

California High-Speed Rail Authority

Fresno to Bakersfield *Section*

Final Supplemental Environmental Impact Report

CEQA Findings of Fact and Statement
of Overriding Considerations

October 2018



CALIFORNIA
High-Speed Rail Authority

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AQMD	Air Quality Management District
Authority	California High-Speed Rail Authority
BETP	Built Environment Treatment Plan
BMP	best management practices
BRMP	Biological Resources Management Plan
C.F.R.	Code of Federal Regulations
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CMMP	Comprehensive Mitigation and Monitoring Plan
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	Carbon dioxide equivalents
dBA	A-weighted decibel
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ERA	environmentally restricted area(s)
ESA	environmentally sensitive area(s)
F-B LGA	Fresno to Bakersfield Locally Generated Alternative
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GC	general conformity
GHG	greenhouse gas
HMF	heavy maintenance facility
HSR	high-speed rail
HST	high-speed train
LEDPA	least environmentally damaging practicable alternative
LOS	level of service
MOA	Memorandum of Agreement
MOIF	maintenance of infrastructure facility
MT	metric tons
NO _x	nitrogen dioxide
PA	Programmatic Agreement

PM ₁₀	particulate matter less than 10 microns in diameter (but larger than 2.5 microns)
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PRMMP	Paleontological Resource Monitoring and Mitigation Plan
PRS	paleontological resources specialist
RRP	Restoration and Revegetation Plan
RTP	regional transportation plan
SB	Senate Bill
SEL	sound exposure level
SHPO	State Historic Preservation Office
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	short-lived climate pollutant
SO ₂	sulfur dioxide
SR	State Route
SWRCB	State Water Resources Control Board
TM	technical memoranda
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VERA	Voluntary Emission Reduction Agreement
VMT	vehicle miles traveled
VOC	volatile organic compound
WEAP	Worker Environmental Awareness Program

1 INTRODUCTION

These California Environmental Quality Act (CEQA) Findings of Fact and Statement of Overriding Considerations are intended to fulfill the responsibilities of the California High-Speed Rail Authority (Authority) under CEQA for its approval for the Fresno to Bakersfield Locally Generated Alternative of the Fresno to Bakersfield Section of the California High-Speed Rail (HSR) System. CEQA provides that no public agency shall approve a project or program, as proposed, if it would result in significant environmental effects as identified in an EIR, unless it adopts and incorporates feasible mitigation to avoid and reduce such effects and adopts appropriate findings.

Section 15091 of the CEQA Guidelines provides as follows:

- a) No public agency shall approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. The possible findings are:
 - 1) Changes or alterations have been required in, or incorporated into, the project, which avoid or substantially lessen the significant environmental effect as identified in the final EIR.
 - 2) Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.
 - 3) Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the final EIR.

CEQA Guidelines Section 15093 further provides:

- a) CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits, including region-wide or statewide environmental benefits, of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable."

These Findings include a description of the Preferred Alternative for the portion of the Fresno to Bakersfield Section from just north of Poplar Avenue in Kern County south to the intersection of 34th Street and L Street including the F Street Station, findings concerning potentially significant environmental impacts and mitigation to address such impacts, a discussion of cumulative and growth-inducing impacts, and a statement of overriding considerations.

The custodian of the documents and other materials that constitute the record of proceedings upon which these CEQA findings of fact and statement of overriding considerations are based is the California High-Speed Rail Authority, 770 L Street, Suite 620 MS-1, Sacramento, California 95814, (916) 324-1541.

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2 PROJECT DESCRIPTION

2.1 Fresno to Bakersfield Section Background

The Authority has responsibility for planning, designing, constructing, operating, and maintaining an electric-powered HSR System in California. When completed, the nearly 800-mile train system will provide new passenger rail service to more than 90 percent of the state's population. More than 200 weekday trains will serve the statewide intercity travel market.¹ The HSR system will be capable of operating speeds of up to 220 miles per hour, with state-of-the-art safety, signaling, and automated train control systems collectively known as the enhanced Automatic Train Control system, to include all positive train control functions and to comply with the requirements of Code of Federal Regulations Title 49, Part 236 Subpart I. The system will connect and serve the major metropolitan areas of California, extending from San Francisco and Sacramento in the north to San Diego in the south (Figure 1). The Authority is the CEQA lead agency.

Following the completion of a programmatic review of the California HSR system, the Authority and Federal Railroad Administration (FRA) initiated project-level environmental impact reports/environmental impact statements (EIR/EIS) for nine independent project sections of the California HSR System, including the Fresno to Bakersfield Section. The Authority published a Notice of Preparation on September 29, 2009, and the FRA published a Notice of Intent in October 2009. Following public scoping, the Authority and the FRA published a Draft EIR/EIS in August 2011. Based on public and agency comments, the Authority and the FRA developed new alignment alternatives and analyzed their potential impacts in a Revised Draft EIR/Supplemental EIS published for public review in July 2012. In April 2014, the Authority and the FRA published the Fresno to Bakersfield Section Final EIR/EIS.

In the Fresno to Bakersfield Section Final EIR/EIS, the Authority and FRA identified a Preferred Alternative consisting of portions of the "BNSF Alternative" in combination with the "Corcoran Bypass," "Allensworth Bypass," and "Bakersfield Hybrid" alternatives (Figure 2). Following publication of the Final EIR/EIS, the Authority certified the Fresno to Bakersfield Section Final EIR/EIS and approved the 2014 Preferred Alternative south from Fresno to 7th Standard Road, the northern city limits of Bakersfield. Based on an analysis of potential project impacts and substantive agency and public comments including comments filed after issuance of the Final EIS, FRA issued a Record of Decision on June 27, 2014, approving the 2014 Preferred Alternative in its entirety from the Fresno Station to the Bakersfield Station at Truxtun Avenue.

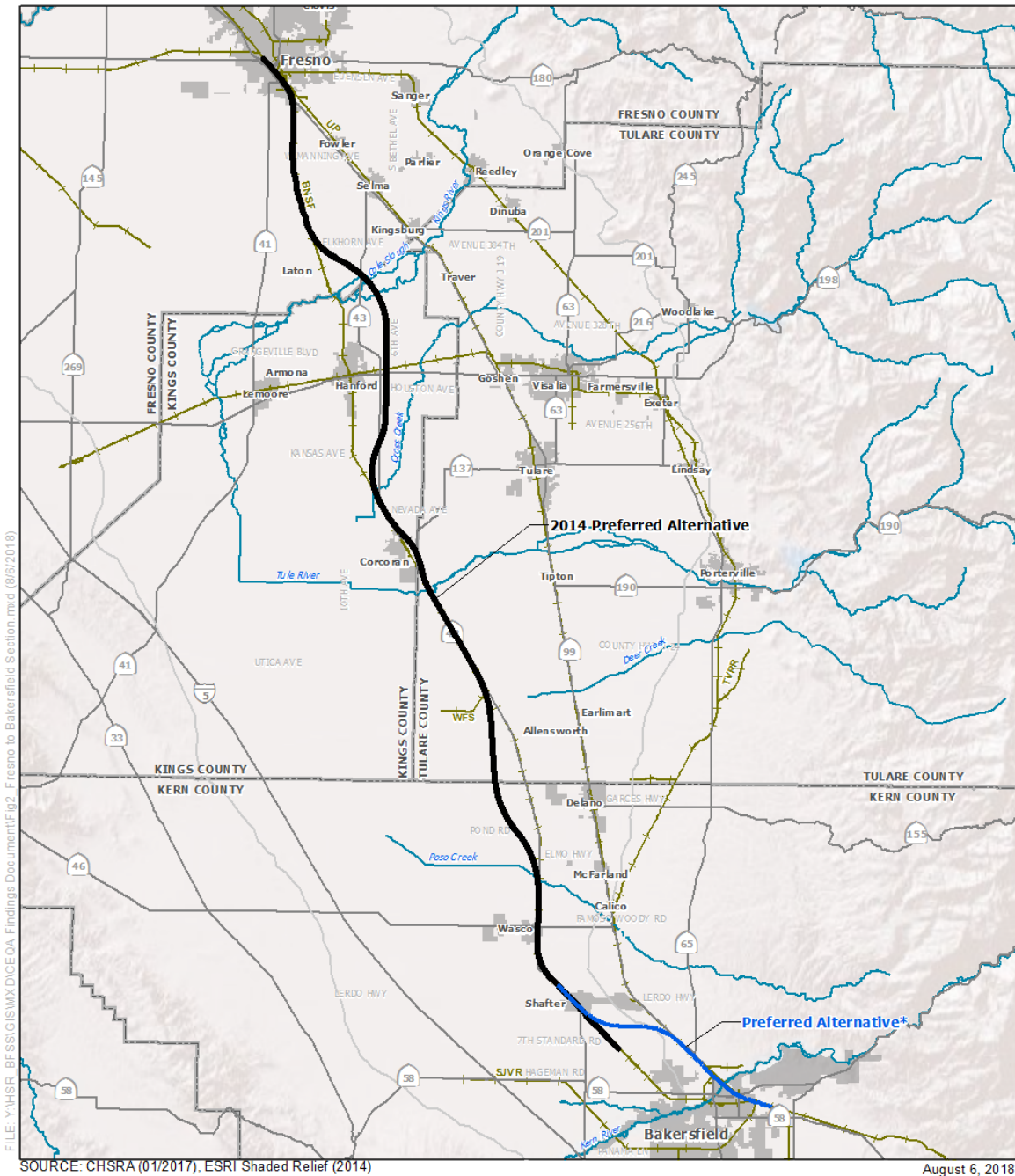
¹ "Intercity rail passenger transportation" is defined at 49 U.S.C. 24102(4) as "rail passenger transportation except commuter rail passenger transportation." An intercity passenger rail service consists of a group of one or more scheduled trains (roundtrips) that provide intercity passenger rail transportation between bona fide travel markets (not constrained by state or jurisdictional boundaries), generally with similar quality and level-of-service specifications, within a common (but not necessarily exclusive or identical) set of identifiable geographic markets (*Federal Register* Volume 74, No 119, June 23, 2009). Similarly, "commuter rail passenger transportation" is defined at 49 U.S.C. 24102(3) as "short-haul rail passenger transportation in metropolitan and suburban areas usually having reduced fare, multiple ride, and commuter tickets and morning and evening peak period operations."

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Figure 1 California HSR System Initial Study Corridors

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- Fresno to Bakersfield Section**
- 2014 Preferred Alternative
 - Preferred Alternative*
 - * (As considered in this Findings Document)
 - Stream/River
 - Canal/Aqueduct
 - Existing rail line
 - County boundary
 - Community/urban area

Figure 2 Fresno to Bakersfield Section

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2.1.1 Fresno to Bakersfield Locally Generated Alternative Background

The Fresno to Bakersfield Section Final EIR/EIS considered the impacts associated with three alternative alignments through Bakersfield, and ultimately the Authority and FRA selected the Bakersfield Hybrid as the Preferred Alternative through Bakersfield. On June 5, 2014, the City of Bakersfield filed a state lawsuit challenging the Authority's May 7, 2014 approvals under CEQA. The City claimed that the 2014 Preferred Alternative identified in the Fresno to Bakersfield Section Final EIR/EIS would severely impact the City's ability to utilize existing city assets, including its corporation yard, senior housing, and parking facilities at the Rabobank Arena, Theater and Convention Center; would render unusable one of the city's premier health facilities; and would affect the Bakersfield Commons project, a retail/commercial/residential development.

In a Settlement Agreement signed December 19, 2014, between the City of Bakersfield and the Authority, the two agencies agreed to work together to develop and study a Fresno to Bakersfield Locally Generated Alternative (F-B LGA) to address Bakersfield's concerns and meet the Authority's design requirements. The F-B LGA described and analyzed in the Fresno to Bakersfield Section Draft Supplemental EIR/EIS evolved from this mutual cooperation and subsequent public input. The Authority has also collaborated with the City of Shafter and Kern County in developing the F-B LGA.

The Authority and the FRA prepared the Draft Supplemental EIR/EIS in accordance with CEQA and National Environmental Policy Act to reflect those elements of the Fresno to Bakersfield Section project that have evolved, most notably through the development of the F-B LGA as a new alternative. The Authority determined that preparation of a Supplemental EIR was appropriate in order to evaluate the F-B LGA where "only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation." (CEQA Guidelines, Section 15163[a].) Accordingly, the Draft Supplemental EIR/EIS was prepared to supplement the Fresno to Bakersfield Section Final EIR/EIS for purposes of evaluating the F-B LGA. The Draft Supplemental EIR/EIS was circulated for public review and comment from November 9, 2017, through January 16, 2018.

For purposes of understanding the potential impacts of the F-B LGA, the Draft Supplemental EIR/EIS compares the F-B LGA to the complementary portion of the Preferred Alternative that was identified in the Fresno to Bakersfield Section Final EIR/EIS. That portion, identified as the May 2014 Project in the Fresno to Bakersfield Section Draft Supplemental EIR/EIS, consists of the portion of the BNSF Alternative from Poplar Avenue to Hageman Road and the Bakersfield Hybrid Alternative from Hageman Road to Oswell Street. The May 2014 Project included a station that would be constructed at the corner of Truxtun and Union Avenues/State Route (SR) 204 as well as a maintenance of infrastructure facility (MOIF) that would be located along the May 2014 Project alignment between Riverside Street and Orange Street in Shafter.

The Authority has prepared a Final Supplemental EIR in accordance with CEQA. The Final Supplemental EIS and Supplemental Record of Decision are expected to be published subsequently. The Final Supplemental EIR constitutes the second part of the Final Supplemental EIR for the Fresno to Bakersfield Section and is intended to be a companion to the Draft Supplemental EIR/EIS. The Draft Supplemental EIR/EIS for the Fresno to Bakersfield Section constitutes the first part of the Final Supplemental EIR and is hereby incorporated by reference and bound separately. The Draft Supplemental EIR/EIS includes a detailed description of the project and detailed impact analysis across numerous resource areas. The Final Supplemental EIR does not replicate the detailed analysis of the Draft Supplemental EIR/EIS, but rather includes a revised summary, comments and additions to the Draft Supplemental EIR/EIS, a list of comments received on the Draft Supplemental EIR/EIS, and responses to those comments.²

² In many cases these Findings of Fact and Statement of Overriding Considerations refer to underlying detailed impact analyses and accordingly include a reference to a page or section of the Draft Supplemental

The Authority has concluded that recirculation of the Draft Supplemental EIR is not required here. (CEQA Guidelines, Section 15088.5.)

2.1.2 Description of the Preferred Alternative – Fresno to Bakersfield Locally Generated Alternative

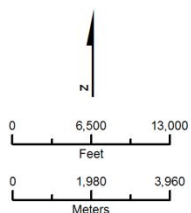
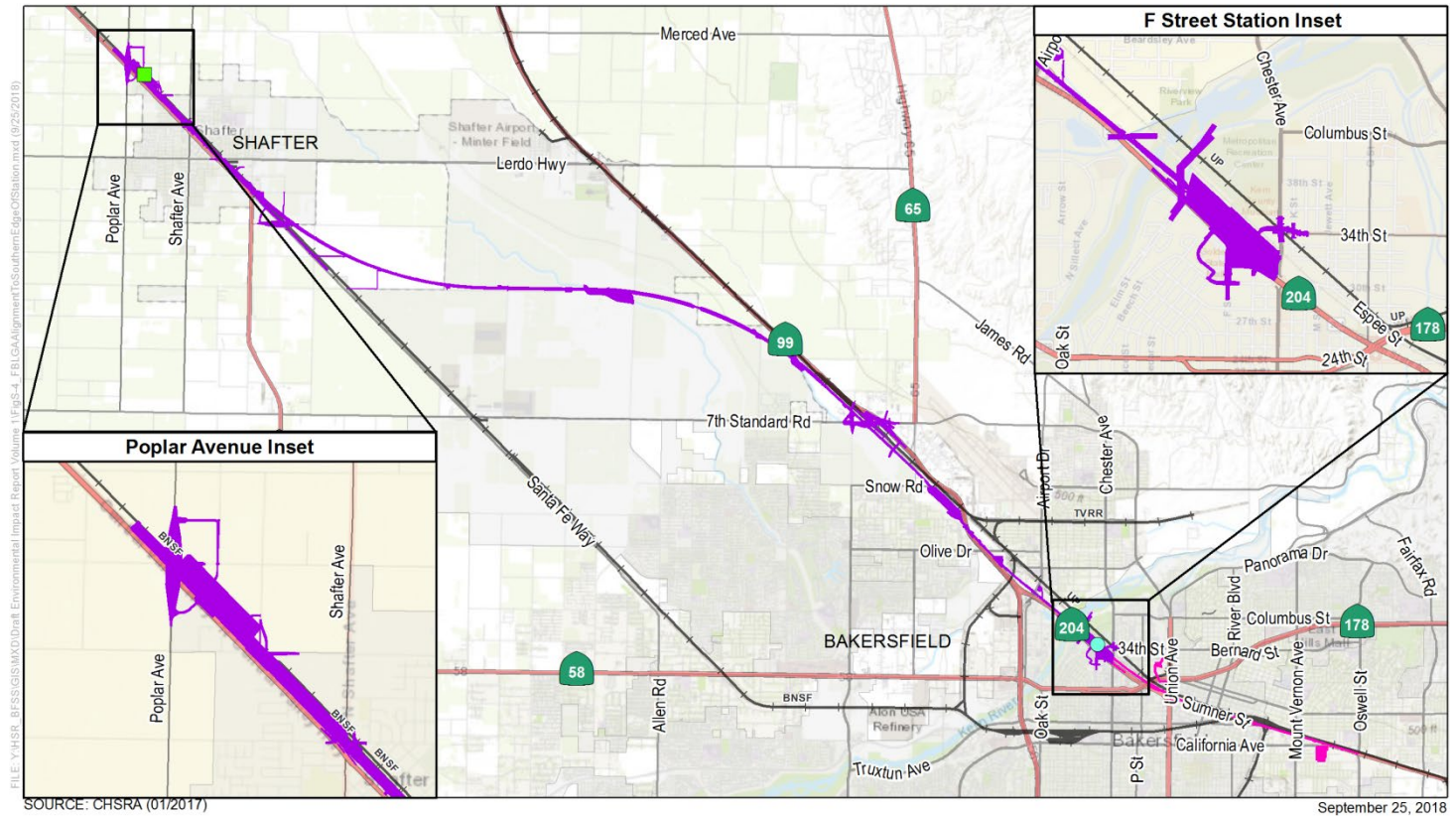
As shown in Figures 2 and 3, the Fresno to Bakersfield Preferred Alternative from just north of Poplar Avenue in Kern County south to the intersection of 34th Street and L Street including the F Street Station, as described in the Final Supplemental EIR, is the F-B LGA (herein referenced as the Preferred Alternative). The Preferred Alternative Station would be located at the intersection of F Street/SR 204 (Figure 4) and would be designed per the *High-Speed Train (HST) Station Area Development: General Principals and Guidelines* (Authority 2008).

The Preferred Alternative does not include a preferred heavy maintenance facility (HMF) site. The Authority, along with the FRA, anticipate considering the HMF sites evaluated in the Merced to Fresno Final EIR/EIS along with the five HMF sites evaluated in the Fresno to Bakersfield Final EIR/EIS prior to making the determination on one or more preferred sites, and prior to making a final HMF decision. The impacts of an HMF are, therefore not addressed further in these Findings.

2.1.3 Impact Avoidance and Minimization Measures

The Authority has developed impact avoidance and minimization measures, in consultation with appropriate agencies to meet the CEQA requirements. The Preferred Alternative incorporates avoidance and minimization measures and Best Management Practices (BMP) identified in the Final Supplemental EIR and described in detail in a series of technical reports that accompany the environmental document. As a result of applying these measures, the Preferred Alternative will avoid potential adverse environmental impacts in several resource areas, including electromagnetic interference/electromagnetic fields, public utilities and energy, geology and soils, hazardous materials and wastes; and station planning, land use, and development. In addition, the Preferred Alternative's compliance with 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 United States (U.S.) Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (USACE), and the U.S. Environmental Protection Agency (USEPA) with jurisdiction under the Federal Endangered Species Act and the Clean Water Act, respectively. Like the mitigation measures described in Technical Appendix 2-G of the Final Supplemental EIR, the avoidance and minimization measures 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 Preferred Alternative through its own actions, those of its contractors, and actions taken in cooperation with other agencies and entities.

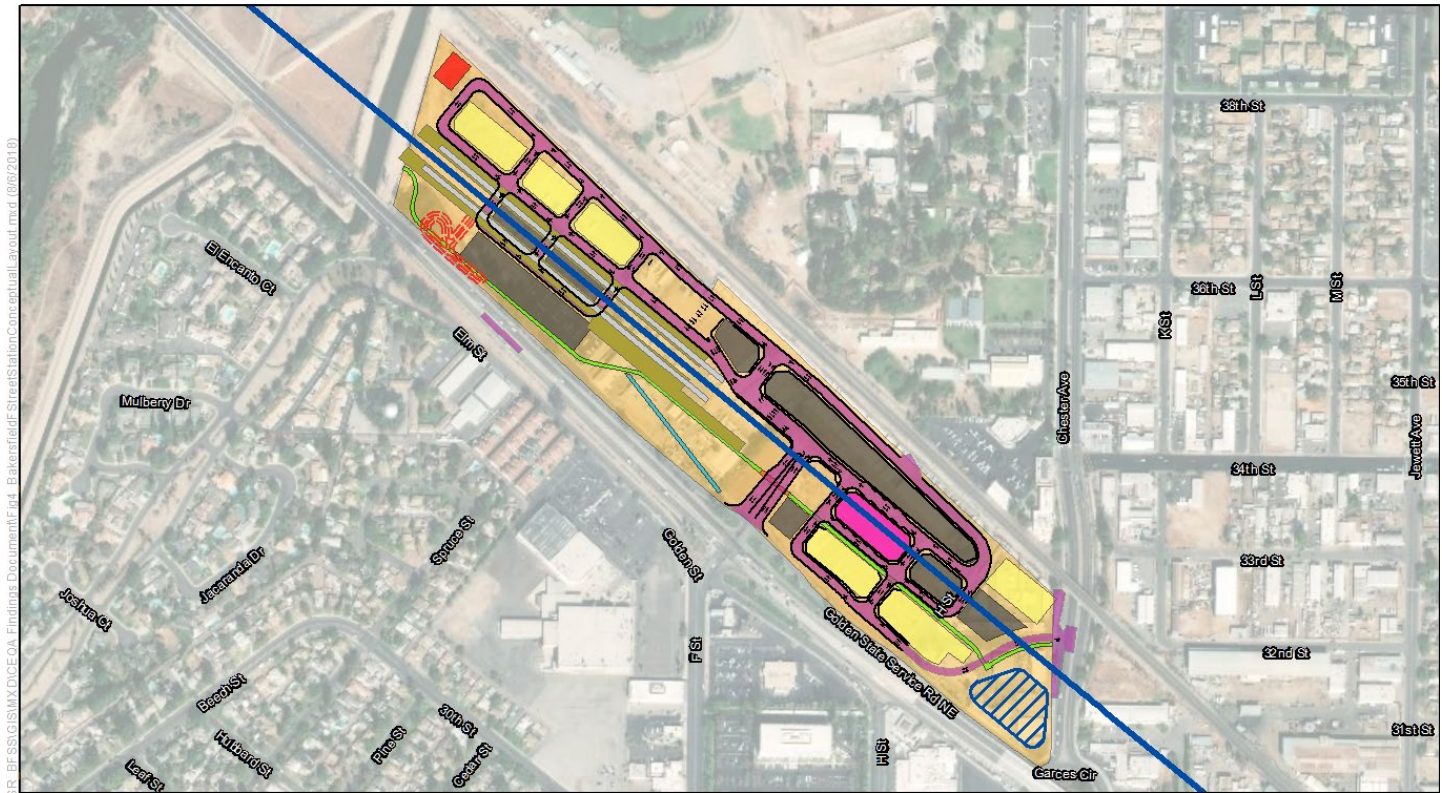
EIR/EIS. Such cross-references to the Draft Supplemental EIR/EIS are intended to also incorporate any modifications to the Draft Supplemental EIR/EIS that are made in the Final Supplemental EIR.



- MOIF Location
- F Street Station Location
- Part of Current Decision
- Reserved for Future Decision
- Existing rail line

Figure 3 Preferred Alternative and Associated Features

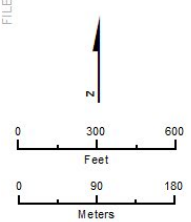
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FILE: Y:\HSR_BFSS\GIS\MXD\CEQA_Findings Document\E1.d4_Bakersfield Street Station Conceptual Layout.mxd (8/6/2018)

SOURCE: CHSRA (01/2017); NAIP (06/2016)

August 6, 2018



- | | | |
|--|--|---|
| <p>Preferred Alternative</p> <ul style="list-style-type: none"> — Elevated Structure F Street Station Footprint F Street Station Roadways | <p>F Street Station Buildings and Structures</p> <ul style="list-style-type: none"> Landscaped Stormwater Retention Area Platform Station Area ADA Accessible Path Bike/Pedestrian Bridge | <ul style="list-style-type: none"> Bike/Pedestrian Path Emergency Vehicle Access Surface Parking Area Parking Structure Area Emergency Generator Transit Center |
|--|--|---|

Figure 4 Bakersfield F Street Station

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The applicable regulatory requirements and impact avoidance and minimization measures that are considered a part of the Preferred Alternative are described for the following issue areas in more detail in the corresponding chapters of the Draft Supplemental EIR/EIS and are also listed in Appendix 2-H of the Draft Supplemental EIR/EIS:

- 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

These impact avoidance and minimization measures are an enforceable component of the project and their implementation will be monitored and reported on in conjunction with project monitoring.

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3 FINDINGS ON SPECIFIC IMPACTS AND MITIGATION MEASURES

The environmental effects of the Preferred Alternative and the F Street Station location (Figure 2) that would be potentially significant are described in Chapter 3 of Volume 1 of the Draft Supplemental EIR/EIS, as augmented by the Final Supplemental EIR (as described in footnote 2 above). These impacts are set forth and summarized below for the Preferred Alternative, along with mitigation measures the Authority adopts, that will avoid or substantially lessen those potentially significant or significant impacts. The impact and mitigation measure findings below depend upon and therefore incorporate by reference the full analysis and conclusions contained within the Final Supplemental EIR (which incorporates the Draft Supplemental EIR/EIS).

Also set forth in these Findings are those impacts that the Authority finds cannot with certainty be avoided or reduced to a less-than-significant level even with the adoption of all feasible mitigation measures proposed in the Draft Supplemental EIR/EIS. In adopting these Findings and mitigation measures, the Authority also adopts a Statement of Overriding Considerations. The Statement of Overriding Considerations describes the economic, social, and other benefits of the Preferred Alternative that will render these significant unavoidable environmental impacts acceptable.

The Authority is not required to make findings or adopt mitigation measures or policies as part of this decision for impacts that are less than significant or beneficial. The resource areas that include one or more, less-than-significant impacts without mitigation, or beneficial impacts, include:

- Transportation
- Air Quality and Global Climate Change
- Noise and Vibration
- Electromagnetic Fields and Electromagnetic Interference*
- Public Utilities and Energy*
- Hydrology and Water Resources
- Geology, Soils, Seismicity, and Paleontological Resources
- Hazardous Materials and Wastes
- Safety and Security
- Socioeconomics and Communities
- Station Planning, Land Use, and Development*
- Agricultural Lands
- Parks, Recreation, and Open Space
- Aesthetics and Visual Resources
- Cultural Resources
- Regional Growth*
- Cumulative Impacts

Resource areas for which all impacts in the Draft Supplemental EIR/EIS were identified as less than significant without mitigation or beneficial are designated by an asterisk (*) and are not discussed further in this Findings document.

3.1 Transportation (Section 3.2 in the Draft Supplemental EIR/EIS)

As described in the Fresno to Bakersfield Section Draft Supplemental EIR/EIS, transportation impacts associated with construction of the Preferred Alternative and F Street Station (i.e., the impacts will end when construction ends) will be less than significant (Draft Supplemental EIR/EIS Section 3.2 Transportation Impact TR #1, Impact TR #5, Impact TR #7, Impact TR #8, and Impact TR #9). This conclusion is supported, in part, by the Impact Avoidance and Minimization Measures that the Authority has incorporated into the Preferred Alternative, consistent with and in furtherance of the Fresno to Bakersfield Section Final EIR/EIS commitments. In adopting the resolution of approval of the Preferred Alternative, the Authority

confirms that the Impact Avoidance and Minimization Measures identified in the Draft Supplemental EIR/EIS are applicable.

For operational impacts (i.e., impacts that are permanent due to re-direction of existing traffic because of permanent network road changes required by the Preferred Alternative and impacts that are permanent due to traffic generated at the F Street Station), all impacts will be reduced to less-than-significant levels with the implementation of mitigation.

