MM#4:** Restripe Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Install westbound left-turn lane and restripe shared through-/left lane to through-lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#4 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#4 and #7:** Prior to Fresno Station opening	**TR MM #4 and 7:** MOU with City of Fresno, as necessary; contract with station contractor
52 – E Street/Stanislaus St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add exclusive turn lanes to intersections.	✔		Widen the eastbound approach to provide one exclusive left-turn lane, one exclusive through-lane, and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and #7:** MOU with City of Fresno, as necessary; contract with station contractor
53 – Broadway St/Stanislaus St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add exclusive turn lanes to intersections.	✔		Widen the eastbound approach to provide one exclusive left-turn lane, one exclusive through-lane, and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and #7:** MOU with City of Fresno, as necessary; contract with station contractor

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Transportation Mitigation

Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
54 – Van Ness Ave/Stanislaus St	**TR MM#5:** Revise Signal Cycle Length	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7**: Add exclusive turn lanes to intersections	✔		Re-time the existing signal in PM to 60 concurrent with alignment construction. Prior to Fresno Station opening, widen the westbound approach to provide one exclusive left-turn lane, one exclusive through-lane, and one shared through-/right-turn lane at the intersection.	**Table 3.2-39** Existing Plus Project Mitigation Measures – Fresno Station Area **Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#5 - Implementing Party**: Authority and alignment Contractor; **Monitoring/Reporting Party**: same; **TR MM#6 and #7 - Implementing Party:** Authority and station contractor; **Monitoring/Reporting Party:** same	**TR MM#5 -** Concurrent with alignment construction; **TR MM#6 and# 7**: Prior to station opening.	**TR MM#5 -** Contract with alignment contractor, and MOU with Fresno as necessary; **TR MM #6 and #7:** MOU with City of Fresno as necessary, and contract with station contractor
55 – N. Blackstone Ave/Stanislaus St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add exclusive turn lanes to intersections	✔		Widen the westbound approach to provide one exclusive left-turn lane, one exclusive through-lane, and one shared through-/right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and #7:** MOU with City of Fresno, as necessary; contract with station contractor
63 – H St/Divisadero St3	**TR MM#5:** Revise Signal Cycle Length.	N/A	✔		Re-time the existing signal in AM to 120 concurrent with alignment construction.	**Table 3.2-39** Existing Plus Project Mitigation Measures – Fresno Station Area	**TR MM#5 - Implementing Party:** Authority and Alignment Contractor; **Monitoring/Reporting Party:** Same	**TR MM#5** - Concurrent with alignment construction	**TR MM#5** - MOU with City of Fresno, as necessary; Contract with alignment contractor
74 – N. Blackstone Ave/E. Belmont Ave	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7**: Add exclusive turn lanes to intersections	✔		Install eastbound right-turn lane. Restripe shared southbound through-/left-turn to left-turn lane. Restripe shared southbound through-right lane to through-lane. Install southbound right-turn lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and #7:** MOU with City of Fresno, as necessary; contract with station contractor
80 – N. Blackstone Ave/SR 180 Westbound Ramps	**TR MM#4:** Restripe Intersections. **TR MM#7**: Add Exclusive Turn Lanes to Intersections.	**TR MM#4:** Restripe Intersections. (N/A because restriping done for alignment construction impacts mitigates station traffic impact)	✔		Concurrent with alignment construction: (a) Restripe shared eastbound lane to eastbound through- and eastbound right-turn lane and (b) Restripe the eastbound approach to provide one exclusive left-turn lane and one shared left-turn/right-turn/ through-lane at the intersection.	**Table 3.2-39** Existing Plus Project Mitigation Measures – Fresno Station Area **Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#4 and #7 - Implementing Party:** Authority and Alignment Contractor; **Monitoring/Reporting Party:** Authority and Alignment Contractor	**TR MM#4, TR MM#7** - Concurrent with alignment construction	**TR MM#4 and 7** - MOU with City of Fresno and/or Caltrans, as necessary; Contract with alignment contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
84 – G St/Mono S	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno, as necessary; contract with station contractor