3.1.1 Impact TR # 11: Changes in Vehicle Movements and Flow on Highways and Roadways

The Preferred Alternative would result in crossing over or shifting existing roads and road closures along the alignment to accommodate the HSR alignment. Specifically, the road modifications and closures would result in increased volume-to-capacity ratios at roadway segments and worsening level of service and/or delay at affected intersections in the City of Shafter and Kern County. (Impacts on the local roadway network due to the F Street Station are discussed under Impact TR #13 below.) Traffic operations associated with these roadway and intersection modifications would have a significant impact.

(a) ROADWAY SEGMENT IMPACTS OF THE PREFERRED ALTERNATIVE

Roadway segment analysis of AM and PM peak hours used the traffic impact criteria described in Section 3.2.2.6 of the Draft Supplemental EIR/EIS. Roadway segment scenarios are evaluated and compared for Existing Conditions, Future No Project (year 2035), and Future with Project (year 2035). Because the significance criteria focuses on roadways that are predicted to operate at level of service (LOS) E and F under project conditions, or are already operating at LOS E and F under pre-project conditions, only the roadways that meet those criteria were evaluated. All other roadways are and would continue to operate at LOS D or better under project conditions, are not significantly impacted, do not require mitigation, and were not evaluated. All roadways evaluated are included in the Fresno to Bakersfield Section: Transportation Technical Report (Authority and FRA 2017a).

An impact is considered significant for roadway segments that result in an increase in the volume to capacity ratio of 0.04 or more with project-related traffic if operating without project-related traffic at LOS E or F. An impact is also considered significant under CEQA if the addition of project-related traffic results in a reduction in LOS below LOS D. Because traffic on these roadway segments listed below would experience an unacceptable increase in traffic under one of the two above criteria, the impact would be significant.

(b) INTERSECTION IMPACTS OF THE PREFERRED ALTERNATIVE

An impact is considered a significant impact under CEQA if:

- For intersections (signalized and unsignalized), the addition of project-related traffic results in a reduction in LOS below D;
- For signalized intersections that are projected to operate at LOS E or F under baseline conditions, the addition of project-related traffic increases average delay at an intersection by 4 seconds or more;
- For unsignalized intersections projected to operate at LOS E or F under baseline conditions, the addition of project-related traffic increases delay by 5 seconds or more (measured as average delay for all-way stop and for worst movement for a multi-way stop intersection), and if the intersection satisfies one or more traffic signal warrants for more than one hour of the day.

With the addition of project-related roadway network infrastructure modifications, the study intersections included in Table 1 would experience a decrease in operational functionality that could violate one of the criteria above. The following mitigation measures for the significantly impacted intersections listed in Table 1 would be effective by providing improvements to mitigate impacted signalized and unsignalized intersections by returning the intersection to LOS D (if the intersection was operating at LOS D or better pre-project) or to the pre-project condition (if the

intersection was operating at LOS E or F pre-project). Impacts associated with reduction in signalized and unsignalized intersection LOS will be reduced to a less-than-significant impact with implementation of the following measures:

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.

TR-MM #8: Add New Lanes to Roadway. Add additional roadway lanes to improve LOS and intersection operations.

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.

TR-MM #10: Convert Intersection Stop Control. Convert intersection stop-control from a two-way stop to an all-way stop.

Table 1 Mitigation Measures for Intersection Impacts in the City of Shafter and Kern County

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
26 – SR 43/Ash Avenue	<p>TR MM #8: Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation.</p> <p>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.</p>	<p>Table 3.2-21 Intersections Future (2035) Plus Project Levels of Service Summary – City of Shafter</p>	<p>Add a two-way left-turn lane on SR 43.</p>
32 – Beech Avenue/Riverside Street	<p>TR MM #10: Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.</p>	<p>Table 3.2-21 Intersections Future (2035) Plus Project Levels of Service Summary – City of Shafter</p>	<p>Convert to all-way stop control.</p>
13 – Dole Court/Snow Road	<p>TR MM #10: Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.</p>	<p>Table 3.2-23 Intersections Future (2035) Plus Project Levels of Service Summary – Kern County</p>	<p>Convert to all-way stop control.</p>
14 – Norris Road/Snow Road	<p>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.</p>	<p>Table 3.2-23 Intersections Future (2035) Plus Project Levels of Service Summary – Kern County</p>	<p>Install a traffic signal at the intersection.</p>

The study roadway segment included in Table 4 would experience a decrease in operational functionality that could violate one of the criteria above. The following mitigation measure for the significantly impacted roadway segments listed below would be effective by providing improvements to mitigate impacted roadway segments by returning the roadway to LOS D (if the roadway segment was operating at LOS D or better pre-project) or to the pre-project condition (if the roadway segment was operating at LOS E or F pre-project). Impacts associated with reduction in roadway segment LOS will be reduced to a less-than-significant impact with implementation of TR-MM #8.

Table 2 Mitigation Measures for Roadway Segment Impacts in the City of Shafter and Kern County

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
41 – Central Valley Highway (SR 43), north of E Los Angeles Avenue	TR-MM#8: SR 43 north of E. Los Angeles Avenue: Widen SR 43 from 2 to 4 lanes.	Table 3.2-18 Future (2035) Plus F-B LGA Roadway Segment Analysis – City of Shafter	Widen the roadway to provide one additional lane in each direction prior to Bakersfield Station opening.

Impacts associated with roadway segment and intersection improvements surrounding the Preferred Alternative will be reduced to a less-than-significant impact with Mitigation Measures TR-MM #3, TR-MM #8, TR-MM #9, and TR-MM #10. The Authority finds that Mitigation Measures TR-MM #3, TR-MM #8, TR-MM #9, and TR-MM #10 have been required in the project and that implementation of these mitigation measures will reduce the traffic operations impacts of the project at roadway segments and intersections in the City of Shafter and Kern County to less than significant.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in Section 8-A-2 in Technical Appendix 8-A of the Draft Supplemental EIR/EIS.

3.1.2 Impact TR # 13: Impacts on the Local Roadway Network due to Station Activity Existing Plus Project Conditions and Future (2035) Plus Project Conditions

For traffic congestion operational impacts³ (i.e., impacts that are permanent due to re-direction of existing traffic because of network road changes required by the alignment construction and impacts that are permanent due to traffic generated at the F Street Station operation for HSR), as described in Section 3.2.2.2 of the Draft Supplemental EIR/EIS, the traffic analysis was performed using a dual baseline approach. In accordance with CEQA requirements, an EIR must include a description of the existing physical environmental conditions in the vicinity of the project. Those conditions, in turn, “will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant” (CEQA Guidelines §15125[a]). The HSR would not commence operations before approximately year 2025 and would not reach full operation before approximately year 2035; therefore, use of only existing conditions as a baseline for traffic LOS would be misleading. Background traffic conditions can reasonably be expected to

³ SB 743 (2013) required changes to the CEQA Guidelines to include alternative direction to the traditional LOS/delay metric for evaluating transportation impacts. “Upon certification of the guidelines..., automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment [under CEQA], except in locations specifically identified in the guidelines, if any.” Because the Guidelines are not in effect yet, the Authority makes these Findings related to LOS/delay but does not waive the benefit of SB 743 and the amended Guidelines once they become operative.

change over time between now and years 2025/2035. For this reason, the LOS traffic analysis uses a dual baseline approach and compares LOS traffic impacts for all intersections and roadway segments against both existing conditions and background (i.e., No Project) conditions as they are expected to be in year 2035. A detailed description of the baseline operational analysis is included in Section 3.2.3.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, pages 3.2-6 through 3.2-8).

For a project like the HSR project that will take years from alignment construction start to full HSR station operation, the dual baseline analysis framework is useful. By combining the analytics of the two approaches (see Fresno to Bakersfield Section: Transportation Analysis Technical Report [Authority and FRA 2014b] and Fresno to Bakersfield: Transportation Technical Report [Authority and FRA 2017a]) incorporated herein by reference, one can distinguish traffic impacts that could occur (a) in the near term due to alignment construction only (which can create impacts due to permanent re-direction of existing traffic due to permanent re-configuration of the existing street network) from (b) impacts that will not occur until the future due to background cumulative traffic growth coupled with HSR station traffic from (c) impacts that might occur at the same intersection at both points in time. With these distinctions, mitigation measures can be selected from the appropriate baseline scenario and assigned to each affected intersection and segment along with the required mitigation timing based on when the impact will occur. Mitigation for (a) impacts described above would be based on the Existing Plus Project baseline and would be required concurrent with alignment construction. Mitigation for (b) impacts described above would be based on the Future [2035] Plus Project baseline and would be required prior to the associated station opening. Mitigation for (c) impacts described above would be based on the both baselines, and would be required concurrent with alignment construction (e.g., adding a signal) then again prior to the associated station opening (e.g., adding turn lanes to the now-signalized intersection). This is detailed in the tables that follow and also in the Mitigation Monitoring and Reporting Program that accompanies these Findings.

The combining analytical effort mentioned in the preceding paragraph resolved and normalized an inherent limitation of the dual baseline approach for a project like HSR that could cause near-term impacts from one part (alignment construction) and future impacts from another part (station operation). The inherent limitation of the existing-plus-project approach is that it assumes that the HSR station (with all of its associated vehicle traffic) becomes fully operational at maximum ridership effectively overnight, when that event will not occur until 2035; it also ignores that background traffic will grow and the roadway network will change based on programmed and funded regional transportation plan (RTP) projects. It therefore presents a hypothetical scenario. See the Fresno to Bakersfield Section Final EIR/EIS pages 3.2-6 to 3.2-8. The inherent limitation of the Future [2035]-plus-project approach is that it can mask that portion of the HSR project (i.e., alignment construction that will permanently re-direct existing traffic) that would occur in the very near term which could cause traffic impacts. By combining the analytics of the two approaches, the Authority resolved these inherent limitations. That effort involved additional sensitivity modeling, based on the existing dual-baseline information, to determine which intersections and segments would be impacted by construction of the alignment alone and which intersections and segments would be impacted by construction of the alignment plus HSR station traffic. These Findings and associated Mitigation Monitoring and Reporting Program reflect the product of that work and require only the mitigation that is necessary to mitigate the actual impacts when they occur and when from which aspect of the project.

With the addition of the HSR project-generated traffic and the addition of project-related roadway network infrastructure modifications, the study intersections included in Table 3 would experience a decrease in operational functionality that could violate one of the criteria above. The following mitigation measures for the significantly impacted intersections listed below would be effective by providing improvements to mitigate impacted signalized and unsignalized intersections by returning the intersection to LOS D (if the intersection was operating at LOS D or better pre-project) or to the pre-project condition (if the intersection was operating at LOS E or F pre-project). Impacts associated with reduction in signalized and unsignalized intersection LOS will be

reduced to a less-than-significant impact with implementation of the following mitigation measures:

TR MM #3: Add Signal to Intersection to Improve LOS/Operation. Details regarding TR-MM #3 are described above.

TR MM #4: Restripe Intersections. Restripe specific intersections surrounding the proposed HSR station locations 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 jurisdictions.

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. Details regarding TR-MM #8 are described above.

TR MM #9: Restripe Roadway Segment. Details regarding TR-MM #9 are described above.

TR-MM #10: Convert Intersection Stop Control. Details regarding TR-MM #10 are described above.

Table 3 Mitigation Measures for Intersection Impacts Near the Bakersfield F Street Station

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
7- Mohawk Street/Hageman Road	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.	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	Install a traffic signal at the intersection.
8 – Mohawk Street/Rosedale Highway	TR MM #4: Restripe intersections. Restripe specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.	Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	Add a second westbound left-turn lane. This improvement already exists but is currently closed due to construction activity at the intersection.
12 – SR 99 Southbound Ramps/Olive Drive	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.	Table 3.2-28 Existing Plus Project F-B LGA Bakersfield Station Area Intersection Analysis	Install a traffic signal at the intersection.

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
22 – Oak Street/Rosedale Highway-24th Street	<p>TR MM #6: Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation.</p> <p>TR MM #7: Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.</p>	<p>Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service</p>	<p>Widen the eastbound approach to provide one exclusive left-turn lane, three exclusive through lanes, and one exclusive right-turn lane.</p>
26 – Oak Street/Truxtun Avenue	<p>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.</p>	<p>Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service</p>	<p>Re-time the signal in the a.m. and p.m. peak hours.</p>
36 – F Street/24th Street	<p>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.</p>	<p>Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service</p>	<p>Re-time the signal in the p.m. peak hour.</p>

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
37 – F Street/23rd Street	<p>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.</p> <p>TR MM #6: Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation.</p> <p>TR MM #7: Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.</p> <p>TR MM #8: Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation.</p>	<p>Table 3.2-28 Existing Plus Project F-B LGA Bakersfield Station Area Intersection Analysis</p> <p>Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service</p>	<p>Widen the eastbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane.</p> <p>Re-time the signal in the a.m. and p.m. peak hours.</p>
60 – M Street/SR 204/28th Street	<p>TR MM #6: Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation.</p> <p>TR MM #7: Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.</p>	<p>Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service</p>	<p>Widen the northbound approach to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.</p>

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
89 – Union Avenue/California Avenue	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.	Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	Re-time the signal in the p.m. peak hour.
101 – Beale Avenue/Jefferson Street-SR 178 Westbound Ramps	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.	Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels of Service	Install a traffic signal at the intersection.

With the addition of the HSR project-generated traffic and the addition of project-related roadway network infrastructure modifications, the study roadway segments included in Table 4 would experience a decrease in operational functionality that could violate one of the criteria above. The following mitigation measure for the significantly impacted roadway segments listed below would be effective by providing improvements to mitigate impacted roadway segments by returning the roadway to LOS D (if the roadway segment was operating at LOS D or better pre-project) or to the pre-project condition (if the roadway segment was operating at LOS E or F pre-project). Impacts associated with reduction in roadway segment LOS will be reduced to a less-than-significant impact with implementation of TR-MM #9.

Table 4 Mitigation Measures for Roadway Segment Impacts Near the Bakersfield F Street Station

Location Affected	Mitigation Measure(s)	Draft Supplemental EIR/EIS Table	Specific Actions Recommended
3 – F Street, between 30th Street and 24th Street	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.	Table 3.2-27 Future (2035) Plus Project F-B LGA Bakersfield Station Area Roadway Segment Analysis	Convert center two-way left-turn lane to a dedicated northbound through lane.
64 – 30th Street between F Street and H Street	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.	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	Eliminate on-street parking to convert 30th Street from 2-lane Collector to 4-Lane Collector.

Mitigation Measures TR-MM #3 through TR-MM #5 generally would involve little to no physical disturbance that could cause any impacts. Modifying signal phasing and revising signal cycle length is done electronically to the existing signals. Restriping intersections generally involves painting existing pavement. Adding signals to existing intersections generally would be done within the existing pavement or disturbed graded right-of-way. For these reasons, impacts from these mitigation measures would be less than significant.

Impacts may occur as a result of implementing Mitigation Measures TR-MM #6 and TR-MM #7; the locations of these Mitigation Measures are listed in Table 3. The development footprint mitigation measures to be implemented were overlaid over the existing inventory of agricultural, biological, geological, historical and cultural, recreation, and public utility resources, and over the socioeconomic and hazardous material data used for analysis in the Fresno to Bakersfield Section Draft Supplemental EIR/EIS to ensure that the potential impacts have been adequately analyzed. No significant impacts were determined to occur as a result of the construction and implementation of the mitigation measures described above.

The Authority finds that Mitigation Measures TR-MM #3 through TR-MM #10 have been required in the project and that implementation of these mitigation measures will reduce the intersection and roadway segment impacts associated with the Preferred Alternative to less than significant.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in Section 8-A-2 in Technical Appendix 8-A of the Draft Supplemental EIR/EIS.

3.2 Air Quality and Global Climate Change (Section 3.3 in the Draft Supplemental EIR/EIS)

Once operational, the Preferred Alternative would have a beneficial effect on air quality and greenhouse gas (GHG) emissions (See Impacts AQ #10 and AQ #11 in Section 3.3 of the Fresno to Bakersfield Section Draft Supplemental EIR/EIS). Although construction of the Preferred Alternative would result in air quality impacts, with implementation of the mitigation measures

required for the Preferred Alternative, each of these impacts would be reduced to less-than-significant levels. Further assuring that the Preferred Alternative's air quality and GHG impacts will not be significant are the Impact Avoidance and Minimization Measures, which are consistent with and in furtherance of the Fresno to Bakersfield Section Final EIR/EIS commitments. In adopting the resolution of approval of the Preferred Alternative, the Authority confirms that the Project Design Features identified in the Fresno to Bakersfield Section Final EIR/EIS are part of the Preferred Alternative.

3.2.1 Impact AQ # 1: Regional Air Quality Impacts during Construction

Direct emissions from the construction phase of the Preferred Alternative would exceed the general conformity (GC) applicability thresholds for volatile organic compound (VOC) and nitrogen dioxide (NO_x) in certain calendar years in which construction would occur (see Table 3.3-9 in Section 3.3 of the Draft Supplemental EIR/EIS). Purchase of offset emissions through a Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD) (Mitigation Measure AQ-MM #4) for VOC and NO_x would offset and reduce VOC and NO_x emissions to below the GC applicability thresholds. Construction emissions would exceed the mass emission SJVAPCD CEQA thresholds for VOC, carbon monoxide (CO), NO_x, particulate matter less than 10 microns in diameter (PM₁₀), and particulate matter less than 2.5 microns in diameter (PM_{2.5}) in some construction years. Therefore, construction emissions of these pollutants may cause significant impacts on air quality under CEQA. There is no mass emission CEQA threshold for SO₂ from SJVAPCD; however, sulfur dioxide (SO₂) emissions are expected to be less than significant based on the emission results as shown in Table 3.3-9 of Section 3.3 of the Draft Supplemental EIR/EIS. To reduce impacts to less than significant under CEQA, the following mitigation measures would be implemented for the Preferred Alternative:

AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment. This mitigation measure applies 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 OFFROAD 2011 database and no less than a 40% reduction compared to a tier 2 engine standard for NO_x emissions. The Authority will require the contractor to document efforts it undertook to locate newer equipment (such as, in order of priority, Tier 4, Tier 3, or Tier 2 equipment) and/or tailpipe retrofit equivalents. The Authority will require the contractor to provide documentation to the Authority 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 California Air Resources Board (CARB) or SJVAPCD operating permit will be made available at the time of mobilization of each piece of equipment. The Authority will require the contractor to keep a written record (supported by equipment hours meters where available) of equipment usage during project construction for each piece of equipment.

AQ-MM #2: Reduce Criteria Exhaust Emission 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 current calendar year as set forth in CARB's EMFAC 2011 database. The Authority will require the contractor will provide documentation of efforts to secure such a fleet mix. The Authority will require the contractor to keep a written record of equipment usage during project construction for each piece of equipment.

AQ-MM #4: Offset Project Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement. This mitigation measure would address Impact AQ #1 (Common Regional Air Quality Impacts During Construction) that would exceed the GC applicability and CEQA emissions thresholds for VOC and NO_x, and the CEQA emission thresholds for PM₁₀ and PM_{2.5}. The Authority and SJVAPCD will enter into a contractual agreement to mitigate (by offsetting) to net zero for all construction years the project's actual

emissions from construction equipment and vehicle exhaust emissions of VOC, NO_x, PM₁₀, and PM_{2.5}. The agreement will provide funds for the district'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-related impacts on air quality. Projects funded in the past include electrification of stationary internal combustion engines (such as agricultural irrigation pumps), replacing old heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks, and replacement of old farm tractors. 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 C.F.R. Part 93 Section 93.163.

With onsite mitigation (i.e., AQ-MM #1 and #2), VOC, CO, NO_x, PM₁₀, and PM_{2.5} impacts would be reduced, but could remain significant under CEQA. As stated in SJVAPCD's 2015 Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015a), purchase of offset emissions through a VERA with the SJVAPCD (Mitigation Measure AQ-MM #4) for these pollutants would reduce impacts to less than significant after mitigation under CEQA.

Mitigation Measure AQ-MM #1 addresses criteria exhaust emissions from construction equipment. The methodologies used to reduce emissions may result in increased fuel or energy consumption associated with emissions control equipment. The change in fuel consumption would likely be small on a per-equipment basis; however, given the number of equipment pieces and the construction duration, the total fuel consumption would result in a moderate increase in volume, but still a small percentage of the total volume. If aftermarket control devices are used, such as diesel particulate filters, additional waste would be generated associated with the disposal of spent filters. These additional increases would be small in comparison to the scope of the project. Therefore, the impacts of mitigation would be less than significant under CEQA.

Implementation of Mitigation Measure AQ-MM #2 would have no impacts.

Mitigation Measure AQ-MM #4 would require offset project construction emissions through an SJVAPCD VERA agreement. The methodologies used to reduce emissions may result in increased fuel or energy consumption associated with emissions control equipment. However, it is also possible that fuel and energy consumption may decrease. The change in fuel consumption would likely be small on a per-equipment basis. If aftermarket control devices are used, such as diesel particulate filters, additional waste would be generated associated with disposal of spent filters. In comparison to the scope of the project, these additional increases would be small. Therefore, the impacts of mitigation would be less than significant under CEQA.

The Authority finds that Mitigation Measures AQ-MM #1, AQ-MM #2, and AQ-MM #4 have been required in the Preferred Alternative and that implementation of these mitigation measures will reduce the Preferred Alternative's construction VOC, NO_x, PM₁₀, and PM_{2.5} impacts to less-than-significant levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.2.2 Impact AQ #2: Compliance with Air Quality Plans

Emissions from construction of the Preferred Alternative would be temporary. However, based on the amount of construction to be completed, construction activities would involve heavy-duty construction equipment and would have the potential to cause adverse air quality impacts.

As shown in Table 3.3-9 of Section 3.3 of the Draft Supplemental EIR/EIS, VOC, CO, and NO_x emissions associated with the Preferred Alternative (when considered in conjunction with the portion of the 2014 Preferred Alternative north of Poplar Avenue) would exceed the GC applicability thresholds, while PM₁₀ and PM_{2.5} emissions would be below the GC applicability thresholds. Emissions above the mass emission thresholds set by the SJVAPCD would have the potential to conflict with or obstruct implementation of the SJVAPCD's air quality plans, which have been prepared to attain federal and state ambient air quality standards. VOC, CO, NO_x,

PM₁₀, and PM_{2.5} emissions would exceed the mass emission SJVAPCD thresholds and impede the implementation of the respective air quality plans, including plans prepared to attain federal ambient air quality standards.

VOC, NO_x, PM₁₀, and PM_{2.5} emissions associated with the Preferred Alternative (when considered in conjunction with the portion of the 2014 Preferred Alternative north of Poplar Avenue) would be greater than applicable mass emission CEQA significance thresholds, which would impede or obstruct implementation of the 8-hour SJVAPCD 2007 Ozone Plan, or the 2013 Plan for the Revoked 1-hour Ozone Standard, the 2007 PM₁₀ Maintenance Plan, and the 2015 PM_{2.5} Plan. Therefore, this impact would be significant under CEQA for VOC, NO_x, PM₁₀, and PM_{2.5} emissions. The following measures mitigate this impact:

AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment. Details regarding AQ-MM #1 are described above.

AQ-MM #2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment. Details regarding AQ-MM #2 are described above.

AQ-MM #4: Offset Project Construction Emissions through an SJVAPCD VERA. Details regarding AQ-MM #4 are described above.

Implementation of these mitigation measures is not expected to result in secondary impacts.

With onsite mitigation (i.e., AQ-MM#1 and #2), VOC, CO, NO_x, PM₁₀, and PM_{2.5} impacts would be reduced, but could remain significant under CEQA. As stated in SJVAPCD 2015 Guide for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015a), purchase of offset emissions through VERA with the SJVAPCD (Mitigation Measure AQ-MM#4) for these pollutants would reduce impacts to less than significant after mitigation under CEQA.

The Authority finds that Mitigation Measures AQ-MM#1, AQ-MM#2 and AQ-MM#4 have been required in the Preferred Alternative and that implementation of these mitigation measures will reduce the Preferred Alternative's construction VOC, CO, NO_x, PM₁₀, and PM_{2.5} impacts to less-than-significant levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.2.3 Impact AQ #3: Material-Hauling Emissions Outside of San Joaquin Valley Air Basin

As described in Section 3.3.6.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a: page 3.3-52), emissions associated with transportation of ballast materials from outside the San Joaquin Valley Air Basin (SJVAB) to the border of the air basin were evaluated for five hauling scenarios from five quarries.

The emission results demonstrated that worst-case emissions would be above the GC thresholds for NO_x (25.18 tons per year of NO_x) in the South Coast Air Basin for four of the five scenarios analyzed; in the Salton Sea Air Basin (35.76 tons per year of NO_x) for one of the five scenarios analyzed; and in the Mojave Desert Air Basin (27.20 tons per year of NO_x) for one of the five scenarios analyzed. The emissions of NO_x in the other air basins (Sacramento Valley Air Basin and San Francisco Bay Area Air Basin) would be below the GC thresholds for all scenarios. The emissions for all other pollutants would be below the GC thresholds for all scenarios in all air basins.

Under the Preferred Alternative (when considered in conjunction with the portion of the 2014 Preferred Alternative north of Poplar Avenue), emissions associated with material hauling would exceed the CEQA thresholds for NO_x for all scenarios in multiple air quality management districts or air pollution control districts. All other pollutants for these scenarios would be below the CEQA thresholds.

Under CEQA, the material-hauling emissions outside the SJVAB could exceed the South Coast Air Quality Management District (AQMD) (which includes both the South Coast Air Basin and Salton Sea Air Basin) CEQA NO_x thresholds in all five scenarios, and could exceed the Bay Area AQMD's CEQA NO_x thresholds for two of the scenarios. The material-hauling emissions could also exceed the Mojave Desert AQMD NO_x CEQA threshold for two of the scenarios. Therefore, NO_x emissions could have a significant impact in the South Coast AQMD, Bay Area AQMD, and Mojave Desert AQMD. Material-hauling emissions would be below the CEQA thresholds for all other air districts and pollutants, and would have insignificant impacts. Exceeding or contributing to an exceedance of the NO_x air quality standards applicable in those air basins, or contributing substantially to an existing or projected NO_x air quality violation in those other air basins would be considered a significant impact. The following measures mitigate this impact:

AQ-MM #2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment. Details regarding AQ-MM #2 are described above.

AQ-MM #5: Purchase Offsets and Offsite Emission 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 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 the 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 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 AQMD. Potential off-site mitigation programs include the Bay Area AQMD's Carl Moyer Memorial Air Quality Standards Attainment Program 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.

Implementation of these mitigation measures is not expected to result in secondary impacts. Implementation of Mitigation Measure AQ-MM#2 would have no secondary impacts. Mitigation Measure AQ-MM#5 would require the purchase of offset and off-site emission mitigation for emissions associated with hauling ballast material. This mitigation measure would have no impacts.

The Authority finds that Mitigation Measures AQ-MM #2 and AQ-MM #5 have been required in the Preferred Alternative and that implementation of these mitigation measures will reduce the project's potential regional air quality impact related to material hauling outside the SJVAB to less-than-significant levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.2.4 Impact AQ #8: Localized Air Quality Impacts from Concrete Batch Plants

The emissions generated from operation of concrete batch plants, as related to regional emissions impacts, were included in the calculations for Impacts AQ #1 and #2.

Batch plant operation also could have localized/micro impacts. The concrete batch plants would be located along the alignment. According to Cal/EPA and CARB's Air Quality and Land Use Handbook: A Community Health Perspective (Cal-EPA and CARB 2005), emission impacts at receptors would be greatly reduced by locating a facility 1,000 feet from sensitive receptors. The air dispersion modeling and health risk analysis for fugitive dust emissions and their associated TAC constituents indicated that excess cancer risks and non-cancer health impacts would not exceed the applicable thresholds, but emissions may contribute to further exacerbation of exceedances of PM₁₀ and PM_{2.5} standards for micro-scale (i.e., localized) dust impacts to health. Based on the air dispersion modeling conducted for the concrete batch plants associated with the HSR project, the localized air quality impacts from concrete batch plants would be significant under CEQA to sensitive receptors within 1,000 feet of the batch plant. After mitigation, emissions would not substantially contribute to further exceedances of PM₁₀ and PM_{2.5} standards (see AQ-MM #3) because modeling shows that a receptor outside of 1,000 feet from the batch plant would not be exposed to concentration levels that exceed these micro-scale thresholds. The following measure mitigates this impact:

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 USEPA AP-42 controlled emission factors for concrete batch plants.

Mitigation Measure AQ-MM #3 would reduce the localized air impact to sensitive receptors to a less-than-significant level by ensuring concrete batch plants are sited at least 1,000 feet from sensitive receptors. AQ-MM #3 would also require the utilization of typical control measures to reduce fugitive dust, which would reduce the PM₁₀ and PM_{2.5} concentrations as they relate to the National Ambient Air Quality Standards and California Ambient Air Quality Standards, to a less-than-significant level under CEQA.

Implementation of this mitigation measure is not expected to result in secondary impacts. Mitigation Measure AQ-MM #3 would reduce potential impacts from concrete batch plants. The control measures utilized at the batch plant may increase water usage and energy consumption and may generate additional waste from consumables used by the control devices. These impacts would be minor in comparison to the project operations as a whole. Therefore, the impacts of mitigation would be less than significant under CEQA.

The Authority finds that Mitigation Measure AQ-MM #3 has been required in the Preferred Alternative and that implementation of this mitigation measure will reduce the project's air quality impacts associated with the exposure of sensitive receptors to temporary substantial pollutant concentrations from the concrete batch plants required for project construction to less-than-significant levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.3 Noise and Vibration (Section 3.4 in the Draft Supplemental EIR/EIS)

Both construction and operation of the Preferred Alternative would result in noise and vibration impacts along the alignment and from the station facilities.

3.3.1 Impact N&V #1: Construction Noise

The Draft Supplemental EIR/EIS estimated the screening distances for construction noise impact using the Federal Transit Administration (FTA) construction impact noise methodology and criteria (See Table 3.4-1 in the Draft Supplemental EIR/EIS), and estimates of typical equipment noise for rail construction (See Table 3.4-9 in the Draft Supplemental EIR/EIS). The analysis assumed that construction noise reduces by 6 dB for each doubling of distance from the center of the site. For residential land use, the potential for temporary construction noise impact would be limited to locations within approximately 156 feet of the alignment (without pile driving). However, without pile driving the potential for noise impact from nighttime construction could extend to residences as far as 493 feet. If pile driving is required and is conducted simultaneously with other construction, the potential for temporary construction noise impact would be limited to locations within approximately 316 feet of the alignment. With pile driving the potential for noise impact from nighttime construction could extend to residences as far as 998 feet.

The exposure of persons or generation of noise levels in excess of standards for a severe impact established by the FTA is considered a significant impact. The standards cover temporary/periodic increases in ambient noise levels above existing levels. For residences within 156 feet of the alignment during the day, or within 493 feet during nighttime, construction impacts would be a significant impact. With pile driving, for residences within 316 feet of the alignment during the day, or within 998 feet during nighttime, construction impacts would be a significant impact. Accordingly, construction noise impacts from the project would be significant under CEQA. The following measure mitigates this impact:

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:

- 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.
- Re-route construction traffic along roadways that will cause the least disturbance to residents.
- 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.
- Limit use of public address systems.
- Grade surface irregularities on construction sites
- Use moveable sound barriers at the source of the construction activity
- Limit or avoid certain noisy activities during nighttime hours.
- To mitigate noise related to pile driving, the use of an 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.
- CHSRA will establish and maintain in operation until completion of construction a toll-free “hotline” regarding the Section construction activities. CHSRA shall arrange for all incoming messages to be logged (with summaries of the contents of each message) and for a designated representative of CHSRA to respond to hotline messages within 24 hours (excluding weekends and holidays). CHSRA shall make a reasonable good faith effort to address all concerns and answer all questions, and shall include on the log its responses to all callers. CHSRA shall make a log of the in-coming messages and CHSRA’s responsive actions publicly available on its website.

Secondary impacts from these construction noise mitigation measures, including impacts on existing visual quality and construction light and glare, are discussed in Section 3.16 Aesthetics and Visual Resources of the Draft Supplemental EIR/EIS. None of the mitigation measures would result in secondary impacts.

Noise impacts would occur during construction activities and would cease after construction is complete. The Authority finds that Mitigation Measure N&V-MM #1 has been required in the Preferred Alternative and that implementation of this mitigation measure will reduce construction noise below the FTA construction noise limits; therefore, this impact would be reduced to a less-than-significant impact.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.3.2 Impact N&V #2: Construction Vibration

The exposure of persons or generation of excessive ground-borne vibration or ground-borne noise levels above the levels in Table 3.4-2 of the Draft Supplemental EIR/EIS is considered a significant impact. There is a potential for severe vibration impacts with receivers present within vibration criterion-level contours (See Table 3.4-24 of the Draft Supplemental EIR/EIS) during construction associated with pile driving and therefore construction vibration impacts would be a significant impact under CEQA. The following measure mitigates this impact:

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, or if alternative methods such as push piling, auger piling, or cast-in-drill-hole 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 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.

Implementation of this mitigation measure is not expected to result in secondary impacts. Although vibration impacts would occur during construction activities, the construction activities are considered temporary as they would cease after completion.

The Authority finds that Mitigation Measure N&V-MM #2 has been required in the Preferred Alternative and that implementation of this mitigation measure would reduce the project's construction vibration impacts to less-than-significant levels under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project. It should be noted that the language for Mitigation Measure N&V-MM #2 has been edited slightly to conform with the Preferred Alternative; therefore, while the finding would be consistent for the May 2014 Project, Mitigation Measure N&V-MM #2 for the May 2014 Project would be consistent with the text documented on Page 3.4-56 of the Fresno to Bakersfield Section Final EIR/EIS.

3.3.3 Impact N&V #3: Moderate and Severe Noise Impacts from Project Operation to Sensitive Receptors

The Draft Supplemental EIR/EIS assessed noise impacts from operation of the HSR on noise-sensitive land uses by comparing existing, measured noise levels with future noise levels predicted for the project. The future noise levels with HSR were developed following the FRA Guidance manual, as described in Section 3.4 of the Draft Supplemental EIR/EIS and as further documented in the F-B LGA Noise and Vibration Technical Report (Authority and FRA 2017b).

The exposure of persons or generation of noise levels in excess of standards for a severe impact established by the FRA for high-speed ground transportation and the FTA for transit projects (See Figure 3.4-1 of the Draft Supplemental EIR/EIS) is considered a significant impact. These standards cover both permanent and temporary/periodic increases in ambient noise levels in the project vicinity above levels existing without the project. In locations with sensitive receptors where train speeds and operations are high, severe noise impacts would be a significant impact. As shown in Table 3.4-20 of the Draft Supplemental EIR/EIS, the Preferred Alternative would result in significant impacts from operations at approximately 4,752 noise sensitive receptors, prior to mitigation. This is a significant impact under CEQA. The following measures mitigate this impact:

N&V-MM #3: Implement Proposed California High-Speed Train Project Noise Mitigation Guidelines. To determine the appropriate mitigation measures 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 A-weighted decibel (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 Figure 3.4-14 of the Final EIR/EIS; diagrams and placement information can be found in Volume III Section H: Record Set PEPD Design Submission Sound Barrier Plans of the Final Supplemental EIR). 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 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 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.

Table 3.4-27 of the Draft Supplemental EIR/EIS shows the reasonableness of each feasible noise barrier. Of the six noise barriers evaluated, all noise barriers were determined to be feasible and reasonable because the barrier would provide a noise level reduction of 5 dBA or more and the cost to construct the barriers would not exceed \$55,000 per benefited receiver. Table 3.4-27 also shows the height, approximate length, number of benefited receivers, total construction cost, the number of unmitigated severe impacts, and number of residual impacts (with mitigation) for each barrier height. Table 3.4-28 shows the breakdown of residual severe impacts based on each land use in each category. Figure 3.4-7 through Figure 3.4-10 show the noise barrier locations.

A total of 31 receivers that would be severely impacted were not evaluated with a noise barrier because they are located in areas that do not meet the minimum number of 10 severely impacted receivers and a minimum barrier length of 800 feet. The 31 receivers consist of 28 residential land uses, 1 park, 1 Category 2 land use (which includes uses where people normally sleep such as a hotel), and 1 Category 3 land use (which include uses that are used primarily during the daytime). Therefore, these receivers would be eligible for either sound insulation or payment of property for noise easements.

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 C.F.R. Part 201.12/13) at the time of procurement for locomotives (currently a 90-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 receptors. 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.

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), reassess noise and vibration impacts and recommendations for mitigation and provide supplemental environmental documentation, as required by law.

Traffic Noise Impacts. Several single-family homes will be subject to traffic peak-hour noise levels in excess of 66 dBA equivalent sound level. 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 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.

Secondary impacts from sound walls including visual intrusion and view blockage are discussed in Section 3.16, Aesthetics and Visual Resources, of the Draft Supplemental EIR/EIS. None of the mitigation measures would result in secondary impacts.

Not all impacted receivers may receive noise mitigation that would reduce their impacts below the levels shown in Figure 3.4-1 of the Draft Supplemental EIR/EIS. Further, there is uncertainty about the effectiveness of mitigation measures because of the important role that local jurisdictions and communities will play in determining the use of sound barriers. Therefore, operational noise impacts from the HSR are significant and unavoidable.

The Authority finds that Mitigation Measures N&V-MM #3, N&V-MM #4, N&V-MM #5, and N&V-MM #6 have been required in the Preferred Alternative and that they will mitigate or avoid some, but not all, of the project’s significant noise impacts to sensitive noise receptors. The Authority finds that there are no other feasible mitigation measures or alternatives that could be adopted to reduce these remaining impacts to less-than-significant levels. The Authority finds that despite these otherwise significant and unavoidable impacts, specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.3.4 Impact N&V #5: Impacts from Project Vibration

The Preferred Alternative would result in vibration impacts associated with the rail corridor operation. Because the Preferred Alternative would expose persons to or generate excessive

ground-borne vibration, this would be a significant impact under CEQA. The following measure mitigates this impact:

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 5 below 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 5, mitigation would take place at the source, sensitive receptor, or along the propagation path from the source to the sensitive receptors. If mitigation measures provided in Table 5 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.

Table 5 Potential Vibration Mitigation Procedures and Descriptions

Mitigation Procedure	Location of Mitigation	Description
Maintenance	Source	Rail condition monitoring systems with rail grinding on a regular basis. Wheel truing to re-contour the wheel, provide a smooth running surface, and remove wheel flats. Reconditioning vehicles. Installing wheel condition monitoring systems.
Location and Design of Special Trackwork	Source	Careful review of crossover and turnout locations during the preliminary engineering stage. When feasible, relocate special trackwork to a less vibration-sensitive area. Installation of spring frogs eliminates gaps at crossovers and helps reduce vibration levels.
Vehicle Suspension	Source	Rail vehicles should have a low unsprung weight, soft primary suspension, minimum metal-on-metal contact between the moving parts of the truck, and smooth wheels that are perfectly round.
Special Track Support Systems	Source	Floating slabs, resiliently supported ties, high-resilience fasteners, resilient subroadbed materials, and ballast mats all help reduce vibration levels from the track support system.
Building Modifications	Receiver	For existing buildings, if vibration-sensitive equipment is affected by train vibration, the floor upon which the vibration-sensitive equipment is located could be stiffened and isolated from the remainder of the building. For new buildings, the building foundation should be supported by elastomer pads that are similar to bridge bearing pads.
Trenches	Along Vibration Propagation Path	A trench can be an effective vibration barrier if it changes the propagation characteristics of the soil. It can be open or solid. Open trenches can be filled with Styrofoam. Solid barriers can be constructed with sheet piling, rows of drilled shafts filled with either concrete or a mixture of soil and lime, or concrete poured into a trench.
Operational Changes	Source	Reduce vehicle speed. Adjust nighttime schedules to minimize train movements during sensitive hours. Operating restrictions require continuous monitoring and may not be practical.
Buffer Zones	Receiver	Negotiate a vibration easement from the affected property owners or expand the rail right-of-way.

Mitigation Measure N&V-MM #5 would require special types of track work to eliminate gaps that would reduce noise levels generated from rail turnouts and reduce vibration levels resulting from HSR operation. This measure would be conducted within the HSR rail right-of-way and staging areas. The increase in noise and vibration would be minimal to negligible in comparison to the scope of the project. Therefore, the impacts of mitigation would be less than significant under CEQA.

The Authority finds that Mitigation Measure N&V-MM #5 has been required in the Preferred Alternative and that implementation of this mitigation measure would reduce the project's operation vibration impacts to less-than-significant levels.

Mitigation Measure N&V-MM #5 would not be required of the May 2014 Project, because sensitive receivers that would experience vibration impacts if left in place under the May 2014 Project would be displaced. Therefore, no finding would be required for Impact N&V #5 of the May 2014 Project.

3.3.5 Impact N&V #7: Noise from HSR Stationary Facilities

Long-term noise impacts associated with operation of the F Street Station, the MOIF and the TPSS would result in a significant impact under CEQA. The following measure mitigates this impact:

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 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 maintenance facility should be located on the far side of the facility from adjacent noise-sensitive receivers.
- For tracks that cannot be installed away from noise-sensitive receivers, install sound barrier along the 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.

Mitigation Measure N&V-MM #7 would reduce noise levels generated from long-term operations of stationary facilities associated with the Preferred Alternative. These measures would not expand the project boundary, and the increase in noise would be minimal to negligible in comparison to the scope of the project. Therefore, the impacts of mitigation would be less than significant under CEQA.

The Authority finds that Mitigation Measure N&V-MM #7 has been required in the Preferred Alternative and that implementation of this mitigation measure would reduce the project's long-term stationary source noise impacts to less-than-significant levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4 Biological Resources (Section 3.7 in the Draft Supplemental EIR/EIS)

These Findings address impacts associated with the Preferred Alternative. Section 3.7 of the Draft Supplemental EIR/EIS describes impacts as either construction period, which examines temporary impacts, or project period, which examines permanent impacts. This categorization is carried through in these Findings.

3.4.1 Impact BIO #1: Effects on Special-Status Plant Species

Up to 16 special-status plant species have the potential to occur in and immediately adjacent to the footprint of the Preferred Alternative and as a result may be directly or indirectly impacted by construction period activities. Table 3.7-3 of the Draft Supplemental EIR/EIS presents the potential for occurrence of special-status species based on the presence of suitable habitat, the range of the species, and the proximity of known occurrences of the species.

In addition to the species that have been observed within the Special-Status Plant Study Area, special-status plant species have the potential to occur in areas of suitable habitat in parcels that have not been surveyed. These species include federally and/or state-listed species and species listed by the California Native Plant Society, all of which are considered rare in California (CEQA Guidelines, §15380). If these species occur in the construction footprint, they would be subject to the same adverse effects as those described below for species known to occur.

Direct (BIO #1) Impacts During Construction Period

Direct impacts from construction may result from permanent ground-disturbing activities, including construction of the track, access roads, road crossings, and buildings such as the traction power station that may directly impact individuals or populations of special-status plant species. These impacts may result largely from the use of heavy machinery to clear, grub, excavate, compact, or otherwise prepare the ground surface for the construction of permanent features. The construction of these features may result in the removal, destruction, covering, or unearthing of individuals, populations, or suitable habitat of the identified special-status species.

Indirect (BIO #1) Impacts During Construction Period

Indirect impacts on special-status plant species and native plant species would potentially include erosion, siltation, and runoff into natural and constructed watercourses; soil and water contamination from construction equipment leaks; construction dust affecting plants by reducing their photosynthetic capability (especially during flowering periods); and an increased risk of fire (e.g., construction equipment use and smoking by construction workers) in adjacent open spaces.

The direct and indirect impacts on special-status plant species and habitats suitable for special-status plant species during construction are considered a significant impact under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #1 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor.

BIO-MM #2: Regulatory Agency Access.

BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program.

BIO-MM #4: Prepare and Implement a Weed Control Plan and Annual Vegetation Management Plan.

BIO-MM #5: Prepare and Implement a Biological Resource Management Plan.

BIO-MM #6: Prepare and Implement a Restoration and Revegetation Plan.

BIO-MM #7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field).

BIO-MM #9: Equipment Staging Areas.

BIO-MM #11: Vehicle Traffic.

BIO-MM #13: Work Stoppage.

BIO-MM #14 "Take" Notification and Reporting.

BIO-MM #15: Post-Construction Compliance Reports.

BIO-MM #16: Conduct Protocol-Level Pre-Construction Surveys for Special-Status Plant Species and Special Status Plan Communities.

BIO-MM #17: Prepare and Implement Plan for Salvage, Relocation and/or Propagation of Special Status Plant Species.

BIO-MM #47: Restore Temporary Riparian Impacts.

BIO-MM #53: Compensate for Impacts on Special-Status Plant Species.

BIO-MM #61: Compensate for Permanent Riparian Impacts.

BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan.

BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation.

The Authority will avoid and minimize impacts to special-status plant species from construction activities where feasible. General avoidance/minimization measures will be implemented in order to track mitigation success and provide assurance that measures are implemented correctly and fully. These mitigation measures are standard procedures, commonly used on large infrastructure projects to reduce impacts on special-status plant species (BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist and Project Biological Monitor(s); BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program).

Measure BIO-MM #4 (Prepare and Implement a Weed Control Plan and Annual Vegetation Management Plan) will minimize or avoid the spread of noxious and invasive weeds during construction, and BIO-MM #6 (Prepare and Implement a Restoration and Revegetation Plan) will restore temporarily disturbed uplands following construction activities.

During final design, the Mitigation Manager, or its designee (Project Biologist, Regulatory Specialist (Waters), Project Botanist) will prepare and implement BIO-MM #5 (Prepare and Implement a Biological Resources Management Plan) which will help the long-term perpetuation of biological resources within the temporarily disturbed areas, as well as protect adjacent targeted habitats. The Project Biologist, Regulatory Specialist (Waters), and Project Botanist will also delineate ESAs and environmentally restricted areas (ERA) (BIO-MM #7) prior to the start of ground-disturbing activities, including special-status plant populations to protect these areas from impacts during construction. Additional avoidance measures to be implemented prior to construction avoid impacts to special-status plant species (see BIO-MM #9 Equipment Staging Areas and BIO-MM #11: Vehicle Traffic). Agency personnel may visit the site to ensure compliance with avoidance/minimization measures (BIO-MM #2: Regulatory Agency Access). In the event of an accidental removal or injury to a federal or state-listed plant species, the Contractor's employees will be required to notify U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW) and identify any corrective measures to aid in preventing future impacts (BIO-MM #14: "Take" Notification and Reporting). Post-construction compliance reports consistent with agency protocols to document compliance with these measures will be submitted at regular intervals (BIO-MM #15: Post-Construction Compliance Reports).

To avoid and minimize impacts on special-status plant species in areas of suitable habitat where floristic surveys could not be conducted, BIO-MM #16 (Conduct Protocol-Level Preconstruction Surveys for Special-Status Plant Species and Special-Status Plant Communities) would identify the locations of all special-status plant species in areas not previously surveyed. Based on the results, BIO-MM #17 (Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species) can be fully implemented throughout the project area to further avoid or minimize direct and indirect impacts to special-status plants.

Since avoidance, minimization (BIO-MM #16), rectification, or reduction (BIO-MM #17) of direct and indirect impacts will not reduce the significance of these impacts by themselves, mitigation will also be secured by the Authority through compensatory mitigation BIO-MM #53 (Compensate for Impacts on Special-Status Plant Species). In conjunction with final design and the permitting process, in compliance with the project's Biological Opinion, the Authority will mitigate at a 1:1 ratio at a USFWS-approved site.

By avoiding, minimizing, rectifying, and compensating for direct and indirect impacts to special-status plants, long-term effects to the future success of special-status plant species will be reduced.

There would be no secondary impacts from these mitigation measures. By avoiding, minimizing, and compensating for direct and indirect impacts to special-status plants, long-term effects to the future success of special-status plant species will be reduced. The Authority finds that the above listed mitigation measures have been required in the Preferred Alternative and that implementation of these measures will substantially lessen the direct and indirect impacts to special-status plant species and their habits by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.2 Impact BIO #2: Effects on Special-Status Wildlife

Wildlife habitat and land cover types in the footprint of the Preferred Alternative have the potential to support a variety of special-status wildlife species. Construction activities have the potential to disturb the life cycles of these special-status species. Up to 41 special-status wildlife species have the potential to occur in and near the footprint of the Preferred Alternative and as a result may be directly or indirectly impacted by construction period activities. As indicated in Table 3.7-4 of the Draft Supplemental EIR/EIS, the potential for occurrence is identified as no potential, low, moderate, or high. The presence of and potential for special-status wildlife species to occur in a particular habitat is linked to the physical characteristics of the landscape and the species' known geographic range.

Direct (BIO #2) Impacts during Construction Period

Direct impacts associated with the Preferred Alternative on special-status wildlife species (including amphibians, reptiles, fish, birds, and mammals) and native fauna will disturb suitable habitats (e.g., destruction, alteration, degradation, fill, or pollution of suitable habitat) that have potential to support special-status wildlife species. As a result of construction activities, the Preferred Alternative may result in adverse effects on special-status wildlife species through harassment, disturbance, injury, nest abandonment or death of individuals. These impacts may occur to all life stages (i.e., eggs, young, juveniles or adults).

Direct impact may occur as a result of permanent conversion of occupied habitat to project infrastructure, direct strike during operation and maintenance, trampling, or crushing.

Indirect (BIO #2) Impacts during Construction Period

Construction period indirect impacts associated with the Preferred Alternative on special-status wildlife species (including amphibians, reptiles, fish, birds, and mammals) and native fauna may result from increased noise, light, and ground disturbance. These impacts may indirectly result in water quality degradation, hydrological modifications, habitat degradation (through soil

compaction, or alteration of vegetation cover), introduce nonnative invasive (noxious) weeds, and in some cases may result in mortality of individuals. Specifically, the indirect impacts may result in reduced reproductive success, decreased survivorship of these species and their food, abandonment of refugia (e.g., burrows), temporary shifts in foraging patterns or territories (displacement), and increased mortality or predation. These impacts may occur to all life stages (i.e., eggs, young, juveniles or adults).

The direct and indirect impacts on special-status wildlife species and their suitable habitats during construction are considered a significant impact under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #2 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor.

BIO-MM #2: Regulatory Agency Access.

BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program (WEAP).

BIO-MM #4: Prepare and Implement a Weed Control Plan and Annual Vegetation Control Plan.

BIO-MM #5: Prepare and Implement a Biological Resources Management Plan.

BIO-MM #6: Prepare and Implement a Restoration and Revegetation Plan.

BIO-MM #7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in field).

BIO-MM #8: Wildlife Exclusion Fencing.

BIO-MM #9: Equipment Staging Areas.

BIO-MM #10: Monofilament Netting.

BIO-MM #11: Vehicle Traffic.

BIO-MM #12: Entrapment Prevention.

BIO-MM #13: Work Stoppage.

BIO-MM #14: "Take" Notification and Reporting.

BIO-MM #15: Post Construction Compliance Reports.

BIO-MM #22: Conduct Pre-Construction Surveys for Special Status Reptile and Amphibian Species.

BIO-MM #23: Conduct Special-Status Reptile and Amphibian Monitoring, Avoidance and Relocation.

BIO-MM#26: Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard.

BIO-MM#27: Phased Preconstruction Surveys for Blunt-Nosed Leopard Lizard.

BIO-MM#28: Blunt-Nosed Leopard Lizard Avoidance.

BIO-MM #29: Conduct Pre-Construction Surveys and Delineate Active Nest Exclusion Areas of Other Breeding Birds.

BIO-MM #30: Conduct Pre-Construction Surveys and Monitoring for Raptors.

BIO-MM #31: Bird Protection.

BIO-MM #32: Conduct Protocol and Pre-Construction Surveys for Swainson's Hawks.

- BIO-MM #33: Swainson's Hawk Nest Avoidance and Monitoring.**
- BIO-MM #34: Monitor Removal of Nest Trees for Swainson's Hawks.**
- BIO-MM #35: Conduct Protocol Surveys for Burrowing Owl.**
- BIO-MM #36: Burrowing Owl Avoidance and Minimization.**
- BIO-MM #37: Conduct Pre-Construction Surveys for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse.**
- BIO-MM #38: Implement Avoidance and Minimization Measures for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse.**
- BIO-MM #40: Conduct Pre-construction Surveys for Special-Status Bat Species.**
- BIO-MM #41: Bat Avoidance and Relocation.**
- BIO-MM #42: Bat Exclusion and Deterrence.**
- BIO-MM #43: Conduct Pre-construction Surveys for American Badger and Ringtail.**
- BIO-MM #44: American Badger and Ringtail Avoidance.**
- BIO-MM #45: Conduct Protocol Level Pre-Construction Surveys for San Joaquin Kit Fox.**
- BIO-MM #46: Minimize Impacts on San Joaquin Kit Fox.**
- BIO-MM #51: Install Flashing or Slats within Security Fencing.**
- BIO-MM #52: Construction in Wildlife Movement Corridors.**
- BIO-MM #57: Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel.**
- BIO-MM #58: Compensate for Loss of Swainson's Hawk Nesting Trees.**
- BIO-MM #59: Compensate for Loss of Burrowing Owl Active Burrows and Habitat.**
- BIO-MM #60: Compensate for Destruction of San Joaquin Kit Fox Habitat.**
- BIO-MM #61: Compensate for Permanent Riparian Impacts.**
- BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan.**
- BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation.**
- BIO-MM #66: Implement Avoidance and Minimization Measures for BVLOS.**
- BIO-MM #67: Compensate for Impacts on BVLOS.**

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 off-site, and so that the light does not fall outside the boundaries of the project site to avoid light spillage offsite.

Impacts to special-status wildlife species from construction activities will be avoided and minimized where feasible. General avoidance/minimization measures, as described above under Impact BIO #1, will be implemented in order to track mitigation success and provide assurance that measures are implemented correctly and fully. These mitigation measures are standard procedures, commonly used on large infrastructure projects. Many of the mitigation measures described in Impact BIO #1 have the same or similar ability to reduce impacts to special-status wildlife species.

As such, they are not repeated here except for those measures that are unique to Impact BIO #2.

To minimize entanglement of special-status wildlife species, the erosion control materials will not include plastic mono-filament netting (BIO-MM #10: Mono-Filament Netting). Wildlife exclusion barriers will keep wildlife out of the construction work area as specified and designed through consultation with USFWS and/or CDFW (BIO-MM #8: Wildlife Exclusion Fencing). In areas that have the potential to entrap wildlife, entrapment prevention measures will be enacted (BIO-MM #12: Entrapment Prevention). These measures may include covering holes, providing escape ramps or covering culverts.

To further avoid impacts to special-status wildlife species, work will stop in the event a special-status wildlife species enters the construction footprint in an area where construction is occurring (BIO-MM #13: Work Stoppage). Work will be suspended until the individual leaves voluntarily or is relocated using USFWS-and/or CDFW-approved techniques or methods.

To minimize impacts from light during nighttime construction, lighting will be directed so that the light source is not visible off-site, and so that the light does not fall outside the boundaries of the project site to avoid light spillage off-site (AVR-MM #1b: Minimize Light Disturbance during Construction).

Qualified, agency-approved Biologists (where required, or as designated by the Project Biologist) will conduct preconstruction, protocol-level and focused surveys for special-status wildlife where suitable habitat is present within the construction footprint. Conducting protocol level surveys will aid in the avoidance and minimization of impacts to special-status wildlife species by identifying the locations where each species occurs and/or has the potential to occur in order to guide the avoidance and minimization mitigation measures and implement performance standards:

- BIO-MM #22. Conduct Preconstruction Surveys for Special-Status Reptile and Amphibian Species;
- BIO-MM#26: Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard;
- BIO-MM#27: Phased Preconstruction Surveys for Blunt-Nosed Leopard Lizard;
- BIO-MM #29. Conduct Preconstruction Surveys and Delineate Active Nest Exclusion Areas for Other Breeding Birds;
- BIO-MM #30. Conduct Preconstruction Surveys and Monitoring for Raptors;
- BIO-MM #32. Conduct Preconstruction Surveys for Swainson's Hawks;
- BIO-MM #35. Conduct Protocol Surveys for Burrowing Owls;
- BIO-MM #37. Conduct Preconstruction Surveys for Nelson's Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse
- BIO-MM #40. Conduct Preconstruction Surveys for Special-Status Bat Species
- BIO-MM #43. Conduct Preconstruction Surveys for American Badger and Ringtail;
- BIO-MM #45. Conduct Preconstruction Surveys for San Joaquin Kit Fox.
- BIO-MM #66: Implement Avoidance and Minimization Measures for BVLOS.

The result of the surveys will identify areas where additional mitigation measures are required in order to avoid and minimize impacts on special-status wildlife species. The surveys will provide additional information that will be used to guide the placement of ESAs, ERAs, and wildlife exclusion fencing, the extent and location of construction buffers, focus monitoring efforts, and in some instance species relocation. As a result impacts on special-status species and their habitat will be avoided and minimized. These measures include BIO-MM #23 Conduct Special-Status Reptile and Amphibian Monitoring, Avoidance and Relocation; BIO-MM #33 Swainson's Hawk Nest Avoidance and Monitoring); BIO-MM #34 Monitor Removal of Nest Trees for Swainson's Hawk; BIO-MM #36. Burrowing Owl Avoidance and Minimization; BIO-MM #38 Implement Avoidance and Minimization Measures for Nelson's Antelope Squirrel, Tipton Kangaroo Rat,

Dulzura Pocket Mouse, and Tulare Grasshopper Mouse; BIO-MM #41 Bat Avoidance and Relocation; BIO-MM #42 Bat Exclusion and Deterrence; BIO-MM #44 American Badger and Ringtail Avoidance; and BIO-MM #46 Minimize Impacts on San Joaquin Kit Fox; and BIO-MM #66: Implement Avoidance and Minimization Measures for BVLOS.