86 – H St/Ventura St	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation. (N/A because signal add done for alignment construction impacts mitigates station traffic impact)	✔		Install a traffic signal at the intersection concurrent with alignment construction.	**Table 3.2-39** Existing Plus Project Mitigation Measures – Fresno Station Area **Table** 3.2-40 Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Alignment Contractor; **Monitoring/Reporting Party:** Authority and Alignment Contractor	**TR MM#3** - concurrent with alignment construction.	**TR MM#3** - MOU with City of Fresno, as necessary; Contract with alignment contractor
90 – Broadway St/Santa Clara St	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno, as necessary; contract with station contractor
92 – S. Van Ness Ave/E. California Ave	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/ Operation; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Install a traffic signal at the intersection; also provide exclusive left-turn lanes in both northbound and southbound directions, and change phasing on the northbound left and southbound left to protected plus permissive prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3 and #7:** Prior to Fresno Station opening	**TR MM #3 and TR MM #7:** MOU with City of Fresno and/or Caltrans as necessary; contract with station contractor
96 – Golden State Blvd/E. Church Ave	N/A	**TR MM#2:** Modify signal phasing; **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	✔		Provide an exclusive right-turn lane in the northbound direction, and change signal phasing on all approaches to provide a protected plus permissive left turn phase prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#2 and #6 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#2 and #6:** Prior to Fresno Station opening	**TR MM #2 and TR MM #6:** MOU with City of Fresno and/or Caltrans as necessary; contract with station contractor

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Transportation Mitigation

Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
101 – S. East Ave/Golden State Blvd	N/A	**TR MM#2:** Modify signal phasing.	✔		Increase cycle length in the PM Peak Hour prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#2 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#2:** Prior to Fresno Station opening	**TR MM #2:** MOU with City of Fresno, as necessary; contract with station contractor
102 – Golden State Blvd/E. Jensen Ave	N/A	**TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Provide an exclusive right-turn lane for both northbound and southbound approaches prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#7:** Prior to Fresno Station opening	**TR MM #7:** MOU with City of Fresno, as necessary; contract with station contractor
105 – Stanislaus St/99 SB Off	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Widen the southbound approach to provide one shared left turn/through-lane and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and TR MM #7:** MOU with City of Fresno and/or Caltrans as necessary; contract with station contractor
106 – Stanislaus St/99 NB On	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Widen the southbound approach to provide one shared left turn/through-lane and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and TR MM #7:** MOU with City of Fresno and/or Caltrans as necessary; contract with station contractor
111 – Stanislaus St/ Fulton St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Widen the southbound approach to provide one shared left turn/through-lane, and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and TR MM #7:** MOU with City of Fresno, as necessary; contract with station contractor
115 – Stanislaus St/M St	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Widen the southbound approach to provide one shared left-turn/through lane, and one exclusive right-turn lane at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and TR MM #7:** MOU with City of Fresno, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
117 – Stanislaus St/N St	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Install a traffic signal at the intersection concurrent with alignment construction. Prior to Fresno Station opening, widen the westbound approach to provide one exclusive left-turn lane, one exclusive through-lane, and one shared through-/right-turn lane at the intersection.	**Table 3.2-39** Existing Plus Project Mitigation Measures – Fresno Station Area **Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Alignment Contractor; **Monitoring/Reporting Party:** Authority and Alignment Contractor; **TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3** - Concurrent with alignment construction **TR MM#6 and #7:** Prior to Fresno Station opening.	**TR MM#3 -** Contract with alignment contractor, and MOU with Fresno as necessary; **TR MM #6 and 7:** MOU with City of Fresno as necessary, and contract with station contractor
124 – West Olive Ave/SR 99 SB Ramps	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Widen southbound approach to provide an exclusive left-turn lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and TR MM #7:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