In many instances these avoidance and minimization measures follow existing natural resource agency guidelines or protocols. These include CDFW's Staff Report on Burrowing Owl Mitigation (CDFW 2012); USFWS' Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance (USFWS [1999] 2011); and USFWS' Survey Protocol for Determining Presence of the Buena Vista Lake Ornate Shrew (USFWS 2012).

Further avoidance and minimization measures for impacts to special-status bird species include engineering design of catenary systems, masts, fencing, and other structures in accordance with design standards of transmission lines, where applicable (BIO-MM #31 Bird Protection).

Where direct or indirect impacts to special-status wildlife species, cannot be sufficiently avoided, minimized, or rectified, the Authority will conduct compensatory mitigation. The compensatory mitigation may include preservation, enhancement, restoration, or creation of suitable habitats that will protect in perpetuity suitable occupied habitat for impacted species at a level commensurate to or in excess of the project's direct and indirect impacts. Applicable compensatory mitigation measures include:

- BIO-MM #57 Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel;
- BIO-MM #58 Compensate for Loss of Swainson's Hawk Nesting Trees;
- BIO-MM #59 Compensate for Loss of Burrowing Owl Active Burrows and Habitat;
- BIO-MM #60 Compensate for Destruction of San Joaquin Kit Fox Habitat;
- BIO-MM #61: Compensate for Permanent Riparian Impacts;
- BIO-MM #67: Compensate for Impacts on BVLOS.

In some instances, the compensatory mitigation follows existing natural resource agency guidelines or protocols. Examples of compensatory mitigation may include the conservation of similar vegetation communities to that of the impact area, a conservation easement, and the development and implementation of a land management plan to address the long-term sustainability of the mitigation site for special-status wildlife species. Habitat compensation may be accomplished by (1) purchasing "credits" from a USFWS-approved and/or CDFW-approved conservation bank with a service area covering the impact area; (2) acquiring appropriate properties in fee-title; or (3) establishing a conservation easement over a property. The USFWS- and CDFW-approved compensation will be consistent with the USFWS Biological Opinion (including 2018 amendment) and/or the CDFW 2081(b).

Where offsite mitigation is necessary to offset short-term temporary and/or long-term permanent residual impacts that have not been sufficiently avoided, reduced, rectified, or minimized to a less-than-significant level, the Authority will identify suitable habitat restoration, enhancement, and preservation sites to compensate for the residual impacts on special-status wildlife species (BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation). In order to minimize secondary impacts associated with the offsite compensatory mitigation, 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.

There would be no secondary impacts from these mitigation measures. By avoiding, minimizing, and compensating for direct and indirect impacts to special-status wildlife, long-term effects to the future success of special-status wildlife species will be reduced. The Authority finds that the combination of the above list of mitigation measures would substantially lessen the direct and

indirect impacts to special-status wildlife species by reducing them to a less-than-significant impact under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.3 Impact BIO #3: Effects on Special-Status Plant Communities

As described in Section 3.7.4 of the Draft Supplemental EIR/EIS, habitats of concern occurring within the study area for the Preferred Alternative include special-status plant communities, jurisdictional waters, conservation areas, and protected trees. The avoidance of sensitive biological resources was an important consideration during the design and selection of the Preferred Alternative. Project design features, such as elevated sections, minimize direct effects while accommodating operation requirements.

Direct (BIO #3) Impacts during Construction Period

Construction activities within and adjacent to temporary impact areas of the construction footprint would have direct impacts on habitats of concern. These impacts would include removal or disruption (i.e., trampling and crushing) of special-status plant communities by construction vehicles and personnel. With respect to vegetation removal, it should be noted that vegetation within the HSR right-of-way would be permanently removed (as discussed under Impact BIO #7). However, habitats of concern requiring removal to accommodate construction operations (i.e., access and laydown area) would be restored after construction activities are completed (BIO-MM #47, BIO-MM #48).

Direct construction impacts on jurisdictional waters include the placement of temporary fill during construction in both man-made and natural jurisdictional waters. Construction staging areas are planned adjacent to seasonal riverine features to facilitate construction of elevated structures, and are also planned where bridges are proposed at at-grade crossings. Temporary fill would be placed during the construction of access roads and staging/equipment storage areas. This fill would result in a temporary loss of jurisdictional waters; potential impacts on the physical, chemical, and biological characteristics of aquatic substrates and food webs; and a potential increase in erosion and sediment transport into adjacent aquatic areas.

Direct construction impacts on satellite and linkage areas identified in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998) would include the creation of temporary partial or total movement barriers to special-status species, the loss or degradation of special-status plant and wildlife species, and the loss or degradation of the lands that could support or provide habitat for these species.

Construction of the HSR project would result in the removal or modification of protected trees within the construction footprint, which could conflict with the objectives, goals, and/or provisions identified in approved local, regional, or state conservation plans.

Indirect (BIO #3) Impacts during Construction Period

Indirect impacts would include contamination of habitats of concern outside the construction footprint from construction equipment leaks; construction dust reducing photosynthetic capability; and an increased risk of fire in adjacent open spaces.

Temporary indirect construction impacts on special-status plant communities would include fragmentation and introduction of nonnative, invasive plant species. These changes would result in decreased viability and gradual loss of special-status plant communities. Fragmentation would result from the construction of temporary features, especially linear features, including access roads that bisect special-status plant communities. Construction activities could facilitate the spread of nonnative invasive plant species through introduction of seeds by construction equipment, vehicles, and personnel.

Because Project period indirect impacts on jurisdictional waters are more extensive than and tend to encompass the construction period impacts, the indirect impacts on jurisdictional waters are discussed in Impact BIO #7 in Section 3.7.4.2, Draft Supplemental EIR/EIS.

Indirect construction impacts on satellite and linkage areas identified in the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998) would include fragmentation of satellite and linkage areas where crossed by temporary construction activities (e.g., staging areas and access roads) and disturbance of natural lands within recovery areas that reduces habitat value for species recovery.

The direct and indirect impacts on habitats of concern during construction are considered a significant impact under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #3 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor.

BIO-MM #2: Regulatory Agency Access.

BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program (WEAP).

BIO-MM #4: Prepare and Implement a Weed Control Plan and Annual Vegetation Control Plan.

BIO-MM #5: Prepare and Implement a Biological Resources Management Plan.

BIO-MM #6: Prepare and Implement a Restoration and Revegetation Plan.

BIO-MM #7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in field).

BIO-MM #9: Equipment Staging Areas.

BIO-MM #11: Vehicle Traffic.

BIO-MM #13: Work Stoppage.

BIO-MM #14: "Take" Notification and Reporting.

BIO-MM #15: Post Construction Compliance Reports.

BIO-MM #16: Conduct Protocol Level Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities.

BIO-MM #17: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species.

BIO-MM #47: Restore Temporary Riparian Impacts.

BIO-MM #48: Restore Temporary Impacts on Jurisdictional Waters.

BIO-MM #49: Monitor Construction Activities within Jurisdictional Waters.

BIO-MM #50: Mitigation and Monitoring of Protected Trees.

BIO-MM #52: Construction in Wildlife Movement Corridors.

BIO-MM #53: Compensate for Impacts on Special-Status Plant Species.

BIO-MM #61: Compensate for Permanent Riparian Impacts.

BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan.

BIO-MM #63: Compensate for Permanent and Temporary Impacts on Jurisdictional Waters.

BIO-MM #64: Compensate for Impacts on Protected Trees.

BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation.

Impacts on habitats of concern from construction activities will be avoided and minimized where feasible. General avoidance/minimization measures will be implemented in order to track mitigation success and provide assurance that measures are implemented correctly and fully. These mitigation measures are standard procedures, commonly used on large infrastructure projects. The measures are the same as the general mitigation measure described in Impacts BIO #1 and #2 and have the same or similar ability to reduce impacts on habitats of concern. As such, they are not repeated here except for those additional measures that did not apply to Impacts BIO #1 and #2.

To avoid and minimize impacts on habitats of concern, in areas of suitable habitat where floristic surveys could not be conducted, BIO-MM #16 (Conduct Preconstruction Surveys for Special-Status Plant Species and Special-Status Plant Communities) would identify the locations of all special-status plant communities in areas not previously surveyed.

To reduce impacts on jurisdictional waters, protective devices will be installed and construction will be monitored (BIO-MM #49: Monitor Construction Activities within Jurisdictional Waters).

Impacts to protected trees will be reduced by conducting preconstruction surveys to evaluate the condition of protected trees, fencing protected trees that may be indirectly affected by construction activities to form ERAs, or by transplanting trees (BIO-MM #50: Mitigation and Monitoring of Protected Trees).

Where avoidance and minimization of habitats is not feasible, both temporary and permanent impacts will be mitigated through habitat restoration. To reduce impacts to these sensitive habitats, during post-construction, the Contractor will revegetate all disturbed riparian areas

(BIO-MM #47: Restore Temporary Riparian Impacts) and restore topography of jurisdictional waters using stockpiled and segregated soils and revegetate disturbed areas (BIO-MM #48: Restore Temporary Impacts on Jurisdictional Waters).

Since avoidance, minimization, rectification, or reduction of direct and indirect impacts will not alone fully mitigate all impacts on habitats of concern to a less-than-significant level, mitigation will also be secured by the Authority through compensatory mitigation. The Authority will compensate for permanent impacts on habitats of concern, as determined in consultation with the appropriate agencies (e.g., USACE, CDFW, State Water Resources Control Board [SWRCB]), through (1) purchasing "credits" from a Service-approved conservation bank with a service area covering the impact area; (2) acquiring appropriate properties in fee-title; or (3) establishing a conservation easement over a property.

Specifically, the following compensatory mitigation will mitigate for loss of habitats of concern:

- BIO-MM #61. Compensate for Permanent Riparian Impacts
- BIO-MM #63. Compensate for Permanent and Temporary Impacts on Jurisdictional Waters
- BIO-MM #64. Compensate for Impacts to Protected Trees

Compensation shall include aquatic resources restoration, establishment, enhancement, or preservation. For jurisdictional waters impacted by the Preferred Alternative, the Authority will mitigate impacts on aquatic resource at a minimum ratio of 1:1, or as determined in consultation with the appropriate agencies. For protected trees, the Authority will provide mitigation in accordance to the local regulations and laws in each jurisdiction.

Prior to the start of ground-disturbing activities, in order to ensure compliance with permit applications for USFWS, USACE, SWRCB, and CDFW, the Authority will develop a site specific Comprehensive Mitigation Monitoring Plan(s) containing performance standards (BIO-MM #62):

- Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan).
- Offsite mitigation is necessary for short-term temporary and/or long-term permanent residual impacts that have not been sufficiently avoided, reduced, rectified, or minimized to a less-than-significant level by project avoidance and minimization measures or other mitigation measures.
- The Authority will identify suitable habitat restoration, enhancement, and preservation sites to compensate for the residual impacts on habitats of concern (BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation). In order to minimize any potential mitigation impacts offsite, the offsite habitat restoration, enhancement, and preservation program will be designed, implemented, and monitored consistent with the terms and conditions of the USACE Section 404 Permit, CDFW 1600 Streambed Alteration Agreement, and CESA and federal ESA as they apply to their jurisdiction and resources onsite. There would be no significant secondary impacts from implementation of these mitigation measures. By avoiding, minimizing and compensating for direct and indirect impacts to habitats of concern, long-term effects to the future success of habitats of concern will be reduced.

The Authority finds that the combination of the above list of mitigation measures would substantially lessen the direct and indirect impacts to habitats of concern by reducing the impacts to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.4 Impact BIO #4: Construction Effects on Wildlife Movement Corridors

As described in Section 3.7.3 of the Draft Supplemental EIR/EIS, the Preferred Alternative intersects the Kern River wildlife movement corridor. Although the infrastructure would not impede movement of aquatic species, construction activities could obstruct wildlife movement and migration through the Kern River linkage for between two to five consecutive years, resulting in greater impacts to wildlife using the linkage.

Direct (BIO #4) Impacts during Construction Period

Direct impacts include the obstruction of wildlife movement because of project infrastructure, security fencing, and construction fencing.

Indirect (BIO #4) Impacts during Construction Period

Indirect impacts may occur as a result of noise, vibration, and visual or light pollution that could result in temporary shifts in use of corridors, foraging patterns or territories, nursery or rookery abandonment, and increased predation.

The direct and indirect impacts on wildlife movement corridors during the construction period are considered a significant impact under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #4 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #9: Equipment Staging Areas.

BIO-MM #51: Install Flashing or Slats within Security Fencing.

BIO-MM #52: Construction in Wildlife Movement Corridors.

BIO-MM #57: Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel.

BIO-MM #58: Compensate for Loss of Swainson's Hawk Nesting Trees.

BIO-MM #59: Compensate for Loss of Burrowing Owl Active Burrows and Habitat.

BIO-MM #60: Compensate for Destruction of San Joaquin Kit Fox Habitat.

Impacts to wildlife movement would be reduced by the Mitigation Measures which are described, in part, under Impact BIO #2. A construction avoidance and minimization plan (BIO-MM #52: Construction in Wildlife Movement Corridors) will reduce impacts to special-status wildlife by optimizing the location of wildlife movement structures, and minimizing ground-disturbance in and near identified wildlife movement corridors, particularly during the nighttime hours.

The Authority finds that the above-listed mitigation measures will substantially lessen the impacts to wildlife movement corridors during the construction period for the Preferred Alternative by reducing the impacts to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.5 Impact BIO #5: Project Effects on Special-Status Plant Species

Up to 16 special-status plant species have the potential to occur in and immediately adjacent to the footprint of the Preferred Alternative and as a result may be directly or indirectly impacted by project period activities. Table 3.7-3 of the Draft Supplemental EIR/EIS presents the potential for occurrence of special-status species based on the presence of suitable habitat, the range of the species, and the proximity of known occurrences of the species.

In addition to the species that have been observed within the Special-Status Plant Study Area, special-status plant species have the potential to occur in areas of suitable habitat in parcels that have not been surveyed. These species include federally and/or state-listed species and species listed by the California Native Plant Society, all of which are considered rare in California (CEQA Guidelines, §15380). If these species occur in the construction footprint, they would be subject to the same adverse effects as those described below for species known to occur.

Direct (BIO #5) Project Impacts

Direct impacts on special-status plant species and native plant species would result from the permanent removal of vegetation from within the Preferred Alternative footprint. Disturbance of individuals, populations, or potential suitable habitat for special-status plant species could occur during construction of permanent infrastructure, and ongoing operation and maintenance activities (e.g., routine inspection and maintenance of the HSR right-of-way).

Direct impacts include the permanent removal of special-status plant communities and land cover types that provide habitat for a number of special-status plants. Based on the habitat requirements of special-status plants, as many as 16 species have a potential to occur within the Preferred Alternative. Some areas within the Preferred Alternative were not made available for pedestrian field surveys. Therefore, inaccessible areas with potentially suitable habitat present are considered occupied by special-status plant species. For these reasons, the Preferred Alternative is assumed to have suitable habitat for special-status plant species.

Indirect (BIO #5) Project Impacts

Indirect impacts on special-status plant species and native plant species are anticipated to include erosion, sedimentation, siltation, and changes in hydrology that could affect adjacent aquatic habitats; wind erosion effects; increased risk of fire; habitat degradation through changes in habitat heterogeneity, fragmentation, and the introduction of nonnative invasive plant species; and introduction of noxious plant species.

The direct and indirect impacts on special-status plant species and habitats suitable for special-status plant species during the project period are considered a significant impact under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #5 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor.

BIO-MM #2: Regulatory Agency Access.

BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program.

BIO-MM #4: Prepare and Implement a Weed Control Plan and Annual Vegetation Management Plan.

BIO-MM #5: Prepare and Implement a Biological Resource Management Plan.

BIO-MM #6: Prepare and Implement a Restoration and Revegetation Plan.

BIO-MM #7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in-field).

BIO-MM #9: Equipment Staging Areas.

BIO-MM #11: Vehicle Traffic.

BIO-MM #13: Work Stoppage.

BIO-MM #14 "Take" Notification and Reporting.

BIO-MM #15: Post-Construction Compliance Reports.

BIO-MM #16: Conduct Protocol-Level Pre-Construction Surveys for Special-Status Plant Species and Special Status Plant Communities.

BIO-MM #17: Prepare and Implement Plan for Salvage, Relocation and/or Propagation of Special Status Plant Species.

BIO-MM #47: Restore Temporary Riparian Impacts.

BIO-MM #53: Compensate for Impacts on Special-Status Plant Species.

BIO-MM #61: Compensate for Permanent Riparian Impacts.

BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan.

BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation.

Project impacts on special-status plant species would be similar to construction impacts; however, impacts would be permanent and would result in continued indirect impacts resulting from construction of permanent infrastructure and train operation. Impacts to special-status plant species would be reduced by the Mitigation Measures described under Impact BIO #1.

There would be no secondary impacts from these mitigation measures. By minimizing and compensating for direct and indirect impacts to special-status plants, long-term effects to the future success of special-status plant species will be reduced. The combination of these mitigation measures would lessen the direct and indirect impacts to special-status plant species to a less-than-significant impact under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.6 Impact BIO #6: Project Effects on Special-Status Wildlife Species

Up to 41 special-status wildlife species have the potential to occur in and near the footprint of the Preferred Alternative and as a result may be directly or indirectly impacted by project period activities. As indicated in Table 3.7-4 of the Draft Supplemental EIR/EIS, the potential for occurrence is identified as no potential, low, moderate, or high. The presence of and potential for special-status wildlife species to occur in a particular habitat is linked to the physical characteristics of the landscape and the species' known geographic range.

Direct (BIO #6) Project Impacts

Direct impacts to special-status wildlife species (including amphibians, reptiles, fish, birds, and mammals) and native fauna may occur as a result of permanent conversion of occupied habitat to project infrastructure, direct strike during operation and maintenance, trampling or crushing, exposure to contaminants, erosion, and sedimentation, etc. These direct impacts to individual special-status wildlife species occur within the limits of disturbance. As a result of project activities, the Preferred Alternative may result in adverse effects on special-status wildlife species through harassment, disturbance, injury, nest abandonment, or death of individuals. These impacts may occur to all life stages (i.e., eggs, young, juveniles, or adults). Ongoing operation and maintenance activities would also occur (e.g., routine inspection and maintenance of the HSR right-of-way) and would similarly involve disturbance from trampling or crushing of native vegetation by vehicle or foot traffic.

Indirect (BIO #6) Project Impacts

Project period indirect impacts on special-status wildlife species (including amphibians, reptiles, fish, birds, and mammals) and native fauna associated with the Preferred Alternative may result from increased noise, light, visual (motion) and ground disturbance.

During operation, maintenance activities could contribute to chemical runoff and pollution of adjacent habitat. Project elements including security fencing and electrical infrastructure may attract predators (e.g., raptors, coyotes) and increase prey on special-status wildlife species.

These impacts may indirectly result in water quality degradation and contamination, hydrological modifications, habitat degradation (through soil compaction, or alteration of vegetation cover), introduce nonnative invasive (noxious) weeds, and in some cases may result in mortality of individuals.

Specifically, the indirect impacts may result in reduced reproductive success, decreased survivorship of these species and their food, abandonment of refugia (e.g., burrows), temporary shifts in foraging patterns or territories (displacement), dispersal movements, changes in behavior (e.g., startle and avoidance), reduced population viability, and increased mortality or predation. These impacts may occur to all life stages (i.e., eggs, young, juveniles or adults).

The direct and indirect impacts on special-status wildlife species and native fauna during the project period are considered a significant impact under CEQA. Implementation of the following mitigation measures will reduce Impact BIO #6 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor.

BIO-MM #2: Regulatory Agency Access.

BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program (WEAP).

BIO-MM #4: Prepare and Implement a Weed Control Plan and Annual Vegetation Control Plan.

BIO-MM #5: Prepare and Implement a Biological Resources Management Plan.

BIO-MM #6: Prepare and Implement a Restoration and Revegetation Plan.

BIO-MM #7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in field).

BIO-MM #8: Wildlife Exclusion Fencing.

BIO-MM #9: Equipment Staging Areas.

BIO-MM #10: Monofilament Netting.

- BIO-MM #11: Vehicle Traffic.**
- BIO-MM #12: Entrapment Prevention.**
- BIO-MM #13: Work Stoppage.**
- BIO-MM #14: “Take” Notification and Reporting.**
- BIO-MM #15: Post Construction Compliance Reports.**
- BIO-MM #22: Conduct Pre-Construction Surveys for Special Status Reptile and Amphibian Species.**
- BIO-MM #23: Conduct Special-Status Reptile and Amphibian Monitoring, Avoidance and Relocation.**
- BIO-MM#26: Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard.**
- BIO-MM#27: Phased Preconstruction Surveys for Blunt-Nosed Leopard Lizard.**
- BIO-MM#28: Blunt-Nosed Leopard Lizard Avoidance.**
- BIO-MM #29: Conduct Pre-Construction Surveys and Delineate Active Nest Exclusion Areas of Other Breeding Birds.**
- BIO-MM #30: Conduct Pre-Construction Surveys and Monitoring for Raptors.**
- BIO-MM #31: Bird Protection.**
- BIO-MM #32: Conduct Protocol and Pre-Construction Surveys for Swainson’s Hawks.**
- BIO-MM #33: Swainson’s Hawk Nest Avoidance and Monitoring.**
- BIO-MM #34: Monitor Removal of Nest Trees for Swainson’s Hawks.**
- BIO-MM #35: Conduct Protocol Surveys for Burrowing Owl.**
- BIO-MM #36: Burrowing Owl Avoidance and Minimization.**
- BIO-MM #37: Conduct Pre-Construction Surveys for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse.**
- BIO-MM #38: Implement Avoidance and Minimization Measures for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse.**
- BIO-MM #40: Conduct Pre-construction Surveys for Special-Status Bat Species.**
- BIO-MM #41: Bat Avoidance and Relocation.**
- BIO-MM #42: Bat Exclusion and Deterrence.**
- BIO-MM #43: Conduct Pre-construction Surveys for American Badger and Ringtail.**
- BIO-MM #44: American Badger and Ringtail Avoidance.**
- BIO-MM #45: Conduct Protocol Level Pre-Construction Surveys for San Joaquin Kit Fox.**
- BIO-MM #46: Minimize Impacts on San Joaquin Kit Fox.**
- BIO-MM #51: Install Flashing or Slats within Security Fencing.**
- BIO-MM #52: Construction in Wildlife Movement Corridors.**
- BIO-MM #57: Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel.**
- BIO-MM #58: Compensate for Loss of Swainson’s Hawk Nesting Trees.**
- BIO-MM #59: Compensate for Loss of Burrowing Owl Active Burrows and Habitat.**

BIO-MM #60: Compensate for Destruction of San Joaquin Kit Fox Habitat.

BIO-MM #61: Compensate for Permanent Riparian Impacts.

BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan.

BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation.

BIO-MM #66: Implement Avoidance and Minimization Measures for BVLOS.

BIO-MM #67: Compensate for Impacts on BVLOS.

AVR-MM #1b: Minimize Light Disturbance during Construction. Details regarding AVR-MM #1b are described above.

Project impacts on special-status wildlife species would be similar to construction impacts; however, impacts would be permanent and would result in continued indirect impacts resulting from construction of permanent infrastructure and train operation. Impacts to special-status wildlife species would be reduced by the Mitigation Measures described under Impacts BIO #1 and #2 (including the compensatory mitigation).

In addition to those measures, the following mitigation measures will also be implemented to avoid and minimize impacts on special-status wildlife species.

Noise impacts to special-status wildlife species present in developed areas will be minimized by the construction of sound walls (N&V-MM #3: Implement Proposed California High-Speed Train Project Noise Mitigation Guidelines).

Before the start of operation permanent special-status reptile and mammal-proof fencing consistent with applicable permits as determined in consultation with USFWS and CDFW will be installed (BIO-MM #51: Install Flashing or Slats in Security Fencing). The installation of flashing or slats within the security fencing will prevent access to the HSR thereby reducing impacts to wildlife species and reducing injury and mortality in special-status wildlife species.

There would be no secondary impacts from these mitigation measures. By minimizing and compensating for direct and indirect impacts to special-status wildlife, long-term effects to the future success of special-status wildlife species will be reduced. The Authority finds that the combination of the above listed mitigation measures would substantially lessen the direct and indirect impacts to special-status wildlife species from project activities by reducing the impacts to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.7 Impact BIO #7: Project Effects on Habitats of Concern

As described in Section 3.7.4 of the Draft Supplemental EIR/EIS, habitats of concern occurring within the study area for the Preferred Alternative include special-status plant communities, jurisdictional waters, conservation areas, and protected trees. For purposes of the Final Supplemental EIR, special-status plant communities include “sensitive natural communities” as defined by CDFW. The avoidance of sensitive biological resources was an important consideration during the design and selection of the Preferred Alternative. Project design features, such as elevated sections, minimize direct effects while accommodating operation requirements.

Direct (BIO #7) Project Impacts

Direct impacts include the permanent conversion of habitats of concern (e.g., special-status plant communities, jurisdictional waters, conservation areas, and protected trees). Direct project impacts on habitats of concern would result from operation and maintenance, and also includes the various permanent project components (e.g., embankments, rail bed, road overcrossings, and aerial structure footings).

Impacts on special-status plant communities would include the permanent removal of vegetation from within the construction footprint, and the disturbance (i.e., trampling or crushing) of plants due to an increase of pedestrian access/activity in the area. Ongoing operation and maintenance activities would also occur (e.g., routine inspection and maintenance of the HSR right-of-way) and would similarly involve disturbance from trampling or crushing of native vegetation by vehicle or foot traffic.

The contouring and placement of fill in jurisdictional waters would result in the permanent loss of jurisdictional waters; irreversible impacts on the physical, chemical, and biological characteristics of aquatic substrates and food webs; and a potential increase in erosion and sediment transport into adjacent aquatic areas. Direct impacts on jurisdictional waters (i.e., natural and man-made features) would also include the removal or modification of local hydrology and the redirection of flow within jurisdictional waters. Permanent impacts on jurisdictional waters would occur during construction of bridges and viaducts over the Kern River, as well as man-made ditches and basins (including shading, support piers, and removal of vegetation).

The jurisdictional waters (Kern River and canal/ditches) are heavily managed by local irrigation districts, which serve public water needs, and agricultural production. The construction of the Preferred Alternative would further degrade these managed/man-made jurisdictional waters but would maintain existing agriculture-based functions and services.

Project direct impacts on federal recovery plan areas include the creation of permanent partial barriers to special-status species, the loss or degradation of special-status plant and wildlife species, and the loss or degradation of the lands that could support or provide habitat for these species.

The Draft Supplemental EIR/EIS describes that the Preferred Alternative would result in temporary and permanent impact on the Kern River linkage area identified in the Recovery Plan for Upland Species of the San Joaquin Valley. As a result of the 1.13-acre permanent impact to the Kern River, the Preferred Alternative would result in measurable loss to recovery plan areas.

Project period activities would result in the permanent removal or modification of protected trees, which could conflict with the objectives, goals, and/or provisions identified in approved local, regional, or state conservation plans. Where the alignment is located at-grade, removal or trimming of all protected trees is anticipated. In urban areas where the majority of the landscaped ornamental trees are located and where the alignment is on an elevated structure, trimming and limited removal of protected trees would occur.

Indirect (BIO #7) Project Impacts

Indirect impacts would include contamination of habitats of concern outside the construction footprint from increased erosion, sedimentation, siltation, and runoff due to alterations in topography and hydrology; wind erosion effects; an increased risk of fire in adjacent open spaces; and the introduction of noxious plant species from increased human activity/disturbance.

Permanent indirect impacts on special-status plant communities, including riparian areas, would include fragmentation and introduction of nonnative, invasive plant species. These changes would result in decreased viability and gradual loss of special-status plant communities.

Fragmentation would result from the construction of permanent features, especially linear features, including track that bisects contiguous natural areas. Project activities could facilitate the spread of nonnative, invasive plant species through introduction of seeds by construction and operation equipment, vehicles, and personnel.

Potential indirect impacts on jurisdictional waters include a number of temporary construction related impacts and permanent water-quality-related impacts: erosion, siltation, and runoff into natural and constructed water features and deposition downstream of the construction footprint.

In addition, permanent changes to jurisdictional waters within the Preferred Alternative may also result in changes in hydrology to areas outside of the footprint. For many of the man-made features these indirect impacts would be minor, and hydrologic changes would be minimal.

However, for the Kern River, the only natural feature within the Preferred Alternative, the changes may result in changes in the natural hydrological regime. Indirect impacts on seasonal riverine include the changes in water temperature through the removal of the riparian trees that provide shade, shading of open water, and reduced contribution to and ability to recycle nutrients.

Project indirect impacts on satellite and linkage areas within the USFWS Recovery Plan for Upland Species of the San Joaquin Valley, California would occur as a result of implementation of the project. These indirect impacts include fragmentation of habitats where recovery areas are crossed by permanent project elements and disturbance of natural lands, which reduces habitat value for special-status species recovery.

Direct and indirect impacts on habitats of concern during the project period are a significant impact under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #7 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor.

BIO-MM #2: Regulatory Agency Access.

BIO-MM #3: Prepare and Implement a Worker Environmental Awareness Program (WEAP).

BIO-MM #4: Prepare and Implement a Weed Control Plan and Annual Vegetation Control Plan.

BIO-MM #5: Prepare and Implement a Biological Resources Management Plan.

BIO-MM #6: Prepare and Implement a Restoration and Revegetation Plan.

BIO-MM #7: Delineate Environmentally Sensitive Areas and Environmentally Restricted Areas (on plans and in field).

BIO-MM #9: Equipment Staging Areas.

BIO-MM #11: Vehicle Traffic.

BIO-MM #13: Work Stoppage.

BIO-MM #14: "Take" Notification and Reporting.

BIO-MM #15: Post Construction Compliance Reports.

BIO-MM #16: Conduct Protocol Level Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities.

BIO-MM #17: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species.

BIO-MM #47: Restore Temporary Riparian Impacts.

BIO-MM #48: Restore Temporary Impacts on Jurisdictional Waters.

BIO-MM #49: Monitor Construction Activities within Jurisdictional Waters.

BIO-MM #50: Mitigation and Monitoring of Protected Trees.

BIO-MM #52: Construction in Wildlife Movement Corridors.

BIO-MM #53: Compensate for Impacts on Special-Status Plant Species.

BIO-MM #61: Compensate for Permanent Riparian Impacts.

BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan.**BIO-MM #63: Compensate for Permanent and Temporary Impacts on Jurisdictional Waters.****BIO-MM #64: Compensate for Impacts on Protected Trees.****BIO-MM #65: Offsite Habitat Restoration, Enhancement, and Preservation.**

Project impacts on special-status plant communities, jurisdictional waters, conservation areas, and protected trees would be permanent and would result in continued indirect impacts resulting from construction of permanent project elements and train operation. Impacts to special-status plant communities, jurisdictional waters, conservation areas, and protected trees would be reduced by the Mitigation Measures described under Impacts BIO #1, #2, and #3.

There would be no significant secondary impacts from implementation of these mitigation measures. By minimizing and compensating for direct and indirect impacts to habitats of concern, long-term effects to these habitats of concern will be reduced. The Authority finds that combination of the above listed mitigation measures would substantially lessen the direct and indirect impacts to special-status plant communities, jurisdictional waters, conservation areas, and protected trees from project activities by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.4.8 Impact BIO #8: Project Effects on Wildlife Movement Corridors

The Preferred Alternative incorporates a number of project design features that would facilitate wildlife movement, including elevated tracks, road overcrossings and undercrossings, and drainage facilities (as described in Chapter 2, Draft Supplemental EIR/EIS). Nevertheless, the placement of the project infrastructure, and the need for ongoing operations and maintenance activities, will cause direct and indirect impacts to wildlife movement corridors during the project period.

Direct (BIO #8) Project Impacts

The Preferred Alternative has been designed to facilitate wildlife movement; however, direct impacts on wildlife movement may occur. Direct impacts include the placement of temporary and permanent linear barriers to wildlife movement with restricted crossing opportunities. This may cause habitat shifts (toward nonnative and/or disturbed type communities) over time (through direct effects), because it could degrade linkages, which may no longer provide food, cover, or ease of travel for many species. These shifts in habitat use can result in increased competition for resources, as well as the potential for genetic isolation of populations.

Developed areas are generally barriers to natural wildlife movement and are of marginal habitat value to most special-status plant and wildlife species. Outside of the Kern River corridor, much of the project footprint has been converted to agricultural or developed urban areas. Although these areas are generally disturbed on a daily-to-seasonal basis, wildlife species that have adapted to urban and agricultural environments may be affected by the placement of barriers, but the impact would be less severe than in natural areas.

The Preferred Alternative is designed on viaduct structure in the Kern River linkage, an identified wildlife movement corridor. The viaduct structure would facilitate wildlife movement, but would incrementally affect movement patterns and linkage connectivity in the region. In urban Bakersfield, where the track is predominantly elevated, the Preferred Alternative will not impede wildlife movement. In at-grade sections, security fencing will be installed for safety and security purposes; in these sections wildlife movement will be facilitated through bridges, road overcrossings and undercrossings, culverts and other drainage facilities.

Indirect (BIO #8) Project Impacts

Implementation of the Preferred Alternative may result in indirect disruption of wildlife movement through lighting, noise, motion, and startle effects.

Indirect disturbance from HSR operation and maintenance activities (e.g., routine inspection and maintenance of HSR right-of-way) of the habitats associated with a wildlife corridor may cause habitat shifts (toward nonnative and/or disturbed type communities) over time (through indirect effects) because wildlife are no longer able to move freely between areas of natural habitat.

In at-grade crossings the noise screening distance (i.e., distance from the trackway centerline within which an impact could result) for a single-train pass-by sound exposure level (SEL) of 100 dBA would be approximately 100 feet from the track centerline (for a total width of 200 feet). At-grade crossings within rural areas where the right-of-way is less than a width of 200 feet could expose wildlife to noise levels that exceed the 100-dBA SEL threshold. Also, when the track is located on an elevated structure (e.g., over the Kern River), the screening distance for a single train passby SEL of 100 dBA would be approximately 15 feet from the track centerline. In such cases indirect effects may cause wildlife to avoid use of a habitat linkage.

Direct and indirect impacts to wildlife movement corridors during the project period are a significant impact under CEQA.

Implementation of the following mitigation measure will reduce Impact BIO #8 to less than significant. (Due to length, the text of the biological resources mitigation measures are presented separately in Attachment A to these CEQA Findings.)

BIO-MM #9: Equipment Staging Areas.

BIO-MM #51: Install Flashing or Slats within Security Fencing.

BIO-MM #52: Construction in Wildlife Movement Corridors.

BIO-MM #57: Compensate for Impacts on Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel.

BIO-MM #58: Compensate for Loss of Swainson's Hawk Nesting Trees.

BIO-MM #59: Compensate for Loss of Burrowing Owl Active Burrows and Habitat.

BIO-MM #60: Compensate for Destruction of San Joaquin Kit Fox Habitat.

Impacts to wildlife movement would be reduced by the Mitigation Measures which are described, in part, under Impact BIO # 2. A construction avoidance and minimization plan (BIO-MM #52: Construction in Wildlife Movement Corridors) will reduce impacts to special-status wildlife by optimizing the location of wildlife movement structures, minimizing ground-disturbance in and near identified wildlife movement corridors, particularly during the nighttime hours.

The Authority finds that the above-listed mitigation measures will substantially lessen the impacts to wildlife movement corridors during the project period from the Preferred Alternative by reducing the impacts to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.5 Hydrology and Water Resources (Section 3.8 of the Draft Supplemental EIR/EIS)

With implementation of the recommended mitigation measures identified in the findings for Impacts HWR #4 and #8, as described below, the project would not result in any significant and unavoidable impacts under CEQA related to hydrology and water resources.

3.5.1 Impact HWR #4: Temporary Impacts on Floodplains

Construction in a floodplain could temporarily impede or redirect flood flows because of the presence of construction equipment and materials in the floodplain. The Preferred Alternative would travel through two Federal Emergency Management Agency designated floodplains: 1) an

unnamed floodplain within the city of Shafter; and 2) the Kern River floodplain. Construction activities associated with the Preferred Alternative in these Federal Emergency Management Agency designated floodplains would include the placement of fill within the unnamed floodplain in the city of Shafter and construction of viaduct structures within the Kern River floodplain. The impediment or redirection of flood flows would be a significant impact under CEQA.

Implementation of the following mitigation measure will reduce Impact HWR #4 to less than significant:

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 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.

Impacts to hydrology and water resources associated with implementation of the Preferred Alternative would be less than significant after implementation of Mitigation Measure HWR-MM #1. No impacts would result from implementing Mitigation Measure HWR-MM #1. Mitigation Measure HWR-MM #1 will be implemented within the study area, and therefore does not raise the potential for impacts in any area not already analyzed for this project. The proposed mitigation measure, with proper implementation, serves only to reduce potential impacts of the project, and by nature of its design does not result in additional environmental impacts to hydrology and water resources.

The Authority finds that Mitigation Measure HWR-MM #1 has been required in the Preferred Alternative and that implementation of this mitigation measure will reduce the Preferred Alternative's hydrology and water resources impacts associated with the impediment or redirection of flood flows to less-than-significant levels under CEQA.

Impact HWR #4 of the Fresno to Bakersfield Section Final EIR/EIS did not identify a significant impact requiring mitigation. Therefore, no finding would be required for Impact HWR #4 of the May 2014 Project.

3.5.2 Impact HWR #8: Permanent Impacts on Floodplains

The Preferred Alternative would cross the levees on the northwestern and southwestern banks of the Kern River in the city of Bakersfield via a viaduct structure supported by eight octagonal, 15-foot diameter concrete columns within the Zone AE (base flood elevation determined) floodplain associated with the Kern River. The concrete columns would reduce the floodplain storage capacity, obstruct the flow of the Kern River, and increase the water surface elevation upstream of the Preferred Alternative crossing. Although the volume of fill inside the 100- and 200-year floodplain would be limited to the concrete columns, which are negligible in comparison to the size of the Kern River floodplain, Federal Emergency Management Agency regulations prevent projects from increasing the base flood elevation by greater than 1 foot in floodplains or substantially changing the floodplain limits. This would be a significant impact under CEQA.

Implementation of the following mitigation measure will reduce Impact HWR #8 to less than significant:

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.

Impacts to hydrology and water resources associated with implementation of the Preferred Alternative would be less than significant after implementation of Mitigation Measure HWR-MM #2. No impacts would result from implementing Mitigation Measure HWR-MM #2. Mitigation Measure HWR-MM #2 will be implemented within the study area, and therefore does not raise the potential for impacts in any area not already analyzed for this project. The proposed mitigation measure, with proper implementation, serves only to reduce potential impacts of the project, and by nature of its design does not result in additional environmental impacts to hydrology and water resources.

The Authority finds that Mitigation Measure HWR-MM #2 has been required in the Preferred Alternative and that implementation of this mitigation measure will reduce the project's hydrology and water resources impacts associated with floodplains to less-than-significant levels under CEQA.

Impact HWR #8 of the Fresno to Bakersfield Section Final EIR/EIS did not identify a significant impact requiring mitigation. Therefore, no finding would be required for Impact HWR #8 of the May 2014 Project.

3.6 Geology, Soils, Seismicity, and Paleontological Resources (Section 3.9 of the Draft Supplemental EIR/EIS)

Construction of the Preferred Alternative could result in impacts to paleontological resources.

3.6.1 Impact GSSP #12: Sensitive Paleontological Resources

During construction, ground-disturbing activities could disturb sediments with high paleontological sensitivity. Depending on the depth of ground disturbance, construction could directly or indirectly adversely affect a unique paleontological resource. This is considered a potentially significant impact under CEQA. The following measures mitigate this impact:

CUL-MM#16: Engage a Paleontological 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 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. 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.

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 1995) guidelines for the mitigation of construction impacts on paleontological resources. The PRMMP will also be consistent with the Society of Vertebrate Paleontology (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 Paleontological Resources Are Found. If fossil or fossil-bearing deposits are discovered during construction, regardless of the individual making a paleontological discovery, construction activity in the immediate vicinity of the discovery will cease. This requirement will be spelled out in both the PRMMP and the 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 Paleontological resources monitors or the PRS, a Paleontological resources monitors or the PRS will immediately be notified.

None of the mitigation measures are expected to result in secondary effects. Surficial activities such as staging and clearing usually do not affect paleontological resources because the associated disturbance does not extend deep enough to impact paleontological sensitive sediment, but construction activities that may impact paleontological resources include excavation, heavy equipment usage and movement at depth, and drilling. However, with monitoring efforts during construction activities, the preparation and implementation of a monitoring and mitigation plan, and procedures to halt work in the case of the discovery of paleontological resources, construction impacts to significant paleontological resources will be substantially lessened or avoided, and reduced to a less-than-significant level with implementation of CUL-MM #16, CUL-MM #17, and CUL-MM #18.

The Authority finds that Mitigation Measures CUL-MM #16, CUL-MM #17, and CUL-MM #18 have been required in the Preferred Alternative and that implementation of these measures will substantially lessen or avoid the potentially significant impact of construction on paleontological resources; this impact is less than significant with implementation of these mitigation measures.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.7 Hazardous Materials and Wastes (Section 3.10 of the Draft Supplemental EIR/EIS)

With implementation of the recommended mitigation measure identified in the finding for Impact HMW # 4, the Preferred Alternative would not result in any significant and unavoidable impacts related to hazardous materials and waste. This conclusion is further supported by the Impact Avoidance and Minimization Measures that the Authority has included as part of the Preferred Alternative, consistent with and in furtherance of the Statewide Program EIR/EIS commitments (see Draft Supplemental EIR/EIS Appendix 2-H). These avoidance and minimization measures would minimize impacts due to hazardous materials as they relate to the proper transport, storage, use and disposal of hazardous materials, preparation of plans to handle unforeseen spills or undocumented contamination to reduce the exposure of workers and the public and the spread of contaminants, and specific investigation of properties before acquisition to remove or avoid contaminated areas to reduce exposure of workers and the public to hazardous material. In adopting the resolution of approval of the project, the Authority confirms that the Impact Avoidance and Minimization Measures are part of the Preferred Alternative.

3.7.1 Impact HMW #4: Temporary Hazardous Material and Waste Activities in the Proximity of Schools

During construction, demolition, and excavation activities, the project would potentially emit hazardous air emissions or handle extremely hazardous wastes above threshold quantities referenced in Public Resources Code section 21151.4 and described in Health and Safety Code Section 25532(j). Nine schools are located in the vicinity (0.25 mile) of potential construction activities for the Preferred Alternative (Draft Supplemental EIR/EIS, Table 3.10-2). Potentially hazardous materials and items containing potentially hazardous materials would be used in

railway construction. Demolition of existing structures within the construction footprint could require the removal of asbestos containing materials and lead-based paint from the project site.

Because the project would comply with the above Public and Health and Safety codes, as well as all other federal, state, and local regulations related to the transport, handling, and disposal of hazardous waste, the effect of HSR construction related to routine transport and handling of hazardous or acutely hazardous materials within 0.25 mile of an existing or proposed school would have a less-than-significant impact.

The effect of hazardous materials released to the environment in the unlikely event of a leak or spill as the result of an accident or collision during construction would largely be minor because of the generally small quantities of materials transported or used at any given time and because of the precautions required by existing State and federal regulations. However, in the most unlikely and extreme case, such a release could be a significant impact under CEQA. The following measure mitigates this impact:

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 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.

The installation of signage to alert contractors of the presence of nearby schools will result in negligible visual impacts because they will be similar to other traffic signs in school areas. No other secondary impacts would occur in other areas. For this reason, the impacts of this mitigation measure would be less than significant.

The Authority finds that Mitigation Measure HMW-MM#1 has been required in the Preferred Alternative and that implementation of this mitigation measure will substantially reduce or avoid the project's impacts associated with temporary hazardous material and waste activities in the proximity of schools; therefore, with implementation of Mitigation Measure HMW-MM#1, this impact will be reduced to less than significant under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.8 Safety and Security (Section 3.11 of the Draft Supplemental EIR/EIS)

These Findings address impacts associated with the Preferred Alternative. Section 3.11 of the Draft Supplemental EIR/EIS describes impacts as either construction period, which examines temporary impacts, or project period, which examines permanent impacts. This categorization is carried through in these Findings.

3.8.1 Impact S&S #7: Risk of Fire and Explosions

The Preferred Alternative includes project elements that have a potential risk of fire and related hazards, including station facilities, passenger vehicles, maintenance facilities with fuel storage, traction power and paralleling stations, and the Operational Control Center. These elements have electrical equipment and/or combustible materials and represent a fire and explosion risk. The Preferred Alternative project design would include a number of layered safety and security systems, including closed-circuit television, access control, intrusion protection, fire warning and suppression systems, such as sprinklers, as well as emergency exits and notification systems,

consistent with the requirements of the National Fire Protection Association Safety Code and Standard for Fixed Guideway Transit and Passenger Rail Systems, the California Building Standards Code, and the International Building Code.

The Preferred Alternative occupies parcels that have been identified by the Authority as potential safety and security concerns, specifically with the potential for fire and explosions that could impact the HSR operation. Parcels of concern are the Halliburton Facility (34722 7th Standard Road), the Rain-for-Rent Facility (3404 State Road), and the Golden Empire Gleaners Facility (1326 30th Street), all of which are in the City of Bakersfield.

However, in the event that operations at the three facilities result in fire or explosion, such an event would result in a significant impact under CEQA. The following measures mitigate this impact:

S&S-MM #2: Risk of Fire and Explosions Haliburton Facility (Site Specific). The following site-specific mitigation shall be implemented based on the Authority's Policy for Elevated Structures to allow continued use of the Haliburton 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 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 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: Risk of Fire and Explosions Rain-For-Rent Facility (Site Specific). 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 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: Risk of Fire and Explosions Golden Empire Gleaners Facility (Site Specific). 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 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 approval.

Mitigation Measures S&S-MM #2, S&S-MM #3, and S&S-MM #4 are not anticipated to have secondary impacts on the physical environment. Typical secondary impacts associated with implementation of Mitigation Measures include, but are not limited to, air resource impacts, noise impacts, and transportation/circulation impacts. Implementation of Mitigation Measures S&S-MM #2, S&S-MM #3, and S&S-MM #4 would not in themselves cause secondary impacts as these

mitigation measures are focused on allowing continued operation of the facilities similar to existing conditions during development and operation of the Preferred Alternative. For these reasons, it is expected that secondary impacts due to implementation of the above identified mitigation measures would be less than significant under CEQA.

The Authority finds that the combination of the above listed mitigation measures would substantially lessen or avoid the Preferred Alternative's impacts associated with safety and security; therefore, with implementation of Mitigation Measures S&S-MM #2, S&S-MM #3, and S&S-MM #4, this impact will be reduced to less than significant under CEQA.

Impact S&S #7 of the Fresno to Bakersfield Section Final EIR/EIS did not identify a significant impact requiring mitigation. Mitigation Measures S&S-MM #2, S&S-MM #3, and S&S-MM #4 are specific to facilities located along the Preferred Alternative alignment and are not located along the May 2014 Project alignment. Therefore, no finding would be required for Impact S&S #7 of the May 2014 Project.

3.8.2 Impact S&S #10: Need for Expansion of Existing Fire, Rescue, and Emergency Services Facilities

The Bakersfield F Street Station would introduce new passengers into the area, which could increase the demand for fire and ambulance services. This station would have onsite security patrols, so no increased demand for police protection at the station is anticipated. However, there is potential for an impact on emergency response times, which is considered a significant impact. The following measure mitigates this impact:

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. The Authority, annually, during construction/post-construction and operational activities, would 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, Kings/Tulare, and Bakersfield 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 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 and HMF service areas (as established during the monitoring period). The fair share will be based on projected passenger use for the first year of operations, with a growth factor for the first 5 years of operation. This cost-sharing agreement will include provisions for ongoing monitoring and future 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 the stations and HMF site, new local revenues derived from station area development, and any services that the Authority may be providing at the station.

No secondary effects are anticipated with the above mitigation measure. If the only need for mitigation is the provision of additional emergency response equipment, this mitigation measure will result in no impacts. If the project requires funding of additional public-service facilities, such as a police substation, mitigation may result in impacts on the physical environment. Those impacts would include emissions and fugitive dust from construction equipment, construction-related noise, visual impacts associated with new structures, and impacts on biological and

cultural resources that may be present on the site of new structures. Any new or expanded government facilities would be designed and constructed to be consistent with local land use plans, and would be subject to separate site-specific analysis under CEQA, including measures to mitigate impacts.

For this reason, it is expected that impacts of mitigation would be less than significant. The Authority finds that Mitigation Measure S&S-MM #1 has been required in the project and that implementation of this mitigation measure will substantially reduce the impact on emergency services response times in the project area. With mitigation, this impact is less than significant.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.9 Socioeconomics and Communities (Section 3.12 of the Draft Supplemental EIR/EIS)

Under CEQA, economic and social impacts resulting from a project are not environmental impacts (CEQA Guidelines, § 15064, subd. (e)). The Authority has nevertheless incorporated several impact avoidance and minimization measures into the Preferred Alternative, consistent with, and in furtherance, of the Statewide Programmatic EIR/EIS environmental commitments and mitigation measures (see Appendix 2-H of the Draft Supplemental EIR/EIS). In adopting the resolution of approval of the project, the Authority confirms that the impact avoidance and minimization measures identified in Appendix 2-H are part of the Preferred Alternative.

Although economic and social impacts are not environmental impacts within the meaning of CEQA, where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project (CEQA Guidelines, Section 15131, Economic and Social Effects). Furthermore, if the physical change causes adverse economic or social effects on people, those adverse effects may be used as a factor in determining whether the physical change is significant (Ibid). The following sets forth the Authority's determination whether the physical change is significant, as determined by the significance criteria listed in Section 3.12.2.5 of the Draft Supplemental EIR/EIS and the requirements set forth in CEQA Guidelines Section 15064 subdivision (e) regarding social and economic impacts.

3.9.1 Impact SO #6: Disruption to Community Cohesion or Division of Existing Communities from Project Operation

As explained in the Draft Supplemental EIR/EIS, under CEQA, the effect of a project on a neighborhood or community is significant if a project would create a new physical barrier that isolates one part of an established community from another and potentially results in a physical disruption to community cohesion. Community impacts are, therefore typically considered less than significant under CEQA unless they divide an existing community. The Preferred Alternative has the potential to result in disruption to community cohesion and division of existing rural communities during operations. The following measures mitigate this impact:

SO-MM #1: Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods. The California High-Speed Rail Authority (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 high-speed rail (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 landscaping, and potential uses for remnant parcels that could benefit the community in the long term).

SO-MM #3: Implement Measures to Reduce Impacts Associated with the Displacement of Key Community Facilities. The Authority will minimize impacts resulting from the disruption to key community facilities including the Golden Empire Transit District, Valley Oaks Charter School, Bakersfield Department of Motor Vehicles, the Golden Living Center (a nursing 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 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 #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 2008). 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 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.

Mitigation Measure SO-MM #1 includes plans to conduct outreach activities in affected communities and to consult with property owners; these activities will result in no impacts on the physical environment.

Mitigation Measure SO-MM#3 will require the reconfiguration of land or construction of replacement structures for community facilities impacted by the Preferred Alternative. Potential impacts on the physical environment from this mitigation would result from construction activities, including emissions and fugitive dust from construction equipment, construction-related noise, visual impacts associated with new structures, and impacts on biological and cultural resources that may be present on the site of new structures. Any new facilities would be designed and constructed to be consistent with local land use plans, and would be subject to separate site-specific analysis under CEQA, including measures to mitigate impacts to a less-than-significant level.

Modifications to areas underneath the elevated guideway and along the edges of the right-of-way under Mitigation Measure SO-MM #5 could result in potential impacts on the physical environment. The intention of this mitigation measure is to lessen the aesthetic impacts from the

introduction of new structures by improving the visual quality of the surroundings. Creating gardens and trails and planting trees will require temporary use of excavation equipment and other landscaping tools. Impacts of this mitigation measure could include noise, emissions, and fugitive dust from construction-related activities. Any new recreation facilities would be designed and constructed to be consistent with local land use plans, and would be subject to separate analysis under CEQA, including measures to mitigate impacts to a less-than-significant level.

The Authority finds that Mitigation Measures SO-MM #1, SO-MM #3, and SO-MM #5 have been required in the Preferred Alternative and that implementation of these measures will reduce the impact to a less-than-significant level.

Mitigation Measure SO-MM #3 identifies displaced facilities located along the Preferred Alternative alignment that are not located along the May 2014 Project alignment. Therefore, the facility-specific text would not apply to the May 2014 Project; however, the general text of SO-MM #3 would apply to the May 2014 Project and would include the specific facilities listed in Table 3.12-18 of the Fresno to Bakersfield Section Final EIR/EIS. This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in the Socioeconomics and Communities Section of Technical Appendix 8-A of the Draft Supplemental EIR/EIS.

3.9.2 Impact SO #12: Displacement of Community Facilities

The Preferred Alternative has the potential to displace community facilities. The Preferred Alternative would displace three community facilities, all of which are located in Bakersfield's metropolitan area. These facilities would include the Golden Empire Transit District, Valley Oaks Charter School (one of the buildings), and the Bakersfield Department of Motor Vehicles. The following measure mitigates this impact:

SO-MM #3: Implement Measures to Reduce Impacts Associated with the Displacement of Key Community Facilities. Details regarding SO-MM #3 are described above.

Mitigation Measure SO-MM #3 will require the reconfiguration of land or construction of replacement structures for community facilities impacted by the HSR. Potential impacts on the physical environment from this mitigation would result from construction activities, including emissions and fugitive dust from construction equipment, construction-related noise, visual impacts associated with new structures, and impacts on biological and cultural resources that may be present on the site of new structures. Any new facilities would be designed and constructed to be consistent with local land use plans, and would be subject to separate site-specific analysis under CEQA, including measures to mitigate impacts. For this reason, it is expected that impacts of mitigation would be less than significant.

The Authority finds that Mitigation Measure SO-MM #3 has been required in the project and that implementation of this mitigation measure will reduce the project's impacts to the community facilities to less-than-significant levels.

Mitigation Measure SO-MM #3 identifies displaced facilities located along the Preferred Alternative alignment that are not located along the May 2014 Project alignment. Therefore, the facility-specific text would not apply to the May 2014 Project; however, the general text of SO-MM #3 would apply to the May 2014 Project and would include the specific facilities listed in Table 3.12-18 of the Fresno to Bakersfield Section Final EIR/EIS. This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in the Socioeconomics and Communities Section of Technical Appendix 8-A of the Draft Supplemental EIR/EIS.

3.10 Agricultural Lands (Section 3.14 of the Draft Supplemental EIR/EIS)

Much of the Preferred Alternative alignment passes through rural lands in Kern County between Shafter and Bakersfield. Implementation of the Preferred Alternative would result in the conversion of agricultural land to nonagricultural use, would divide lands under agricultural use

resulting in parcel severance, and would convert lands under Williamson Act or Farmland Security Zone contracts, potentially voiding those contracts.

3.10.1 Impact AG #4: Permanent Conversion of Agricultural Land to Nonagricultural Use

The Preferred Alternative would permanently convert approximately 372 acres of Important Farmland to non-agricultural use to construct HSR infrastructure and ancillary facilities. Important Farmland includes farmland classified as prime, unique, statewide important, and locally important as shown on maps prepared for the Department of Conservation's Farmland Mapping and Monitoring Program. Included within this acreage are remnant parcels identified to be unlikely to continue to support agricultural use due to their size, shape, access, location, or other factors. The permanent conversion of Important Farmland to non-agricultural use is a significant impact under CEQA. The following measures mitigate this impact:

AG-MM #1: Identify and Preserve the Total Amount of Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland. The Authority has entered into an agreement with the DOC California Farmland Conservancy Program to implement its agricultural land mitigation for the HST project in the Merced to Fresno and Fresno to Bakersfield sections. 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 in the Fresno to Bakersfield section. 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 agricultural use by the project. In addition, the Authority will provide an additional increment of Important Farmland mitigation acreage, above the 1:1 minimum ratio, at a level consistent with the terms of a settlement agreement the Authority reached with agricultural interests in *County of Madera, et al. v. California High-Speed Rail Authority*. This approach will provide consistency in 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.

AG-MM #2: Conserve Additional Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) for Indirect Impacts Adjacent to HSR Permanently Fenced Infrastructure. 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 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.

Although implementation of AG-MM #1 and AG-MM #2 will not avoid the significant impact of converting Important Farmland to HSR project use, the Authority nevertheless finds that AG-MM #1 and AG-MM #2 will substantially lessen this impact by providing compensation in the form of permanently preserved Important Farmlands that otherwise may be converted to non-agricultural use. The Authority further finds that these mitigation measures will be effectively implemented

based on the strong record of success by the Department of Conservation California Farmland Conservancy Program in securing agricultural conservation easements in the Central Valley, as well as the success of other farmland preservation programs in the Central Valley. The Authority finds, however, that because Important Farmland is not a renewable resource, and the creation of new Important Farmland is not feasible, the HSR project will cause a net loss of the Important Farmland resource in the South San Joaquin Valley, which is the State's leading agricultural production region. In light of the net loss of the Important Farmland resource, the Authority finds that the conversion of Important Farmland lands to non-agricultural use from the HSR Project cannot be mitigated to a less-than-significant level. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this impact to a less-than-significant level. To the extent that this impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in the Section 3.14 of the Draft Supplemental EIR/EIS.