125 – West Olive Ave/SR 99 NB Ramps	N/A	**TR MM#6:** Widen Approaches to Intersections; **TR MM#7:** Add Exclusive Turn Lanes to Intersections.	✔		Widen northbound approach to provide an exclusive left-turn lane prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Fresno Station opening	**TR MM #6 and TR MM #7:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
129 – West Belmont Ave/SR 99 Southbound Ramps	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection with a protected westbound left-turn phase prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
130 – West Belmont Ave/SR 99 NB Ramps	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Install a traffic signal at the intersection prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Fresno Station opening	**TR MM #3:** MOU with City of Fresno and/or Caltrans, as necessary; contract with station contractor
Roadway Segments									

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
7 – Stanislaus St, between Van Ness Ave and O St	N/A	**TR MM#8:** Add New Lanes to Roadway.	✔		Widen the roadway to provide one additional lane in each direction prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8:** Prior to Fresno Station opening	**TR MM #8:** MOU with City of Fresno, as necessary; contract with station contractor
14 – Fresno Street, between P Street and M Street	N/A	**TR MM#8:** Add New Lanes to Roadway.	✔		Widen the roadway to provide one additional lane in each direction prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8:** Prior to Fresno Station opening	**TR MM #8:** MOU with City of Fresno, as necessary; contract with station contractor
21 – Tulare St, between R St and U St	N/A	**TR MM#8:** Add New Lanes to Roadway.	✔		Widen the roadway to provide one additional lane in each direction prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8:** Prior to Fresno Station opening	**TR MM #8:** MOU with City of Fresno, as necessary; contract with station contractor
56 – Stanislaus St, between M St and N St	N/A	**TR MM#8:** Add New Lanes to Roadway.	✔		Widen the roadway to provide one additional lane in each direction prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8:** Prior to Fresno Station opening	**TR MM #8:** MOU with City of Fresno, as necessary; contract with station contractor
58 – Van Ness Ave, south of Tuolumne Street	N/A	**TR MM#8:** Add New Lanes to Roadway.	✔		Widen the roadway to provide one additional lane in each direction prior to Fresno Station opening.	**Table 3.2-40** Future (2035) Plus Project Mitigation Measures – Fresno Station Area	**TR MM#8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8:** Prior to Fresno Station opening	**TR MM #8:** MOU with City of Fresno, as necessary; contract with station contractor
Kings-Tulare Regional Station – East									
Intersections									
1 – Ninth Ave/SR 198	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Widen the roadway to provide one additional lane in each direction prior to Kings Tulare Regional Station–East opening.	**Table 3.2-42** Future (2035) Plus Project Mitigation Measures – Kings/Tulare Regional Station–East Alternative	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Kings Tulare Regional Station–East opening.	**TR MM #3:** MOU with County of Kings and/or Caltrans, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
3 – SR 43/SR 198 Eastbound Ramps	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Widen the roadway to provide one additional lane in each direction prior to Kings Tulare Regional Station–East opening.	**Table 3.2-42** Future (2035) Plus Project Mitigation Measures – Kings/Tulare Regional Station–East Alternative	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Kings Tulare Regional Station–East opening.	**TR MM #3:** MOU with County of Kings and/or Caltrans, as necessary; contract with station contractor
4 – Seventh Ave/SR 198	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Widen the roadway to provide one additional lane in each direction prior to Kings Tulare Regional Station–East opening.	**Table 3.2-42** Future (2035) Plus Project Mitigation Measures – Kings/Tulare Regional Station–East Alternative	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Kings Tulare Regional Station–East opening.	**TR MM #3:** MOU with County of Kings and/or Caltrans, as necessary; contract with station contractor
6 – Sixth Ave/SR 198	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Widen the roadway to provide one additional lane in each direction prior to Kings Tulare Regional Station–East opening.	**Table 3.2-42** Future (2035) Plus Project Mitigation Measures – Kings/Tulare Regional Station–East Alternative	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Kings Tulare Regional Station–East opening.	**TR MM #3:** MOU with County of Kings and/or Caltrans, as necessary; contract with station contractor