3.10.2 Impact AG #5: Effects on Agricultural Land from Parcel Severance

The Preferred Alternative will result in indirect impacts to Important Farmland parcels as a result of parcel severance by the HSR system (i.e., the permanent project footprint). This acreage reflects a significant impact. The following measures mitigate this impact:

AG-MM #1: Identify and Preserve the Total Amount of Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland. Details regarding AG-MM #1 are described above.

AG-MM #2: Conserve Additional Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland) for Indirect Impacts Adjacent to HSR Permanently Fenced Infrastructure. Details regarding AG-MM #2 are described above.

With implementation of Mitigation Measures AG-MM #1 and AG-MM #2, adverse effects associated with the conversion of Important Farmland would be mitigated to less than significant. These mitigation measures identify the responsible party (Authority) to ensure that the measures are appropriately implemented. Considering that agricultural land in the San Joaquin Valley is among the most valuable in the United States, it is anticipated that while parcel ownership may change to due to severance, the larger remnant parcels would remain in agricultural use.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in the Section 3.14 of the Draft Supplemental EIR/EIS.

3.10.3 Impact AG #6: Effects on Land under Williamson Act or Farmland Security Zone Contracts, Local Zoning

The Preferred Alternative will affect land currently under Williamson Act contracts. Specifically, the Authority will acquire right-of-way needed for HSR facilities, and in the process it may split a parcel of land that is currently under a Williamson Act contract in a manner that leaves the private property owner with a privately owned remainder parcel that may be physically farmable, but is now smaller than the minimum qualifying size under County rules for Williamson Act tax benefits. The Draft Supplemental EIR/EIS conservatively identifies the potential for the Preferred Alternative to cause land (including Important Farmland) currently under a Williamson Act contract to no longer qualify for the tax benefits, and to potentially be converted to non-agricultural use, as a significant impact under CEQA. For the Preferred Alternative, there is a possible conversion of 114 acres of Williamson Act contracted land, not all of which is Important Farmland. The following measure mitigates this impact:

AG-MM #1: Identify and Preserve the Total Amount of Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland. Details regarding AG-MM #1 are described above.

The Authority finds that this mitigation measure has been required in the Preferred Alternative and that it will permanently protect more than 372 acres of Important Farmland from conversion to a non-agricultural use, whereas Impact AG #6 has the potential to remove 114 acres of land under Williamson Act contracts from temporary protections provided by tax benefits. The Authority thus finds that AG-MM #1 provides three times more permanently protected acres of Important Farmland than land that may lose temporary protection under Williamson Act contracts. The Authority also finds that AG-MM #1 will be effectively implemented based on the strong record of success by the DOC California Farmland Conservancy program in securing agricultural conservation easements in the Central Valley, as well as the success of other farmland preservation programs in the Central Valley. Based on the magnitude of permanently preserved acres of Important Farmland under AG-MM #1 relative to the number of acres that potentially could lose Williamson Act contract tax benefits, and based on the fact that of those lands, not all are Important Farmland, the Authority finds that this impact is substantially lessened and reduced to a less-than-significant level.

The Authority further finds that Kern County has jurisdiction over and procedures in place to allow for a variance in minimum parcel size for Williamson Act contracts, depending on the size of the remainder parcel and its proximity to other parcels the owner may have under a separate contract, that has the potential to further minimize the significant impact of additional agricultural land conversion. The Authority finds that Kern County can and should allow for landowners to apply for and receive a variance to maintain Williamson Act contracts where the remainder parcel size falls below the county minimum and above the state's minimum parcel size, but would otherwise qualify for a variance under each county's procedures and rules.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project as augmented by additional analysis in the Section 3.14 of the Draft Supplemental EIR/EIS.

3.11 Parks, Recreation and Open Space (Section 3.15 of the Draft Supplemental EIR/EIS)

The Preferred Alternative could result in impacts to parks, recreation, and open space resources.

3.11.1 Impact PK #1: Construction Impacts on Parks, Recreation, Open Space and School District Recreation Facilities

Construction of the Preferred Alternative could cause temporary (construction-related) disturbances in areas adjacent to parks, recreational areas, open space areas, and school district recreation facilities, which could be a significant impact under CEQA. Multiple construction-related factors affect these resources, including but not limited to noise, aesthetics, and access restrictions. The following measures mitigate this impact:

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 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 off-site, and so that the light does not fall outside the boundaries of the project site to avoid light spillage offsite.

N&V-MM #1: Construction Noise Mitigation Measures. Details regarding N&V-MM #1 are described in Section 3.3, above.

PP-MM #1: Temporary Restricted Access to Park Facilities During Construction. Prior to temporary restricted access to the park facilities, the contractor will ensure that connections to the unaffected park portions or nearby roadways are maintained. If a proposed linear park closure restricts connectivity, the contractor will provide alternative pedestrian and bicycle access via a temporary detour of the pedestrian walkway using existing roadways or other public rights of way. The contractor will provide detour signage and lighting and will ensure that the alternative routes meet all public safety requirements.

Although the visual degradation during construction would be more noticeable in urban areas adjacent to residences and parkways, the construction activities are considered temporary as they would cease after completion. Implementation of AVR-MM#1b would substantially lessen or avoid impacts associated with the use of nighttime lighting during construction by reducing the amount of nighttime lighting emitted by construction sites and avoiding off-site light spillage visible to viewers. There would be no secondary impacts resulting from these mitigation measures.

Mitigation Measure PP-MM #1 will require installing detour signage and lighting for alternative pedestrian and bicycle routes. These activities will result in negligible impacts on the physical environment, while improving overall park access and public safety (through the provision of clear direction and lighting). The impacts of this mitigation measure would be less than significant under CEQA.

The Authority finds that Mitigation Measures AVR-MM#1a and AVR-MM#1b have been required in the Preferred Alternative and that implementation of Mitigation Measure AVR-MM#1a will substantially lessen or avoid impacts associated with the visual disturbance during construction, and that implementation of Mitigation Measure AVR-MM#1b will substantially reduce the amount of nighttime lighting emitted; therefore, these impacts are less than significant.

Noise impacts would occur during construction activities and would cease after construction is complete. The Authority finds that Mitigation Measure N&V-MM #1 has been required in the Preferred Alternative and that implementation of this mitigation measure will reduce construction noise impacts to park, recreation, and open space facilities below the FTA construction noise limits; therefore, this impact would be reduced to a less-than-significant impact.

The Authority finds that Mitigation Measure PP-MM #1 has been required in the Preferred Alternative and that implementation of this mitigation measure will substantially reduce temporary impacts to parks, recreation, open space, and school district recreational facilities. With mitigation, this impact is less than significant.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.11.2 Impact PK #2: Project Acquisition of Parks, Recreation, and Open Space Resources

The Preferred Alternative would result in the permanent acquisition of 0.66 acre of land at the Kern River Parkway. This would be a significant impact under CEQA. At the Kern River Parkway, the Preferred Alternative would cross over areas used by pedestrians and recreationists. Footings for the columns supporting the elevated guideway would be constructed in the Kern River Parkway, but the completed guideway would span perpendicularly over the bike path of the Kern River Parkway, thereby avoiding permanent restrictions to access and use. The park lands underneath the elevated guideways would remain available for park use in accordance with the Authority's policies. As such, the recreational activities that are currently available in this section of the Kern River Parkway will continue to be available once the elevated guideways are installed. The placement of footings would not substantially impair the features of the Kern River Parkway because they would not permanently restrict access to the bike path and surrounding recreational area or change the recreational use of the area crossed by the guideway, thereby allowing for the same recreational activities to continue around the footings.

The following measure mitigates this impact:

PP-MM #3: Collect Additional Maintenance Funds. The Authority will consult with the affected jurisdiction 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 jurisdiction 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.

The Authority finds that Mitigation Measure PP-MM #3 has been required in the Preferred Alternative and that implementation of this mitigation measure will reduce parks, recreation, and open space impacts to less than significant under CEQA.

Mitigation Measure PP-MM #3, as written above, applies specifically to the Preferred Alternative. Mitigation Measure PP-MM #3, as applicable to the May 2014 Project alignment, is documented on page 1-50 of the Fresno to Bakersfield Mitigation Monitoring and Enforcement Program. This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.12 Aesthetics and Visual Resources (Section 3.16 of the Draft Supplemental EIR/EIS)

Implementation of the Preferred Alternative could result in impacts to aesthetics and visual resources during both construction and operation. Construction equipment and activities would temporarily introduce new elements to the landscape, while the operation of the HSR train would include a new and permanent feature to the landscape. In the Draft Supplemental EIR/EIS, analysis of these impacts was broken into landscape units, including Shafter Town, Rural San Joaquin County, North Bakersfield, the Kern River Landscape, and the Valley Oaks Charter School. Additional impacts would result from introduced light and glare.

3.12.1 Impact AVR #2: Construction Impacts on Existing Visual Quality

Clearing, earthmoving, and erection of project facilities would introduce new lines, forms, and colors that would typically contrast with the existing landscape forms and patterns in urban and rural areas causing a decrease in the visual unity and intactness of most existing views. This would be most noticeable in rural areas where largely pastoral scenes would be disturbed by intensive construction activities, causing a reduction in the visual quality of landscapes by one to

two levels of visual quality depending on the setting. Most construction activities would cease within 1 to 2 years at any given location. The exception to this would be concrete batch plants used to fabricate project components and some construction laydown areas that would be used for up to 5 years. Because construction could reduce the visual quality category of a landscape by one or two levels, depending upon the setting and viewer sensitivity would often be moderate or, in some cases, high, the effect of project construction on existing visual quality is significant under CEQA. The following measure mitigates this impact:

AVR-MM #1a: Minimize Visual Disruption from Construction Activities. Details regarding AVR-MM #1a are described above.

Implementation of this mitigation measure is not expected to result in secondary impacts.

Although the visual degradation during construction would be more noticeable in urban areas adjacent to residences and parkways, the construction activities are considered temporary as they would cease after completion.

The Authority finds that Mitigation Measure AVR-MM #1a has been required in the Preferred Alternative and that implementation of this mitigation measure will substantially lessen or avoid impacts associated with the visual disturbance during construction; therefore, this impact will be reduced to less than significant under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.12.2 Impact AVR #3: Construction Impact from Light and Glare

Construction of the Preferred Alternative would create new sources of light and glare that may temporarily affect nighttime views. Lighting associated with nighttime construction would increase ambient light, which may adversely affect nighttime views. This may be an annoyance in urban areas, such as Shafter and Bakersfield; it may also be an annoyance in rural residential areas along the HSR alignment. Construction would not occur at night at all times; therefore, this impact would be intermittent over the construction period. Construction at any given location would typically last 1 to 2 years, although construction activities at concrete batch plants and some construction laydown areas would last for up to 5 years. Because construction light and glare could be an annoyance to viewers particularly in rural areas, reducing the visual quality category of a landscape by one level, depending upon the setting, and because viewer sensitivity would often be moderate or, in some cases, high, the impact would be significant under CEQA. The following measure mitigates this impact:

AVR-MM #1b: Minimize light disturbance during construction. Details regarding AVR-MM #1b are described above.

Implementation of this mitigation measure is not expected to result in secondary impacts.

The Authority finds that Mitigation Measure AVR-MM #1b has been required in the Preferred Alternative and that implementation of AVR-MM #1b will substantially lessen or avoid impacts associated with the use of nighttime lighting during construction this impact would be reduced to less than significant under CEQA.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.12.3 Impact AVR #4: Lower Visual Quality in the Shafter Town Landscape Unit

As described in Section 3.16.4.2 of the Draft Supplemental EIR/EIS, the Preferred Alternative will result in significant visual quality impacts to the Shafter Town Landscape Unit. The Preferred Alternative would pass through a mixture of commercial, residential, industrial, and agricultural areas. The conversion of the existing, at-grade BNSF to a raised embankment with a retaining wall would degrade the intactness of views from the historic museum, which originally served as a

depot for an at-grade railway. Because of the loss of visual unity and intactness, visual quality would decline one level, from moderately high to moderate. Furthermore, visitors to the museum would have a high viewer response to the change in the property's visual landscape, which is an important part of the viewer experience. This would be a significant impact under CEQA. The following measures mitigate this impact:

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 HST or related supporting infrastructure. Plantings will allow adequate space between the vegetation and the HST 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.

AVR-MM #2f: Landscape Treatments along 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-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.

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 [of the Final EIR/EIS]). The Authority will develop the treatments during final design and integrate them into the final project design. The treatments will include, but are not limited to, the following:

- Sound barriers along elevated guideways may incorporate transparent materials where sensitive views would be adversely affected by solid sound barriers.
- Sound barriers will use non-reflective materials and will be of a neutral color.
- Surface design enhancements and vegetation appropriate to the visual context of the area will be installed with the sound barriers. Vegetation will be installed consistent with the provisions of 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.

AVR-MM #2h: Screen Traction Power Distribution Stations and Radio Communication Towers. Upon completion of station construction, the Authority will screen the traction power distribution facilities, including substations (located at approximately 30-mile intervals along the Preferred Alternative) and radio communications towers, from public view through the use

of landscaping or solid walls/fences. This will consist of context-appropriate landscaping of a type and scale that does not draw attention to the station. Plant species will be selected on the basis of their mature size and shape, growth rate, hardiness, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed within the landscaped areas. Walls will be constructed of cinder-block or similar material and will be painted a neutral color to blend in with the surrounding context. If a chain-link or cyclone fence is used, it will include wood slats in the fencing. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable period as agreed between the Authority and local jurisdiction.

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.

The Authority finds Mitigation Measures AVR-MM #2d, AVR-MM #2f, AVR-MM #2g, and AVR-MM #2h have been required in the Preferred Alternative and that implementation of these measures would reduce, but not completely avoid or substantially lessen the permanent impacts on the views, visual character, and visual quality within the Shafter Town Landscape Unit. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce these impacts to less-than-significant levels. To the extent that these significant adverse impacts remain significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.12.4 Impact AVR #4: Lower Visual Quality in the Rural San Joaquin Valley Landscape Unit

As described in Section 3.16.4.2 of the Draft Supplemental EIR/EIS, the Preferred Alternative will result in significant visual quality impacts to the Rural San Joaquin Landscape Unit. Although generally of moderate intactness and unity, this landscape often lacks variety and vividness because of the ubiquity and uniformity of orchards and vineyards. Viewers in this landscape are often agricultural workers, rural residents, and motorists on nearby roads. Of these, nearby rural residents at single, isolated homes constitute the primary high-sensitivity viewer group that would be affected by the Preferred Alternative. Rural residences would be located as close as approximately 130 feet away from HSR facilities and 340 feet from the centerline of the HSR alignment. The sensitivity of other viewer groups in this landscape unit ranges from moderate to low. The following measures mitigate this impact:

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.

- 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 HST stations and associated structures such as elevators, escalators, and walkways to be attractive architectural elements or features that add visual interest to the streetscapes near them.
- Design HST station parking structures and adjacent areas to integrate visually into the areas where they would be located. Where the city has adopted applicable downtown design guidelines, the parking structures and adjacent areas will be designed to be compatible with the policies and principles of those guidelines.
- For the elevated guideways and columns, incorporate architectural elements, such as graceful curved or tapered sculptural forms and decorative surfaces, to provide visual interest. Include decorative texture treatments on large-scale concrete surfaces such as parapets and other portions of elevated guideways. Include a variety of texture, shadow lines, and other surface articulation to add visual and thematic interest. Closely coordinate the design of guideway columns and parapets with station and platform architecture to promote unity and coherence where guideways lie adjacent to stations.
- Integrate trees and landscaping into the station streetscape and plaza plans where possible to soften and buffer the appearance of guideways, columns, and elevated stations. This will be consistent with the principles of crime prevention through environmental design.
- For the stations, structures, and related open spaces: incorporate design features that provide interest and reflect the local design context. These features could include landscaping, 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 HST 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 PP-MM #3 will be implemented.

AVR-MM #2c: 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.

AVR-MM #2d: Replant Unused Portions of Lands Acquired for the HSR. Details regarding AVR-MM #2d are described above.

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 residential areas, provide offsite screening, as appropriate, if desired by affected residential owners.

AVR-MM #2h: Screen Traction Power Distribution Stations and Radio Communication Towers. Details regarding AVR-MM #2h are described above.

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.

The Authority finds Mitigation Measures AVR-MM #2a, AVR-MM #2b, AVR-MM #2c, AVR-MM #2d, AVR-MM #2e, and AVR-MM #2h have been required in the project and that implementation of these measures would reduce, but not completely avoid or substantially lessen the permanent impacts on the views, visual character, and visual quality within the Rural San Joaquin Landscape Unit. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce these impacts to less-than-significant levels. To the extent that these significant adverse impacts remain significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.12.5 Impact AVR #4: Lower Visual Quality in the North Bakersfield Landscape Unit

As described in Section 3.16.4.2 of the Draft Supplemental EIR/EIS, the Preferred Alternative will result in significant visual quality impacts to the North Bakersfield Landscape Unit. Southwest of the community of Oil Junction, the Preferred Alternative would cross over to east side of SR 99. Beyond Airport Drive, the Preferred Alternative would cross over SR 204 and would run parallel to and east of the highway. The HSR would be constructed on an elevated viaduct throughout this landscape unit, which is characterized primarily by commercial and industrial land uses, as well as cultivated fields south of 7th Standard Road. Roadway overcrossings of the viaduct would be built at 7th Standard Road, Snow Road, SR 99, Olive Drive, State Road, and Airport Drive. Multifamily residential buildings and single-family residences along Norris Road to the west of SR 99 would have much closer and more direct views of the Preferred Alternative from a distance of at least 300 feet. The introduction of an elevated viaduct at this distance from residences would increase the industrial character of foreground views, contrasting with the residential character of the area and reducing visual intactness and unity. Visual quality would decline one level, from moderately low, to low. With the high sensitivity of residents to visual effects, the Preferred Alternative would have a significant impact to these residents under CEQA. The following measures mitigate this impact:

AVR-MM #2a: Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context. Details regarding AVR-MM #2a are described above.

AVR-MM #2b: Integrate Elevated Guideway into Affected Cities, Parks, Trail, and Urban Core Designs. Details regarding AVR-MM #2b are described above.

AVR-MM #2c: Screen At-Grade, Raised Embankments, and Elevated Guideways Adjacent to Residential Areas. Details regarding AVR-MM #2c are described above.

AVR-MM #2d: Replant Unused Portions of Lands Acquired for the HSR. Details regarding AVR-MM #2d are described above.

AVR-MM #2e: Provide Offsite Landscape Screening Where Appropriate. Details regarding AVR-MM #2e are described above.

AVR-MM #2g: Provide Sound Barrier Treatments. Details regarding AVR-MM #2g are described above.

AVR-MM #2h: Screen Traction Power Distribution Stations and Radio Communication Towers. Details regarding AVR-MM #2h are described above.

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.

The Authority finds Mitigation Measures AVR-MM #2a, AVR-MM #2b, AVR-MM #2c, AVR-MM #2d, AVR-MM #2e, AVR-MM #2g, and AVR-MM #2h have been required in the Preferred Alternative and that implementation of these measures would reduce, but not completely avoid or substantially lessen the permanent impacts on the views, visual character, and visual quality within the North Bakersfield Landscape Unit. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce these impacts to less-than-significant levels. To the extent that these significant adverse impacts remain significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

The Preferred Alternative traverses the North Bakersfield Landscape Unit and the May 2014 Project would not. Instead the May 2014 Project would traverse the Rosedale/Greenacres Landscape Unit. This Preferred Alternative would result in a significant impact on the North Bakersfield Landscape Unit, where the May 2014 Project would not. The May 2014 Project would result in a significant impact on the Rosedale/Greenacres Landscape Unit, where the Preferred Alternative would not.

3.12.6 Impact AVR #4: Lower Visual Quality in the Kern River Landscape Unit

As described in Section 3.16.4.2 of the Draft Supplemental EIR/EIS, the Preferred Alternative will result in significant visual quality impacts to the Kern River Landscape Unit. The Preferred Alternative would cross the Kern River on an elevated viaduct roughly parallel to and between SR 204 and the UPRR. This location has moderately high visual quality because of the predominance of grassland and riparian vegetation, despite the intrusion of urban elements like the SR 204 and UPRR bridges and towers supporting power lines to the east. The introduction of an elevated viaduct and HSR station visible from the Kern River Parkway Bike Trail would reduce the intactness of the visual environment, causing a decline of one level in visual quality. Because of the high sensitivity of recreational users of the Kern River Parkway Bike Trail to visual elements, this decline in visual quality would be a significant impact under CEQA. The following measures mitigate this impact:

AVR-MM #2a: Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context. Details regarding AVR-MM #2a are described above.

AVR-MM #2b: Integrate Elevated Guideway into Affected Cities, Parks, Trail, and Urban Core Designs. Details regarding AVR-MM #2b are described above.

AVR-MM #2d: Replant Unused Portions of Lands Acquired for the HSR. Details regarding AVR-MM #2d are described above.

AVR-MM #2g: Provide Sound Barrier Treatments. Details regarding AVR-MM #2g are described above.

AVR-MM #2h: Screen Traction Power Distribution Stations and Radio Communication Towers. Details regarding AVR-MM #2h are described above.

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.

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.

The Authority finds Mitigation Measures AVR-MM #2a, AVR-MM #2b, AVR-MM #2d, AVR-MM #2g, AVR-MM #2h, and AVR-MM #2i have been required in the Preferred Alternative and that implementation of these measures would reduce, but not completely avoid or substantially lessen the permanent impacts on the views, visual character, and visual quality within the Kern River Landscape Unit. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce these impacts to less-than-significant levels. To the extent that these significant adverse impacts remain significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.12.7 Impact AVR #5: Lower Visual Quality at Valley Oaks Charter School

As part of the Preferred Alternative, a new roadway (34th Street) would cross the UPRR railway on an overpass immediately southwest of the school. Primary outdoor use areas at the Valley Oaks Charter School would have direct exposure to the concrete columns and guideway of the elevated viaduct and to the new roadway. These are all urban elements that would result in a substantial decline in visual intactness, unity, and overall visual quality. Considering the moderate viewer response onsite, the Preferred Alternative would have a significant impact under CEQA. The following measures mitigate this impact:

AVR-MM #2a: Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context (Kings/Tulare Regional Station). Details regarding AVR-MM #2a are described above.

AVR-MM #2b: Integrate Elevated Guideway into Affected Cities, Parks, Trail, and Urban Core Designs. Details regarding AVR-MM #2b are described above.

AVR-MM #2d: Replant Unused Portions of Lands Acquired for the HSR. Details regarding AVR-MM #2d are described above.

AVR-MM #2e: Provide Offsite Landscape Screening Where Appropriate. Details regarding AVR-MM #2e are described above.

AVR-MM #2f: Landscape Treatments along HSR Project Overcrossings and Retained Fill Elements of the HSR. Details regarding AVR-MM #2f are described above.

AVR-MM #2g: Provide Sound Barrier Treatments. Details regarding AVR-MM #2g are described above.

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.

The Authority finds Mitigation Measures AVR-MM #2a, AVR-MM #2b, AVR-MM #2c, AVR-MM #2d, AVR-MM #2e, AVR-MM #2f, and AVR-MM #2g have been required in the Preferred Alternative and that implementation of these measures would reduce, but not completely avoid or substantially lessen the permanent impacts on the views, visual character, and visual quality at the Valley Oaks Charter School. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce these impacts to less-than-significant levels. To the extent that these significant adverse impacts remain significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

The Preferred Alternative would result in a significant visual impact to the Valley Oaks Charter School and the May 2014 Project would not. Instead the May 2014 Project would result in a significant visual impact on Warriors for Christ Academy in Rosedale, while the Preferred Alternative would not. This finding, while for different school facilities, is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.13 Cultural Resources (Section 3.17 of the Draft Supplemental EIR/EIS)

This section sets forth the Authority's CEQA findings concerning the impacts of the Preferred Alternative on cultural resources. Because the project is also a federal undertaking, the project is subject to National Environmental Policy Act and Section 106 of the National Historic Preservation Act (NHPA), which provides considerable protection for cultural resources. The development of the management documents and treatment plans pursuant to Section 106 regulations involve extensive impact analysis, project re-design, consultation with Native Americans, and other consultation with agencies to develop a plan that provides for the best possible preservation planning and other mitigation measures for the resource present at the project site. As described below, the Section 106 process is a separate, but complementary, method for protection for cultural resources, distinct from CEQA.

As explained in the Fresno to Bakersfield Section Final EIR/EIS, a Programmatic Agreement (PA) to satisfy the requirements of Section 106 for the project has been signed by the FRA, the Authority, the Advisory Council on Historic Preservation, the State Historic Preservation Office (SHPO), and consulting parties. The PA provides an overall regulatory framework for conducting the Section 106 process throughout the HSR System and the documentation process for the Fresno to Bakersfield Section was conducted in accordance with the PA.

The PA also presents the approach for treatment of historic properties, including development of a Memorandum of Agreement (MOA) for each HSR section to address the resolution of adverse effects on historic properties, defined as those cultural objects, sites, or districts that meet the eligibility criteria for listing in the National Register of Historic Places. The MOA stipulates the treatment measures that will be applied for cultural resources impacted by the project and calls for the development of two treatment plans: an Archaeological Treatment Plan and a Built Environment Treatment Plan (BETP). The Archaeological Treatment Plan and BETP will set forth a prescriptive process by which these treatment measures will be applied to each known resource and will outline measures for the phased identification of historic properties as additional parcel access is obtained and design work is completed. The MOA and treatment plans provide specific performance standards that ensure each impact will be avoided, minimized, or mitigated to the extent possible and provide enforceable performance standards to follow the National Register of Historic Places and the Secretary of Interior's standards and guidelines when implementing the mitigation measures (see Stipulations III and VIII in the PA, Appendix 3.17-A of the Fresno to Bakersfield Section Final EIR/EIS). The Treatment Plans will conform to the principles of the Advisory Council on Historic Preservation's Treatment handbook, as well as

SHPO Guidelines. These treatment plans dictate how the requirements of Section 106 will be met and also include the mitigation measure requirements.

3.13.1 Impact CUL #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities

Although the Preferred Alternative will not affect any known archaeological resources that are considered historic properties or resources, it could potentially affect unknown archaeological resources. The majority of the Preferred Alternative footprint has not been subject to inventory for archaeological resources because of lack of access to the properties. CUL-AM #2 would ensure that the PA and MOA are followed, and that a phased identification efforts are conducted as right of entry is obtained. This would reduce the potential to impact archaeological resources. The following measures mitigate this impact:

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 a Most Likely Descendent. The Most Likely Descendent shall be empowered to reinter the remains with appropriate dignity. If the Most Likely Descendent fails to make a recommendation the remains shall be reinterred in a location not subject to further disturbance and the 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 Most Likely Descendent 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 Recovery. When access is obtained, conduct surveys, testing, and evaluation pursuant to the ATP. Follow treatments and data recovery, as required.

Mitigation Measures CUL-MM #4 and CUL-MM #5 would mitigate impacts to archaeological resources in the Preferred Alternative Archaeological Area of Potential Effects should they be inadvertently discovered during construction. None of the mitigation measures applicable to archaeological resources would result in adverse secondary effects or impacts.

The Authority finds that Mitigation Measures CUL-MM #4 and CUL-MM #5 have been required in the Preferred Alternative and that implementation of these measures will reduce construction impacts on archaeological resources to less than significant even if data recovery is the only feasible mitigation.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

3.13.2 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. The

MOA for the Fresno to Bakersfield Section ensures that treatments implemented before, during, and after construction would avoid, minimize, and mitigate these impacts. Nevertheless, the construction of the Preferred Alternative would cause indirect changes to four historical properties or resources (see Draft Supplemental EIR/EIS, Table 3.17-7). Furthermore, additional built environment surveys may be necessary as project design progresses and those surveys may identify additional historical resources. A substantial adverse change in the significance of a historical resource pursuant to Section 15064.5 is considered a significant impact. For these reasons, built environment resources may be subject to treatment for significant mitigatable or unavoidable effects. The following measures mitigate this impact:

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 Historic American Building Survey, the Historic American Engineering Record, or the Historic American Landscape Survey 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 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, 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.

None of the mitigation measure options is expected to result in secondary effects. Historical architectural resources would be directly or indirectly adversely affected or experience substantial adverse change from construction activities associated with the Preferred Alternative.

Execution of the treatments described in the mitigation measures above would avoid, minimize, or mitigate these adverse effects or changes, to the extent possible. Additionally, the MOA for the Fresno to Bakersfield section ensures that treatments implemented before, during, and after construction would avoid, minimize, and mitigate these impacts. The PA and MOA mandate that the BETP will set forth means to avoid, protect, or development treatment measures to minimize

The project's effects when the Authority, in consultation with the appropriate agencies, the SHPO, and other MOA signatories, determines that adverse effects cannot be avoided. The BETP will provide specific performance standards to ensure that each impact will be avoided, minimized, or mitigated to the extent possible and provide enforceable performance standards to follow the National Register of Historic Places and the Secretary of Interior's standards when implementing the mitigation measures.

The Authority therefore finds that Mitigation Measures CUL-MM #12 and CUL-MM #13 have been required in the Preferred Alternative and that implementation of these measures will reduce impacts on historic architectural resources due to construction activities to less than significant.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4 CUMULATIVE IMPACTS (SECTION 3.19 OF THE DRAFT SUPPLEMENTAL EIR/EIS)

This section presents the Authority's findings regarding the cumulative effects implementing the Preferred Alternative in combination with other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from the combination of individually minor but collectively significant projects over time (CEQA Guidelines, § 15355). Under CEQA, when a project would contribute to a cumulative impact, an EIR must discuss whether the project's incremental effect is "cumulatively considerable." Cumulatively considerable means that the project's incremental effect is significant when viewed in the context of past, present, and reasonably probable future projects. The discussion of cumulative impacts need not provide as much detail as is provided for the effects attributable to the project alone (CEQA Guidelines, § 15130, subd. [b]). As described in the Draft Supplemental EIR/EIS, the focus of the cumulative impacts analysis is on the Preferred Alternative and the regional context appropriate for each resource area, including adjacent sections of the HSR System.

4.1 Transportation

The cumulative impact analysis for transportation is based on the planned and potential project lists (Appendices 3.19-A and 3.19-B of the Draft Supplemental EIR/EIS), as well as plans/projections listed in Table 3.2-1, Regional Plans and Policies in Section 3.2, Transportation of the Fresno to Bakersfield Section Final EIR/EIS.

At a local level, the operation of the Preferred Alternative in combination with other past, present, and reasonably foreseeable projects would decrease the operating conditions below LOS D on some roadway segments and at intersections in the vicinity of the Bakersfield F Street station, causing a cumulatively significant effect on local traffic congestion. Mitigation measures for transportation that are described in Section 3.1 of these Findings (for impacts under that Future [2035] Plus Project scenario) would reduce these impacts by modifying intersections to improve level of service. These modifications will include widening approaches to intersections, adding exclusive turn lanes to intersections, and/or adding new lanes to roadways. With implementation of these measures, the contribution of the Preferred Alternative to cumulative local transportation impacts would be reduced to less than cumulatively considerable.

The Authority finds that transportation mitigation measures have been incorporated into the Preferred Alternative (see Section 3.1 of these Findings) and that implementation of these mitigation measures will reduce the project's contribution to cumulatively considerable transportation impacts to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project, which found that the cumulative effect of project construction and operation is not cumulatively considerable under CEQA.

4.2 Air Quality and Global Climate Change

Construction of the Preferred Alternative would be above the SJVAPCD's significance thresholds for regional criteria pollutants and together with other related projects, this combined impact would be cumulatively significant. In addition, some materials needed for construction of the project, such as ballast, may be sourced to areas outside of the SJVAB. As described in Impact AQ#3, Section 3.2 of these Findings, the transport of ballast construction materials from areas outside the SJVAB to the project site may result in exceedances of NO_x mass emission thresholds in other air districts, thereby contributing to cumulatively considerable air quality impacts.

As explained below, implementation of the project's required mitigation measures will reduce the project's contribution to these cumulatively considerable impacts to less-than-cumulatively-considerable levels.

As described in Section 3.19, Cumulative Impacts, of the Draft Supplemental EIR/EIS, construction of the project would not result in cumulatively significant statewide or local air quality or greenhouse gas emissions impacts. At a regional level, however, the project would have a cumulatively considerable impact on air quality.

Within the SJVAB, for criteria pollutants, the SJVAPCD has adopted a cumulative threshold of significance of 10 tons per year for ozone precursors (reactive organic gas and NO_x) and 15 tons per year for particulate matter (PM₁₀ and PM_{2.5}). The SJVAPCD has determined that projects below these significance thresholds would not have a cumulatively considerable impact on air quality in the SJVAB as they are consistent with the SJVAPCD's attainment strategy and would not prevent the District from achieving attainment. Before implementation of mitigation, the project's construction emissions would exceed the SJVAPCD's limits for reactive organic gas, NO_x, PM₁₀, and PM_{2.5}, which would be a cumulatively considerable impact. Implementation of the mitigation measures adopted for the project's air quality construction impacts, which are described in Section 3.2 of these Findings, will reduce construction emissions of these criteria pollutants to net zero. In particular, Mitigation Measure AQ-MM #4 offsets construction emissions above the SJVAPCD thresholds for ozone precursors and particulate matter through the VERA. Therefore, the project's incremental contribution would not be cumulatively considerable.

With respect to the project's air quality impacts in areas outside the SJVAB, implementation of Mitigation Measure AQ-MM #5, which requires the purchase of offsets and emission mitigation for emissions associated with hauling ballast materials, would reduce this impact to less-than-cumulatively-considerable levels.

The Authority finds that construction air quality mitigation measures have been incorporated into the project (see Section 3.2 of these Findings) and that implementation of these mitigation measures will reduce the project's contribution to cumulatively considerable construction air quality impact on regional emissions, both inside and outside the SJVAB, to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4.3 Noise and Vibration

Construction of the Preferred Alternative, in conjunction with other past, present, and reasonably foreseeable projects would result in noise effects that would be limited in duration. It is possible that multiple projects in urban areas that are in close proximity to the Preferred Alternative, such as the Gossamer Grove Development in the city of Shafter, and the cluster of development sites within central and east Bakersfield, would be under construction at the same time as the HSR project. Together with the HSR project, construction of these projects could result in exceedance of significance thresholds for noise at sensitive receivers. (See Section 3.3.3.11, Noise and Vibration, of the Draft Supplemental EIR/EIS for the noise significance thresholds.) This would be a significant cumulative impact. Even after implementation of the noise mitigation measures included in Section 3.3 of these Findings, the project's contribution to this cumulative construction noise impact would be cumulatively considerable.

Furthermore, although no specific projects have been proposed in the rural areas of the project with construction schedules that overlap the HSR project, it is possible that future construction of commercial, industrial, or infrastructure projects in rural areas could overlap with HSR project construction. This would result in a significant cumulative impact. Even after implementation of the noise mitigation measures included in Section 3.3 of these Findings, the project's contribution to this cumulative construction noise impact would be cumulatively considerable.

Construction of the elevated sections of the project is likely to require pile driving. It is possible that other projects in urban areas that are in close proximity to elevated sections of the Preferred Alternative would also require pile driving. Construction of the project concurrently with such future projects could result in exceedance of significance thresholds for vibration at adjacent sensitive receivers. Even after implementation of the mitigation measures for vibration impacts

included in Section 3.3 of these Findings, this would be a significant cumulative impact and the project's contribution to this cumulative construction vibration impact would be cumulatively considerable.

Mitigation measures for the construction noise impacts of the Preferred Alternative described in Section 3.3 of these Findings, would reduce the project's contribution to cumulative construction noise impacts by activities such as installing temporary and permanent sound barriers, using low-noise emission equipment, limiting or avoiding certain noisy activities during nighttime hours, installation of building sound insulation, acquiring easements on properties severely affected by noise, and using special types of trackwork.

The following mitigation measure would reduce the potential cumulative effects of overlapping construction activities within the same area.

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 would consult with local city and county planning department 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.

However, even with implementation of mitigation measure CUM-N&V-MM#1, the construction-related contribution of the Preferred Alternative to cumulative noise and vibration impacts would remain cumulatively considerable. Additionally, during operations, even with implementation of mitigation measures for noise and vibration, cumulative effects of operational noise would remain cumulatively considerable.

Operation of the Preferred Alternative would create new long-term noise impacts. Increased vehicular traffic along existing and planned roadways would contribute to future elevated noise levels. Together with past, present, and reasonably foreseeable projects, the increased noise levels adjacent to transportation corridors would be a significant cumulative impact for sensitive receivers along the transportation corridors. Even after implementation of the mitigation measures included in Section 3.3 of these Findings, the incremental contribution of the project to the significant cumulative noise impact would be cumulatively considerable.

Additionally, during operations, even with implementation of mitigation measures for noise provided in Section 3.3 of these Findings, the project's contribution to cumulative effects of operational noise would remain cumulatively considerable. This contribution would result because there would be some sensitive receptors near the HSR alignment for which additional mitigation is not practical because construction of a sound barrier is not economically feasible and there is no practical amount of sound insulation that can be added to the structure to reduce interior noise levels to acceptable standards.

The Authority finds that noise and vibration mitigation measures, including Mitigation Measure CUM-N&V-MM#1, have been required in the project and that implementation of these mitigation measures would reduce, but not completely avoid or substantially lessen the project's contribution to cumulatively considerable construction noise and vibration impacts. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce these impacts to less-than-cumulatively-considerable levels. To the extent that these cumulatively considerable adverse impacts remain significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4.4 Biological Resources and Wetlands

A. Cumulative Construction Impacts on Special-Status Plant and Wildlife Species

Construction of the Preferred Alternative in combination with other past, present, and reasonably foreseeable projects may result in the loss of special-status plant and wildlife species within the Tulare Basin at temporary construction sites such as laydown and staging areas. Future projects within this region that are expected to contribute to the cumulative impacts associated with construction of the Preferred Alternative include, but are not limited to, the Rosedale Highway improvements in Bakersfield; the North and West Beltway constructions in Shafter; solar projects such as Lost Hills, Maricopa, Smyrna, Goose Lake, Elk Hills, and Orion; water pipelines and storage such as the Kern Water Bank Storage Project; and various industrial, commercial, and residential projects in both cities. Additionally, the construction of the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south would contribute to the net loss of special-status plant and wildlife species. These projects, including the Preferred Alternative, are located in areas containing similar habitat requirements for special-status plants and wildlife species; in particular they are located in areas which provide suitable habitat for western burrowing owl, coast horned lizard, and heartscale, which are known to occur in the area. Other special-status wildlife species such as western spadefoot toad, Swainson's hawk, Tipton kangaroo rat, and San Joaquin kit fox have potential to occur in the construction footprint of the Preferred Alternative and the footprints of other cumulative projects. Construction activities may result in the "take" of individuals in the form of mortality, injury, or harassment due to trampling, noise, dust, motion disturbance, or temporary destruction and degradation of suitable habitat. These impacts are considered cumulatively significant.

However, with implementation of the mitigation measures set for biological resources forth in Section 3.5 of these Findings, the Preferred Alternative's incremental contribution to this cumulatively significant impact would not be cumulatively considerable. The Authority therefore finds that mitigation measures have been incorporated in the Preferred Alternative that will reduce the Preferred Alternative's contribution to cumulatively considerable construction impacts to special-status plant and wildlife species to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

B. Cumulative Construction Impacts on Habitats of Concern

Construction of the Preferred Alternative in combination with other past, present, and foreseeable projects may result in the temporary destruction or degradation of special-status plant communities; impede implementation of recovery plans; temporarily place fill or increase erosion, siltation, and runoff in jurisdictional waters; and remove or modify protected trees (e.g., native oaks). Cumulative impacts to jurisdictional waters may be caused by the combined construction of numerous transportation and development projects. These projects include, but are not limited to, the solar and water storage projects listed above. Additionally, construction of the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south would contribute to the net loss of jurisdictional waters and other habitats of concern in the cumulative study area. Cumulative impacts to recovery plans, such as the Recovery Plan for Upland Species of the San Joaquin Valley, California, as well as the additional removal of protected trees as a result of past, present, and foreseeable projects, including those listed above, would be cumulatively significant. Impacts to jurisdictional waters and recovery plans would be cumulatively significant.

However, with implementation of the mitigation measures for biological resources included in Section 3.5 of these Findings, the Preferred Alternative's incremental contribution to this cumulatively significant impact would not be cumulatively considerable. The Authority therefore finds that mitigation measures have been incorporated in the Preferred Alternative that will reduce

the Preferred Alternative's cumulatively considerable construction impact to habitats of concern to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

C. Cumulative Operational Impacts on Special-Status Plant and Wildlife Species

Potential impacts on special-status species from operation of the Preferred Alternative and other past, present, and foreseeable projects include permanent habitat loss, habitat fragmentation, introduction of invasive species, and harassment due to increased noise and human disturbance. Planned and potential development projects and transportation projects, including, but not limited to, the North and West Beltways in Shafter, would contribute to significant impacts on special-status species because these projects together with the Preferred Alternative, could impact habitat with potential for special-status plant and wildlife species presence. Additionally, the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south, would contribute to the net loss of special-status plant and wildlife species. Cumulative operations impacts on special-status plant and wildlife species would be significant. Because of the large area that would be permanently occupied by HSR facilities, impacts to special-status plant and wildlife species would be substantial as a result of permanent habitat conversion and loss. Mitigation measures for the Preferred Alternative include preconstruction surveys, avoidance, habitat restoration, and offsite habitat preservation, enhancement and compensation, which would reduce the project's contribution to this impact. In the context of the loss of special-status plant and wildlife species from past, present, and reasonably foreseeable agricultural and urban development in the Tulare Basin, the contribution of the Preferred Alternative to these significant cumulative impacts would be cumulatively considerable before mitigation.

However, mitigation for the Preferred Alternative includes restoration, enhancement, and preservation of jurisdictional waters and riparian habitats to the extent that there will be no net loss of aquatic resources, functions, and services. These habitats are important for many special-status plant and wildlife species. In addition, project mitigation includes preservation of habitat occupied by special-status plant and wildlife species. This preservation in combination with restoration, enhancement, and preservation of jurisdictional waters will improve biological resources in the region over existing conditions. For these reasons, with implementation of the mitigation measures for biological resources included in Section 3.5 of these Findings, the Preferred Alternative's incremental contribution to this cumulatively significant impact to special-status plant and wildlife species will not be cumulatively considerable. The Authority therefore finds that mitigation measures have been incorporated in the Preferred Alternative that will reduce the Preferred Alternative's contribution to cumulatively considerable operational impacts to special-status plant and wildlife species to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

D. Cumulative Operational Impacts on Habitats of Concern

Several projects planned within the Tulare Basin in combination with the Preferred Alternative would have cumulative impacts on habitats of concern prior to mitigation. These projects include, but are not limited to, numerous transportation and development projects, such as the solar and water storage projects listed above. Additionally, the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south, would contribute to the net loss of jurisdictional waters and other habitats of concern in the basin. Operational impacts of these projects in association with the Preferred Alternative could include permanent fragmentation, degradation, or conversion of habitats of concern, loss of special-status plant communities, loss of recovery plan areas and the removal or modification of protected trees. The operation of the Preferred Alternative prior to mitigation in combination with

other past, present, and foreseeable projects would result in a significant cumulative impact to habitats of concern within the Tulare Basin.

However, mitigation for the Preferred Alternative includes restoration, enhancement, and preservation of jurisdictional waters and riparian habitats to the extent that there will be no net loss of aquatic resources, functions, and services. These habitats are important for many special-status plant and wildlife species. In addition, project mitigation includes preservation of habitat occupied by special-status plant and wildlife species. This preservation in combination with restoration, enhancement, and preservation of jurisdictional waters will improve biological resources in the region over existing conditions. For these reasons, with implementation of the mitigation measures for biological resources included in Section 3.5 of these Findings, the incremental contribution of the Preferred Alternative to this cumulative impact to habitats of concern will not be cumulatively considerable.

The Authority therefore finds that mitigation measures have been incorporated into the Preferred Alternative that will reduce the Preferred Alternative's contribution to cumulatively considerable operational impacts to habitats of concern to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

E. Cumulative Operational Impacts on Wildlife Movement Corridors

Past projects have significantly degraded the ability of wildlife to freely move across natural habitats, and wildlife movement would be further limited with the Preferred Alternative and other past, present, and reasonably foreseeable projects in the Tulare Basin. Planned and potential projects which could reduce the ability of wildlife to move freely across natural habitats include, but are not limited to, the Hageman Flyover and the Rosedale Highway improvements in Bakersfield, and the North and West Beltway constructions in Shafter. Additionally, the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south would contribute to blockage of wildlife movement corridors. Impacts from these projects could include the permanent blockage of corridors and/or linkages and disruption of wildlife due to increased lighting, noise, and motion. These cumulative impacts would be significant. Because the project is linear, spanning much of the southern San Joaquin Valley, its impact on wildlife movement corridors would be cumulatively considerable before mitigation.

With implementation of the mitigation measures for biological resources included in Section 3.5 of these Findings, the incremental contribution of the Preferred Alternative to cumulative impacts would be not be cumulatively considerable. The Authority therefore finds that mitigation measures have been incorporated in the Preferred Alternative that will reduce the Preferred Alternative's contribution to cumulatively considerable operational impacts to on wildlife movement corridors to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4.5 Geology, Soils, Seismicity, and Paleontological Resources

Disturbance of paleontological resources during project excavation has the potential to contribute to cumulative impacts, if the disturbance results in destruction of the resource. Cumulative projects which affect the same underlying geologic formation as the Preferred Alternative could have the potential to result in similar impacts to important paleontological resources, particularly if the Quaternary fan deposits, Quaternary basin deposits, Pleistocene non-marine, or Miocene-Pleistocene Kern River Formation would be affected by grading for those projects. Impacts from the Preferred Alternative and other projects that may take place in the reasonably foreseeable future could cumulatively result in significant, adverse impacts to paleontological resources. These impacts would include the destruction of nonrenewable paleontological resources because

of earth-moving activities, and the consequent loss of their scientific data and educational potential.

With implementation of the mitigation measures for paleontological resources included in Section 3.6 of these Findings, the incremental contribution of the Preferred Alternative to this cumulative impact to paleontological resources will not be cumulatively considerable.

The Authority therefore finds that mitigation measures have been incorporated into the Preferred Alternative that will reduce the Preferred Alternative's contribution to cumulatively considerable paleontological resources impacts to less-than-cumulatively-considerable levels.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4.6 Socioeconomics and Communities

A. Cumulative Construction Impacts Contributing to Division of Communities

Construction of projects under the cumulative condition in the vicinity of the Preferred Alternative would contribute to cumulative impacts associated with the division and/or disruption of communities in the cities of Shafter and Bakersfield, as well as unincorporated communities in Kern County. Some projects contribute to the disruption of existing communities, while others like the Centennial Corridor have impacts to both division and disruption of existing communities. Construction of the projects themselves would not displace any residents or impact the community's character. However, there could be temporary increases in traffic, changes in traffic patterns and access to community facilities, and construction noise and dust, if the projects were constructed simultaneously with the Preferred Alternative. In addition, division and/or disruption of communities could result from construction of the Preferred Alternative and other cumulative projects such as the Hageman Flyover, the Rosedale Highway off ramp and widening, 24th Street improvements, the Centennial Corridor, the Gossamer Grove and Mission Lakes Specific Plans, the Bakersfield Crossroads Plaza, the City of Bakersfield Vision Plan, the Stockdale Integrated Banking Project, and the Garlic Company and Grimmway Enterprises, Inc. wastewater treatment system, which may coincide with construction of the projects described above and would result in a significant cumulative impact. The incremental contribution of the Preferred Alternative to this cumulative impact would be cumulatively considerable.

With implementation of mitigation measures for Socioeconomics and Communities described in Section 3.8 of these Findings, impacts would be reduced, but not to less-than-significant levels.

In addition, the following mitigation measure would be implemented:

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.

With implementation of the above mitigation measure, the cumulative division and/or disruption of communities during construction would be somewhat reduced. However, the contribution of the Preferred Alternative to these impacts would remain cumulatively considerable.

The Authority finds that mitigation measures, including Mitigation Measure CUM-SO-MM#1, have been required in the Preferred Alternative and that implementation of these mitigation measures would reduce, but not completely avoid or substantially lessen the Preferred Alternative's contribution to the construction impacts associated with the division and/or disruption of communities. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this incremental contribution to a less-than-cumulatively-

considerable level. To the extent that this cumulatively considerable adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

B. Cumulative Operational Socioeconomic and Communities Impacts

Under the cumulative scenario, several communities could experience division and/or disruption.

In Bakersfield, the Centennial Corridor Project, the widening of Rosedale Highway and 24th Street, the City of Bakersfield Vision Plan, and the double tracking of the BNSF Railway could result in division and disruption of communities by creating temporary or permanent barriers for the community. Such barriers can isolate portions of the community, separate residents from important community facilities or services, or alter access to such resources. However, the Preferred Alternative would be developed adjacent to existing rail and highway corridors and would not bisect or isolate existing communities. Operation of the Preferred Alternative and other past, present, and reasonably foreseeable projects would have cumulatively significant impacts from community disruption/division (construction only) and displacement of residences, businesses, and community facilities under CEQA. Therefore, with implementation of mitigation measures identified in Section 3.12 of the Draft Supplemental EIR/EIS, the impacts to community disruption/division from operations would not be cumulatively significant under CEQA.

The conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project found that HSR operation along with other past, present, and reasonably foreseeable projects would result in a significant cumulative impact under CEQA due to division and/or disruption of communities in the cities of Shafter and Bakersfield, as well as unincorporated communities in Kern counties and that the May 2014 Project's incremental contribution to this impact would be cumulatively considerable under CEQA.

4.7 Agricultural Land

Development of other past, present, and reasonably foreseeable projects, including, but not limited to, the solar projects (particularly Lost Hills, Smyrna, Goose Lake, Elk Hills, and Blackwell); retail development such as Bakersfield Crossroads Plaza; and irrigation and wastewater projects like the Kern County Irrigation Efficiency Project and the Garlic Company Processing Facility's proposed treatment system, would result in the conversion of Important Farmland to non-agricultural uses. In addition, the Preferred Alternative would require the acquisition of Important Farmland. The conversion of Important Farmland to non-agricultural uses resulting from the Preferred Alternative and other past, present, and foreseeable projects would be a significant cumulative impact.

With implementation of the agricultural mitigation measure described in Section 3.10 of these Findings, impacts would be reduced through the purchase of agricultural conservation easements from willing sellers. However, because Important Farmland is irreplaceable, the contribution of the Preferred Alternative during project operations to cumulative agricultural impacts would remain cumulatively considerable.

The Authority finds that agricultural mitigation has been required in the Preferred Alternative and that implementation of this mitigation measure would reduce, but not completely avoid or substantially lessen the Preferred Alternative's contribution to the cumulatively considerable operational agricultural impact.

The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this impact to a less-than-cumulatively-considerable level. To the extent that this cumulatively considerable adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of

Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4.8 Aesthetics and Visual Resources

A. Cumulative Construction Impacts on Aesthetics and Visual Resources

Development of cumulative projects, including oil, water, and gas wells, roadway and highway improvement projects such as the Hageman Flyover and Rosedale Highway improvements in Bakersfield, the North and West Beltway in Shafter, and various industrial, commercial, residential, and development projects would result in construction activities that would create temporary visual changes from demolition, vegetation removal, establishment of construction staging areas, and construction lighting. Even though construction activities would be temporary, due to the scale and proximity of cumulative projects listed in Appendix 3.19-A and 3.19-B of the Draft Supplemental EIR/EIS, including the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south, the combined impacts of the cumulative projects could be significant and could overlap with construction of the Preferred Alternative in certain views. These construction-related cumulative impacts to visual resources could be cumulatively considerable.

Construction of the Preferred Alternative and other cumulative projects would also create temporary visual changes from demolition, vegetation removal, construction staging areas, construction lighting, and general construction activities. Where the cumulative projects and the Preferred Alternative have overlapping construction schedules and are located in close proximity, construction could result in significant cumulative visual impacts.

Implementation of the aesthetics and visual resource mitigation measures described in Section 3.12 of these Findings would reduce the incremental contribution of the Preferred Alternative to these significant cumulative construction impacts, however the contribution of the Preferred Alternative to visual impacts would remain significant under CEQA in the Kern River Parkway until landscape screening matures in 10 years or more. While mitigation measure CUM-VQ-MM#1 from the Fresno to Bakersfield Section Final EIR/EIS (page 3.19-48) would minimize this cumulative impact, the contribution of the Preferred Alternative to cumulative visual impacts would be cumulatively considerable under CEQA.

The Authority finds that mitigation measures for construction impacts to aesthetic and visual resources have been required in the Preferred Alternative and that implementation of these mitigation measures would reduce, but not completely avoid or substantially lessen the Preferred Alternative's cumulatively considerable construction impact on aesthetic and visual resources in the Kern River Parkway. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this incremental contribution to a less-than-cumulatively-considerable level. To the extent that this cumulatively considerable adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

The Fresno to Bakersfield Final EIR/EIS found that the cumulative visual effect of the May 2014 Project construction activities in combination with other past, present, and reasonably foreseeable future projects would be cumulatively considerable under CEQA in areas where multiple construction activities are located in close proximity and that it is not possible to substantially reduce the incremental contribution of the HSR project to this cumulative visual impact because the HSR viaduct over the Kern River is too high to shield from view. This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

B. Cumulative Operation Impacts on Aesthetics and Visual Resources

The Hageman Flyover and Rosedale Highway improvements, as well as development under the City of Bakersfield Vision Plan would combine with the Preferred Alternative to increase impacts to views from high-sensitivity parks and open space (including the Kern River Parkway), as well as nearby residential areas.

Operation of cumulative projects, including oil, water, and gas wells, roadway and highway improvement projects such as the Hageman Flyover and Rosedale Highway improvements in Bakersfield, the North and West Beltway constructions in Shafter, and various industrial, commercial, and residential projects in both cities in the vicinity of the Preferred Alternative would result in cumulatively significant visual impacts under CEQA.

With implementation of mitigation measures for Aesthetics and Visual Resources described in Section 3.12 of these Findings, impacts would be reduced, but not to less-than-significant levels. In addition, the following mitigation measure would be implemented.

CUM-VQ-MM#1: Consult with agencies on HST project design. Prior to construction, the Authority would consult with local city and county planning departments to provide information about the HST project design. This would allow for local plans and proposed development projects that could be adversely affected by the HST project to be modified and potential visual impacts to high-sensitivity viewers to be reduced, as determined feasible by project applicants/planning departments.

With implementation of the above mitigation measure, the cumulative operational aesthetic and visual resources impact would be reduced; however, the contribution of the Preferred Alternative to these impacts would remain cumulatively considerable.

The Authority finds that mitigation measures, including Mitigation Measure CUM-VQ-MM#1, have been required in the Preferred Alternative and that implementation of these mitigation measures would reduce, but not completely avoid or substantially lessen the Preferred Alternative's contribution to the project impacts associated with aesthetics and visual resources. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this incremental contribution to a less-than-cumulatively-considerable level. To the extent that this cumulatively considerable adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

4.9 Cultural Resources

Under the cumulative condition, cultural resources would continue to be affected in the urbanizing areas of the San Joaquin Valley due to growth, changes in land use, and other types of ground disturbance. Development in the urban areas would likely result in further unearthing of sensitive archaeological resources, disturbance of traditional cultural properties, and removal of—or changes to—the historic character and settings of historic resources. Prehistoric and historic archaeological sites would be affected during project construction activities. Prehistoric sites are common in riverbank and floodplain areas, and burial sites are sometimes encountered during ground-disturbing activities. It is likely that known and unknown archaeological resources could be disturbed and cultural resources damaged or destroyed during construction activities associated with the Preferred Alternative and other past, present, and reasonably foreseeable projects. Linear projects that require extensive excavation, such as the portion of the Fresno to Bakersfield Section north of the Preferred Alternative and the Bakersfield to Palmdale Section to the south have the potential to cause substantial adverse change to archaeological resources. Significant and unavoidable losses of unique archaeological resources (as defined in Public Resources Code Section 21083.2) or a historical resource (as defined in Section 21083.2 of

CEQA and Section 15064.5 of the CEQA Guidelines) could occur if excavation exposes archaeological deposits that cannot be effectively removed or recovered due to the circumstances of their exposure (e.g., in railroad rights-of-way or urbanized settings) or if recovery would not be sufficient to prevent the loss of significant cultural resources.

Historical architectural resources could also be damaged or require removal due to implementation of the projects under the cumulative condition. Local projects and the secondary effects of redevelopment pressures around the Preferred Alternative alignment and the F Street Station would potentially result in the removal of historical buildings in Bakersfield and Shafter. Adverse effects on eligible resources could result in the neglect, abandonment, or removal of historic properties, by such projects as the Hageman Flyover and Rosedale Highway improvements in Bakersfield, and the North and West Beltway constructions in Shafter. Other projects could also have similar impacts on the existing built environment as the HSR. If these resources meet the definition of a historical resource or a historic resource (as defined in Section 106, 36 C.F.R. 800), their modification or destruction would be significant. The Preferred Alternative could result in significant, unavoidable impacts on historic resources, as described in Section 3.17, Cultural Resources, of the Draft Supplemental EIR/EIS. Therefore, construction of the Preferred Alternative in conjunction with past, present, and reasonably foreseeable projects under the cumulative condition could result in significant cumulative impacts to historical architectural resources.