7 – Second Ave/SR 198	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Widen the roadway to provide one additional lane in each direction prior to Kings Tulare Regional Station–East opening.	**Table 3.2-42** Future (2035) Plus Project Mitigation Measures – Kings/Tulare Regional Station–East Alternative	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Kings Tulare Regional Station–East opening.	**TR MM #3:** MOU with County of Kings and/or Caltrans, as necessary; contract with station contractor
8 – SR 43/Lacey Blvd	N/A	**TR MM#3:** Add Signal to Intersection to Improve LOS/Operation.	✔		Widen the roadway to provide one additional lane in each direction prior to Kings Tulare Regional Station–East opening.	**Table 3.2-42** Future (2035) Plus Project Mitigation Measures – Kings/Tulare Regional Station–East Alternative	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Kings Tulare Regional Station–East opening.	**TR MM #3:** MOU with County of Kings and/or Caltrans, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
Bakersfield Station									
Intersections									
7- Mohawk Street/Hageman Road	N/A	**TR MM #3:** Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.		✔	Install a traffic signal at the intersection.	**Table 3.2-28** Existing Plus Project F-B LGA Bakersfield Station Area Intersection Analysis **Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Bakersfield Station opening	**TR MM #3:** MOU with City of Bakersfield, as necessary; contract with station contractor
8 – Mohawk Street/Rosedale Highway	N/A	**TR MM #4:** Restripe intersections. Restripe specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.		✔	Add a second westbound left-turn lane. This improvement already exists but is currently closed due to construction activity at the intersection.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#4 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#4:** Prior to Bakersfield Station opening	**TR MM #4:** MOU with City of Bakersfield and/or Caltrans, as necessary; contract with station contractor
12 – SR 99 Southbound Ramps/Olive Drive	N/A	**TR MM #3:** Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.		✔	Install a traffic signal at the intersection.	**Table 3.2-28** Existing Plus Project F-B LGA Bakersfield Station Area Intersection Analysis	**TR MM#3- Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Bakersfield Station opening	**TR MM #3:** MOU with City of Bakersfield, as necessary; contract with station contractor
13 – Dole Court/Snow Road	N/A	**TR MM #10:** Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.		✔	Convert to all-way stop control.	**Table 3.2-23** Intersections Future (2035) Plus Project Levels of Service Summary – Kern County	**TR MM#10 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#10:** Prior to Bakersfield Station opening	**TR MM #10:** MOU with City of Bakersfield, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
14 – Norris Road/Snow Road	N/A	**TR MM #3:** Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.		✔	Install a traffic signal at the intersection.	**Table 3.2-23** Intersections Future (2035) Plus Project Levels of Service Summary – Kern County	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Bakersfield Station opening	**TR MM #3:** MOU with City of Bakersfield, as necessary; contract with station contractor
22 – Oak Street/Rosedale Highway-24th Street	N/A	**TR MM #2:** Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation. **TR MM #5:** Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.		✔	Add overlap phasing for westbound right-turn lane and re-time the signal in the a.m. and p.m. peak hours.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#2 and #5 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#2 and #5:** Prior to Bakersfield Station opening	**TR MM #2 and TR MM #5:** MOU with City of Bakersfield, as necessary; contract with station contractor
26 – Oak Street/Truxtun Avenue	N/A	**TR MM #5:** Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.		✔	Re-time the signal in the a.m. and p.m. peak hours.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#5 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#5:** Prior to Bakersfield Station opening	**TR MM #5:** MOU with City of Bakersfield, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
26 – SR 43/Ash Avenue		**TR MM #8:** Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation. **TR MM #9:** Restripe roadway segment. Restripe specific roadway segments in the vicinity of the proposed HSR station locations to improve LOS and roadway segment operation.		✔	Add a two-way left-turn lane on SR 43.	**Table 3.2-21** Intersections Future (2035) Plus Project Levels of Service Summary – City of Shafter	**TR MM#8 and #9 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8 and #9:** Prior to Bakersfield Station opening	**TR MM #8 and TR MM #9:** MOU with City of Bakersfield, as necessary; contract with station contractor
32 – Beech Avenue/Riverside Street		**TR MM #10:** Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.		✔	Convert to all-way stop control.	**Table 3.2-21** Intersections Future (2035) Plus Project Levels of Service Summary – City of Shafter	**TR MM#10 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#10:** Prior to Bakersfield Station opening	**TR MM #10:** MOU with City of Bakersfield, as necessary; contract with station contractor
36 – F Street/24th Street		**TR MM #5:** Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.		✔	Re-time the signal in the p.m. peak hour.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#5 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#5:** Prior to Bakersfield Station opening	**TR MM #5:** MOU with City of Bakersfield, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
37 – F Street/23rd Street		**TR MM #6:** Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation. **TR MM #7:** Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation. **TR MM #8:** Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation.		✔	Widen the eastbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane.	**Table 3.2-28** Existing Plus Project F-B LGA Bakersfield Station Area Intersection Analysis **Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#6, #7, and #8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6, #7, and #8:** Prior to Bakersfield Station opening	**TR MM #6, TR MM #7, and TR MM #8:** MOU with City of Bakersfield, as necessary; contract with station contractor
60 – M Street/SR 204/28th Street	N/A	**TR MM #6:** Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation. **TR MM #7:** Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.		✔	Widen the northbound approach to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#6 and #7 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#6 and #7:** Prior to Bakersfield Station opening	**TR MM #6 and TR MM #7:** MOU with City of Bakersfield, as necessary; contract with station contractor
89 – Union Avenue/California Avenue	N/A	**TR MM #5:** Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.		✔	Re-time the signal in the p.m. peak hour.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#5 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#5:** Prior to Bakersfield Station opening	**TR MM #5:** MOU with City of Bakersfield, as necessary; contract with station contractor

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Intersection or Roadway	Caused by Alignment Construction	Caused by HSR Station Operation and Future Growth	North of Poplar	South of Poplar	Mitigation Detail	FEIR/FEIS or Final SEIR/EIS CH3.2 Table Location	Implementing Party and Monitoring/Reporting Party	Implementation/ Reporting Schedule	Implementation Mechanism
101 – Beale Avenue/Jefferson Street-SR 178 Westbound Ramps	N/A	**TR MM #3:** Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.		✔	Install a traffic signal at the intersection.	**Table 3.2-29** Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	**TR MM#3 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#3:** Prior to Bakersfield Station opening	**TR MM #3:** MOU with City of Bakersfield, as necessary; contract with station contractor
Roadway Segments									
3 – F Street, between 30th Street and 24th Street	N/A	**TR MM #9:** Restripe roadway segment. Restripe specific roadway segments in the vicinity of the proposed HSR station locations to improve LOS and roadway segment operation.		✔	Convert center two-way left-turn lane to a dedicated northbound through lane	**Table 3.2-27 Future (2035) Plus Project** F-B LGA Bakersfield Station Area Roadway Segment Analysis	**TR MM#9 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#9:** Prior to Bakersfield Station opening	**TR MM #9:** MOU with City of Bakersfield, as necessary; contract with station contractor
41 – Central Valley Highway (SR 43), north of E Los Angeles Avenue	N/A	**TR-MM#8:** SR 43 north of E. Los Angeles Avenue: Widen SR 43 from 2 to 4 lanes.		✔	Widen the roadway to provide one additional lane in each direction prior to Bakersfield Station opening.	**Table 3.2-18 Future (2035) Plus F-B LGA** Roadway Segment Analysis – City of Shafter	**TR MM#8 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#8:** Prior to Bakersfield Station opening	**TR MM #8:** MOU with City of Bakersfield, as necessary; contract with station contractor
64 – 30th Street between F Street and H Street	N/A	**TR MM #9:** Restripe roadway segment. Restripe specific roadway segments in the vicinity of the proposed HSR station locations to improve LOS and roadway segment operation.		✔	Eliminate on-street parking to convert 30th Street from 2-lane Collector to 4-lane Collector	**Table 3.2-26 Existing Plus Project** F-B LGA Bakersfield Station Area Roadway Segment Analysis **Table 3.2-27 Future (2035) Plus Project** F-B LGA Bakersfield Station Area Roadway Segment Analysis	**TR MM#9 - Implementing Party:** Authority and Contractor (station contractor) **Monitoring/Reporting Party:** Authority and Contractor (station contractor)	**TR MM#9:** Prior to Bakersfield Station opening	**TR MM #9:** MOU with City of Bakersfield, as necessary; contract with station contractor