The Preferred Alternative would minimize cumulative impacts on cultural resources by adhering to federal and state regulations and by providing guidance on the treatment of significant properties (as defined in the PA). Implementation of the mitigation measures for cultural resources described in Section 3.13 of these Findings such as monitoring during construction, avoidance, compliance with applicable regulations, worker training, relocation of resources, and preparation of applicable documentation would minimize impacts. However, even with implementation of these mitigation measures, the contribution of the Preferred Alternative to cumulative impacts would remain cumulatively considerable. The Authority finds that cultural mitigation measures have been required in the Preferred Alternative and that implementation of these mitigation measures would reduce, but not completely avoid or substantially lessen the project's cumulatively considerable construction impact on cultural resources.

The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this impact to a less-than-cumulatively-considerable level. To the extent that this cumulatively considerable adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support certification of the Final Supplemental EIR and approval of the project.

This finding is consistent with the conclusions reached in the Fresno to Bakersfield Section Final EIR/EIS for the May 2014 Project.

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5 FEASIBILITY OF POTENTIAL ALTERNATIVES

CEQA requires the lead agency, the High-Speed Rail Authority, to consider a reasonable range of potentially feasible alternatives to the proposed Project (Public Resources Code, §§ 21002, 21081; see also CEQA Guidelines, § 15126.6). “Feasible” means capable of being accomplished in a successful manner within a reasonable time, taking into account economic, environmental, legal, social and technological factors (CEQA Guidelines, § 15364). The range of alternatives to be considered is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project (CEQA Guidelines, § 15126.6(f)). At the same time, an EIR need not study in detail an alternative that a lead agency “has reasonably determined cannot achieve the project’s underlying fundamental purpose” (In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings (2008) 43 Cal.4th 1143, 1165).

As discussed above, prior to moving forward with the project, CEQA requires that the lead agency find that “specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make infeasible the project alternatives identified in the environmental impact report” (Public Resources Code, § 21081). The determination of infeasibility “involves a balancing of various ‘economic, environmental, social, and technological factors’” (City of Del Mar v. City of San Diego (1982) 133 Cal.App.3d 401, 417). Where there are competing and conflicting interests to be resolved, the determination of infeasibility “is not a case of straightforward questions of legal or economic feasibility,” but rather, based on policy considerations (California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 1001-02). “[A]n alternative that is ‘impractical or undesirable from a policy standpoint’ may be rejected as infeasible” (Id. at p. 1002 citing 2 Kostka & Zischke, Practice Under the Cal. Environmental Quality Act, (Cont.Ed.Bar 2010) section 17.29, p. 824).

The key policy considerations that must be balanced in determining the feasibility of the project alternatives include the following:

- The Authority’s statutory responsibility, which is to:
 - “direct the development and implementation of intercity high-speed rail service that is fully integrated with the state’s existing intercity rail and bus network, consisting of interlinked conventional and high-speed rail lines and associated feeder buses. The intercity network in turn shall be fully coordinated and connected with commuter rail lines and urban rail transit lines developed by local agencies, as well as other transit services, through the use of common station facilities whenever possible (Public Utilities Code, § 185030).”
- The purpose of the statewide HSR System, which is to provide reliable high-speed electrified train system that links the major metropolitan areas of the state, and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit and the highway network and relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California’s unique natural resources.
- The Authority’s prior determination that serving intermediate markets in the Central Valley, rather than bypassing them, is an important component of the high-speed train system.
- The purpose of the Fresno to Bakersfield Section, which is to implement the Fresno to Bakersfield Section of the California HSR System to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit, and the highway network in the south San Joaquin Valley, and connect the northern and southern portions of the system.

- The Authority's objectives, which are to:
 - Provide intercity travel capacity to supplement critically over-used interstate highways and commercial airports.
 - Meet future intercity travel demand that will be unmet by current transportation systems, and increase capacity for intercity mobility.
 - Maximize intermodal transportation opportunities by locating stations to connect with local transit, airports, and highways.
 - Improve intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
 - Provide a sustainable reduction in travel time between major urban centers.
 - Increase the efficiency of the intercity transportation system.
 - Maximize the use of existing transportation corridors and rights-of-ways, to the extent feasible.
 - Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operations and maintenance costs.
 - Provide intercity travel in a manner sensitive to and protective of the region's natural and agricultural resources and reduce emissions and vehicle miles traveled for intercity trips.
- The characteristics enumerated in Streets and Highways Code section 2704.09 for the statewide high-speed train system as a whole, which include:
 - 2704.09(a) – Electric trains that are capable of sustained maximum revenue operating speeds of no less than 200 miles per hour.
 - 2704.09(b) – Maximum nonstop service travel times for each corridor that shall not exceed the following:
 - San Francisco – Los Angeles Union Station: two hours, 40 minutes.
 - Oakland – Los Angeles Union Station: two hours, 40 minutes.
 - San Francisco – San Jose: 30 minutes
 - San Jose – Los Angeles: two hours, 10 minutes.
 - San Diego – Los Angeles: one hour, 20 minutes.
 - Inland Empire – Los Angeles: 30 minutes.
 - Sacramento – Los Angeles: two hours, 20 minutes.
 - 2704.09(c) – Achievable operating headway (time between successive trains) shall be five minutes or less.
 - 2704.09(d) – The total number of stations to be served by high-speed trains for all of the corridors described in subdivision (b) of Section 2704.04 shall not exceed 24. There shall be no station between the Gilroy station and the Merced station.
 - 2704.09(e) – Trains shall have the capability to transition intermediate stations, or to bypass those stations, at mainline operating speeds.
 - 2704.09(f) – For each corridor described in subdivision (b), passengers shall have the capability of traveling from any station on that corridor to any other station on that corridor without being required to change trains.
 - 2704.09(g) – In order to reduce impacts on communities and the environment, the alignment for the high-speed train system shall follow existing

- transportation or utility corridors to the extent feasible and shall be financially viable, as determined by the authority.
- 2704.09(h) – Stations shall be located in areas with good access to local mass transit or other modes of transportation.
 - 2704.09(i) – The high-speed train system shall be planned and constructed in a manner that minimizes urban sprawl and impacts on the natural environment.
 - 2704.09(j) – Preserving wildlife corridors and mitigating impacts to wildlife movement, where feasible as determined by the authority, in order to limit the extent to which the system may present an additional barrier to wildlife’s natural movement.
- The ability of an alternative to comply with Clean Water Act Section 404 by qualifying as the “least environmentally damaging practicable alternative” (LEDPA) in terms of adverse effects on waters of the United States and jurisdictional wetlands (Clean Water Act, Section 404(b)(1)). Alternatives other than the LEDPA would not receive the federal Section 404 permit that is necessary for construction. The USACE and USEPA concurred that the Preferred Alternative is the LEDPA (letters from USACE and USEPA on May 5, 2017 and May 22, 2017, respectively).
 - Complexity of construction – Generally, construction is more complex within urban areas than in rural areas due to the necessity to minimize impacts on neighboring residences and businesses that are substantially more numerous in urban areas and the greater potential for conflicts with public utilities and infrastructure (i.e., sewer and water lines, local streets) in urban areas.
 - The inherent tradeoffs in terms of environmental impacts that occur between (1) following existing transportation corridors, minimizing impacts on the biological resources, and agricultural lands and communities, but increasing impacts on urban communities and the urban environment and (2) departing from existing transportation corridors, minimizing impacts on urban communities and the urban environment, but increasing impacts on biological resources, agricultural lands, and agricultural communities.

5.1 Alternatives Considered in the Draft Supplemental EIR/EIS and Not Selected for Approval

The Findings prepared for the Authority’s 2014 decision extended from Monterrey Street in the city of Fresno to 7th Standard Road in Kern County. The Authority intentionally reserved the decision on the alignment south of 7th Standard Road in Kern County and into the City of Bakersfield to a future proceeding.

The Draft Supplemental EIR/EIS evaluated the F-B LGA from just north of Poplar Avenue in Shafter south to Oswell Street in Bakersfield and compared it to the complementary portion of the Preferred Alternative that was identified in the Fresno to Bakersfield Section Final EIR/EIS (known as the May 2014 Project). While the Authority’s 2014 decision was only for the portion from the southern limit of the Fresno Station to the north side of 7th Standard Road, the city limit of Bakersfield, the Preferred Alternative considered in these Findings overlaps with the BNSF Alternative from the 2014 Preferred Alternative between 1,600 feet north of Poplar Avenue and 7th Standard Road (Figure 2). The Authority’s previous decision for the overlapping area between 1,600 feet north of Poplar Avenue and 7th Standard Road (2014) is superseded by the decision considered in these Findings.

5.1.1 The No Project Alternative

The **No Project Alternative** would result in no construction and operation of the HSR System south of 7th Standard Road. The No Project Alternative is contrary to the Authority’s 2005 programmatic decision to choose the HSR System to meet the state’s transportation demands instead of expanding airports or freeways, or doing nothing, and contrary to the Authority’s

Business Plan as submitted to the Legislature in 2018, which identified service into Bakersfield. As a result, the No Project Alternative would not meet any of the project objectives, would not meet the project's underlying fundamental purpose, and would not allow the Authority to comply with its statutory mandate to "prepare a plan for the construction and operation of a high-speed train network for the state" (Public Utilities Code, §185032) and of Proposition 1A (Streets and Highways Code Section 2704, et seq.) to develop an HSR project. The Authority therefore finds the No Project Alternative is infeasible and rejects it on that basis.

5.1.2 May 2014 Project

The **May 2014 Project**, which consists of alternatives evaluated in the Fresno to Bakersfield Section Final EIR/EIS, includes a 12-mile portion of the BNSF Alternative from Poplar Avenue to Hageman Road and the Bakersfield Hybrid Alternative from Hageman Road to Oswell Street. The May 2014 Project alignment runs primarily at-grade as it follows the BNSF corridor and SR 43 through Shafter and SR 58 into Bakersfield. It parallels the Preferred Alternative until approximately Beech Avenue, where it diverges from the Preferred Alternative, parallels the BNSF right-of-way in a southeasterly direction, and then curves back to the northeast to parallel the BNSF tracks toward Kern Junction. After crossing Truxtun Avenue, the alignment curves to the southeast to rejoin the Preferred Alternative and parallel the Union Pacific Railroad tracks and Edison Highway to its terminus at Oswell Street. The May 2014 Project Station would be built at the corner of Truxtun and Union Avenues/SR 204. A MOIF would be located along the May 2014 Project Alternative just north of the City of Bakersfield and 7th Standard Road. The May 2014 Project would result in 14 permanent road closures, affecting circulation patterns. This alternative would also displace 392 commercial and industrial businesses and 384 residential units. The May 2014 Project would result in the use of two Section 4(f) properties: Kern River Parkway and Mill Creek Linear Park. The May 2014 Project would also affect 485 acres of Important Farmland. Furthermore, the May 2014 Project would result in a direct impact to 20.14 acres of aquatic resources (waters of the United States) and does not qualify as the LEDPA (refer to the USACE's and USEPA's "Checkpoint C" determinations).

5.2 Alternatives Suggested by Commenters

Comments on the Draft Supplemental EIR/EIS suggested additional alternatives that the commenters believed merited consideration and analysis in the Supplemental EIR/EIS. These include the following general proposals:

- Alternative Station in Old Town Kern (in the vicinity of Sumner Street between Baker Street and Beale Avenue)
- Alternative Station in Old Town Kern (in the vicinity of Sumner Street between Beale Avenue and Miller Street)
- Alternative Station location in the "metro area"
- Alternative Station near 7th Standard Road
- Below-grade option for the Preferred Alternative along Golden State Avenue and Sumner Street

If an EIR contains a reasonable range of alternatives, it is not deficient for excluding analysis of other potential alternatives suggested in comments by members of the public or agencies. The Authority finds that the Final Supplemental EIR, when considered with the Final EIR/EIS, included a reasonable range of alternatives and that the range of alternatives was sufficient to permit a reasoned choice. The Authority therefore finds that no further alternatives were required to be evaluated in the Final Supplemental EIR.

The Authority further finds that the alternatives suggested in comments are not environmentally superior, do not adequately meet the project purpose/objectives, and/or are infeasible for the reasons summarized below, and considering the policy factors discussed above in Section 5.

Alternative Station in Old Town Kern (in the vicinity of Sumner Street between Baker Street and Beale Avenue). The Authority conducted a feasibility study (Authority 2018a) to determine whether a station between Baker Street and Beale Avenue in Old Town Kern would be feasible. As stated in the responses to comments included in Volume IV of the Final Supplemental EIR,⁴ the feasibility study referenced CHSR technical memoranda (TM) TM 2.1.3 “Turnouts and Station Tracks” and TM 2.2.4 “Station Platform Geometric Design.” Based on the conflicts with the engineering criteria defined in the TMs and the impacts to sensitive environmental resources, this alternative station location was eliminated from further consideration. Additionally, if a station were placed in Old Town Kern, not only would a viaduct be placed along the current alignment, but the station itself would then bisect if not completely displace the whole area proposed for consideration. Impacts would not be mitigated and would in fact be escalated. The Authority therefore finds that this suggested alternative station site is not environmentally superior, does not offer a substantial environmental advantage, and would be less capable of meeting the project’s underlying fundamental purpose and project objectives than the Preferred Alternative, and therefore rejects this alternative as infeasible.

Alternative Station in Old Town Kern (in the vicinity of Sumner Street between Beale Avenue and Miller Street). The Authority conducted a feasibility study (Authority 2018a) to determine whether a station between Beale Avenue and Miller Street in Old Town Kern would be feasible. As stated in the Response to Comment I006-180 included in Volume IV of the Final Supplemental EIR, the feasibility study referenced CHSR TM 2.1.3 “Turnouts and Station Tracks” and TM 2.2.4 “Station Platform Geometric Design.” Based on the conflicts with the engineering criteria defined in the TMs and the impacts to sensitive environmental resources, this alternative station location was eliminated from further consideration. The Authority therefore finds that this suggested alternative station site is not environmentally superior, does not offer a substantial environmental advantage, and would be less capable of meeting the project’s underlying fundamental purpose and project objectives than the Preferred Alternative, and therefore rejects this alternative as infeasible.

Alternative Station location in the “metro area”. The Authority received comments suggesting the station would be better served in the “metro area” or downtown core of Bakersfield. The City of Bakersfield adopted the Downtown Vision Plan (Bakersfield 2018b), which identifies an urban design strategy for downtown Bakersfield that promotes economic development and sustainability, encourages the physical development of the station area, and enhances the community’s sustainability by encouraging infill development and multimodal connectivity, in particular transit-, pedestrian-, and bicycle-oriented connectivity. The Vision Plan includes phased development priorities (see Chapter 4 of the Vision Plan), a regional transit center located at the F Street Station, and a potential shuttle or other transport options between the F Street Station/Transit Center and the Downtown Bakersfield Amtrak Station. Pedestrian and bicycle connections with local trails (Kern River Parkway and Mill Creek Linear Park) and streets are also included in the Vision Plan (see in particular sections 3.3 and 3.4 of the Vision Plan). Although the commenter suggested a station in the “metro area,” development of the station between the F Street site and the Truxtun Avenue site would likely displace residences in the Westchester neighborhood and may impact built environment resources along the alignment that would service such station. The Authority therefore finds that this suggested alternative station site does not offer a substantial environmental advantage and would be less capable of meeting the project’s underlying fundamental purpose and project objectives than the Preferred Alternative, and therefore rejects this alternative as infeasible.

⁴ The Alternative Station in Old Town (in the vicinity of Sumner Street between Baker Street and Beale Avenue) is discussed in detail in Responses to Comments: I006-1, I006-2, I006-9, I006-20, I006-28, I006-29, I006-40, I006-180, I006-473, I012-1, I012-4, I017-2, I027-2, I027-8, I037-2, I040-1, I043-2, I051-2, I051-8, I062-1, I063-1, and P002-7.

Alternative Station near 7th Standard Road. The Authority conducted a feasibility study (Authority 2018a) to determine whether a station near 7th Standard Road would be feasible. As stated in Responses to Comments I006-29 and I006-40 included in Volume IV of the Final Supplemental EIR, the feasibility study referenced CHSR TM 2.1.3 “Turnouts and Station Tracks” and TM 2.2.4 “Station Platform Geometric Design.” Based on engineering constraints, such as the addition of 6,100 feet of additional viaduct to accommodate station track turnouts, the potential impacts to agricultural land, paleontological resources, and built environment resources, and the lack of connectivity of the proposed site, this alternative station location was eliminated from further consideration. The Authority therefore finds that this suggested alternative station site is not environmentally superior, does not offer a substantial environmental advantage, and would be less capable of meeting the project’s underlying fundamental purpose and project objectives than the Preferred Alternative, and therefore rejects this alternative as infeasible.

Below-grade option for the Preferred Alternative along Golden State Avenue and Sumner Street. Comment I006-199 suggests that the Authority should consider a below-grade option along Golden State Avenue and Sumner Street. A below-grade option would result in additional excavation activities, either for tunneling or trenching, and would require substantial material export, potentially increasing construction-related impacts to issues such as air quality, greenhouse gases, and noise. The Authority therefore finds that this suggested alternative station site does not offer a substantial environmental advantage than the Preferred Alternative, and therefore rejects this alternative as infeasible.

5.3 Alternatives Previously Considered and Not Carried Forward for Study in the Draft Supplemental EIR/EIS

The Authority has undergone an extensive screening process for alternatives to study in the Draft Supplemental EIR/EIS. The many potential alternatives considered, but eliminated from detailed study, are summarized in Standard Response FB-LGA-Response-GENERAL-01: Alternatives in the Final Supplemental EIR. The Authority finds that each potential alternative discussed in the Standard Response and not carried forward into the Final Supplemental EIR for detailed study was appropriately eliminated. Such potential alternatives either failed to adequately meet the project purpose and need/project objectives, failed to offer a substantial environmental advantage to the alternatives studied in the Draft Supplemental EIR/EIS, and/or were deemed to not be feasible from a cost, technical, or engineering perspective. The Authority therefore finds all such alternatives to be infeasible.

5.4 Preferred Alternative

The selection of the Preferred Alternative involves a series of tradeoffs and balancing considerations between the May 2014 Project and the F-B LGA. Both the May 2014 Project and the F-B LGA present different types and degrees of environmental impacts.

The F-B LGA reflects the Authority’s and FRA’s outreach with local stakeholders to refine the HSR project to achieve positive outcomes for affected communities and the natural environment, while still meeting the overall project objectives consistent with the voter-approved Proposition 1A. The Authority identified the F-B LGA as the Preferred Alternative for the following reasons, as provided in the Final Supplemental EIR:

- The F-B LGA, when compared to the May 2014 Project, would reduce the number of residential displacements. The F-B LGA would require 86 residential displacements, while the May 2014 Project would require 384 residential displacements. As shown in Table 8-A-38 of Appendix 8-A of the Draft Supplemental EIR/EIS, the F-B LGA would result in fewer residential displacements in each of the affected communities (city of Shafter, unincorporated Kern County, and City of Bakersfield) when compared with the May 2014 Project with the exception of the community of Oildale, which is not impacted by the May 2014 Project.
- The F-B LGA, when compared to the May 2014 Project, would result in similar business relocation impacts. The F-B LGA would require 377 business relocations, while the May 2014

Project would require 392 business relocations. As shown in Table 8-A-39 of Appendix 8-A of the Draft Supplemental EIR/EIS, the F-B LGA would result in greater business relocations in the city of Shafter and community of Oildale when compared to the May 2014 Project. However, the F-B LGA would result in fewer business relocations in the City of Bakersfield and in unincorporated Kern County.

- The F-B LGA, when compared to the May 2014 Project, results in fewer total direct impacts on waters and wildlife habitat. As shown in Table 8-2 of the Draft Supplemental EIR/EIS, the F-B LGA would result in 17.14 acres of total direct impacts on waters, while the May 2014 Project would result in 20.14 acres of total direct impacts on waters. As shown in Table 8-2 of the Draft Supplemental EIR/EIS, the F-B LGA would result in fewer total direct impacts to wildlife habitat than the May 2014 Project.
- The F-B LGA, when compared to the May 2014 Project, would result in fewer permanent impacts to Important Farmlands. As shown in Table 8-3 of the Draft Supplemental EIR/EIS, the F-B LGA would permanently impact 372 acres of Important Farmlands compared to 485 acres under the May 2014 Project.
- The Authority submitted Checkpoint C materials to the USACE and USEPA on March 10, 2017 and May 2, 2017, and received concurrence from the agencies that the Preferred Alternative which includes the F-B LGA contains the preliminary Least Environmentally Damaging Practicable Alternative on May 5, 2017 (USACE) and May 22, 2017 (USEPA).

Since the publication of the Draft Supplemental EIR/EIS, the City of Bakersfield provided concurrence with the Section 4(f) *de minimis* impact finding related to the F-B LGA:

- Both the F-B LGA and the May 2014 Project would result in Section 4(f) impacts on resources located in the City of Bakersfield. The May 2014 Project would result in a permanent 4(f) use impact to Kern River Parkway and Mill Creek Linear Park, which represents greater impacts than the F-B LGA, which would result in a *de minimis* Section 4(f) impact to the Kern River Parkway and Weill Park. On September 12, 2018, the City of Bakersfield issued concurrence with the *de minimis* Section 4(f) finding for the F-B LGA. The City of Bakersfield did not issue concurrence with Section 4(f) uses for the May 2014 Project.

The Authority finds that the Preferred Alternative is the environmentally superior alternative overall that best meets the project purpose and need and project objectives.

5.5 Conclusion on Alternatives

In summary, the Authority finds that there are no feasible alternatives that would avoid or substantially lessen the significant adverse impacts of the Preferred Alternative that would remain after application of mitigation measures, while still meeting the project's underlying purpose and project objectives. Because adverse environmental impacts remain, the Authority will adopt a Statement of Overriding Considerations, as discussed in the Chapter 7.0 of these Findings.

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6 MITIGATION MEASURES SUGGESTED BY COMMENTERS

Some of the comments on the Fresno to Bakersfield Section Draft Supplemental EIR/EIS suggested additional mitigation measures and/or modifications to the measures recommended in these documents. Some comments also suggested additions to the project that are not necessarily connected to an adverse environmental impact. The mitigation measures recommended in the Fresno to Bakersfield Section Draft Supplemental EIR/EIS represent the professional judgment of subject matter experts on reasonable and feasible approaches to reduce significant adverse environmental impacts. Nevertheless, in some instances, the Authority and FRA have incorporated suggestions from comments to refine or improve mitigation. This discussion explains the reasons for not incorporating certain of the mitigation measures suggested in comments. The Authority considered the following points in determining whether to include a mitigation measure suggested in comments:

- Whether the suggestion relates to a significant and unavoidable environmental effect of the project, or instead relates to an effect that is already less than significant or can be mitigated to less-than-significant levels by proposed mitigation measures in the Fresno to Bakersfield Section Draft Supplemental EIR/EIS;
- Whether the proposed language represents clear improvement, from an environmental standpoint, over the draft language that a commenter seeks to replace;
- Whether the proposed language is sufficiently clear as to be easily understood by those who will implement the mitigation as finally adopted;
- Whether the language might be too inflexible to allow for pragmatic implementation;
- Whether the suggestions are feasible from an economic, technical, legal, policy, or other standpoint;
- Whether the measure addresses an impact not caused by the HSR project; and,
- Whether the measure addresses a social or economic impact, as opposed to an impact on the physical environment.

Authority staff, with assistance from subject matter experts, have carefully considered mitigation measures proposed in comments. The following identifies suggestions for mitigation measures which the Authority has not incorporated and the rationale for not including the measure. The list below is not intended to be exhaustive; to the extent that suggestions on mitigation measures that were rejected are not identified below, the Authority finds, based on the analysis contained in the Fresno to Bakersfield Section Final Supplemental EIR and the record as a whole, that such suggestions are appropriately rejected for one or more of the reasons identified above.

Section 3.2, Transportation

Measure Addresses an Impact that is Less Than Significant. The following mitigation measures were not adopted because the impact was identified as less than significant.

- The addition of a light-rail system to/from F-B LGA Station to downtown, Old Town, Amtrak, and the California Corridor to reduce private vehicle/taxi/Uber access to/from the F Street Station.

The Draft Supplemental EIR/EIS did not identify an impact that would require the development of a light-rail system as mitigation. Additionally, the project itself will be providing multimodal facilities and access including transit, bicycle, and pedestrian access in the vicinity of the station.

- Public transit and active transportation access to/from the F Street station.

As referenced previously, the project itself will be providing multimodal facilities and access including transit, bicycle, and pedestrian access in the vicinity of the station. No mitigation measure is required.

- Expand Mill Creek Linear Park south from California Avenue to Brundage [sic] to enhance grade-separated active transportation access to/from disadvantaged communities to a station at F-B LGA.

The City of Bakersfield Making Downtown Bakersfield Vision Plan (Bakersfield 2018b; Vision Plan) describes a phased effort to link the F Street Station and the Amtrak Station through the development of transit, bicycle, and pedestrian improvements to enable passengers to transfer from the HSR train to local commuter transit. These improvements include bus rapid transit on Chester and California Avenues, a downtown shuttle, and mobility hubs at the Amtrak Station, HSR station, and the Golden Empire Transit Center. While these services are central to connecting the HSR station and downtown, they provide the added benefit of offering a new alternative form of transportation for non-HSR riders throughout downtown. The Vision Plan also proposes public realm improvements along three corridors to form a pedestrian friendly loop around the downtown area, connecting residential, commercial, and parks, and open space areas and activating the F Street station area. No mitigation measure is required.

- Grade-separate SR 204 and M Street and SR 204 and Q Street to mitigate traffic impacts on local streets.

The Draft Supplemental EIR/EIS identifies that the intersections of Golden State Avenue (SR 204) at M Street and Golden State Avenue (SR 204) at Q Street do not require grade separation due to impacts from the project. Therefore, no mitigation is required.

Section 3.3, Air Quality and Global Climate Change

Measure Addresses an Impact that is Less Than Significant. The following mitigation measure was not adopted because the impact was identified as less than significant.

- Mitigation measures to address the increase in CO concentrations at F Street and 23rd, 24th, and 30th Streets.

The modeled CO concentrations are identified in Table 3.3-14 of the Draft Supplemental EIR/EIS. As discussed in the Draft Supplemental EIR/EIS, the model results indicated that CO levels would remain well below the national ambient air quality standards and California ambient air quality standards, therefore, additional mitigation measures are not required.

Measure Addresses an Impact Not Caused by the HSR Project. The following mitigation measure was not adopted because the impact would not be caused by the HSR project.

- Mitigation measures that address specific air quality and health impacts for relocating industrial properties along the F-B LGA alignment.

Air quality and health mitigation measures required of the project are identified in Section 3.2 of these Findings. Any industrial property that would be relocated would be evaluated separately under CEQA (by the local agency) for potential impacts at that new location.

Section 3.5, Public Utilities and Energy

Measure Addresses an Impact that is Less Than Significant. The following mitigation measure was not adopted because the impact was identified as less than significant.

- Resolve all irrigation issues created by the bifurcation.

Implementation of PUE-IAMM#1: Minimization of Utility Interruption requires that when relocating an irrigation facility is necessary, if feasible, the Contractor will provide a new operational facility prior to disconnecting the original facility. In accordance with PUE-IAMM#1, the Contractor would provide new irrigation facilities, as feasible, prior to disconnecting the existing service.

The Draft Supplemental EIR/EIS includes an analysis of the feasibility of continued agricultural activity on remnant parcels along the alignment. As noted under Impact AG#5, Effects on Agricultural Land from Parcel Severance, parcel severance could cause hardship to irrigation systems. The Authority would work with irrigation districts and landowners to protect irrigation

systems as they intersect HSR. During the right-of-way acquisition process, the Authority's right-of-way agents will work with each affected property owner to address issues of concern.

Section 3.14, Agricultural Land

Measure Does Not Address an Impact on the Environment. The following mitigation measures were not adopted because the impact is not an impact on the environment.

- Provide at least two additional "ag undercrossings" adjacent to the Farmland Reserve, Inc. property.

As discussed in Section 2.4.5.1 of the Draft Supplemental EIR/EIS, "over crossings or undercrossings for the Fresno to Bakersfield Section would be provided approximately every 1 mile or less in many locations due to existing roadway infrastructure." In proximity to the Farmland Reserve, Inc. parcels, "(r)oad closures would occur at Orange Avenue E and at Mendota Road (a private road)" (Section 2.6 of the Draft Supplemental EIR/EIS). However, access surrounding the Farmland Reserve, Inc. properties would be maintained at the Cherry Avenue and Driver Road undercrossings. As discussed in the F-B LGA Transportation Analysis Technical Report (May 2017), the F-B LGA would result in no significant impacts due to the project on any roadway segments or intersections under existing plus project conditions. While under future plus project conditions, the F-B LGA would result in no significant impacts due to the project on any roadway segments but would result in significant impacts on two intersections: SR 43 and Ash Avenue and Beech Avenue and Riverside Street. The nearest of these affected intersections is 1 mile west of the Farmland Reserve, Inc. property. No environmental impacts are expected to result from closure of roads in the vicinity of the Farmland Reserve, Inc. property; therefore, no mitigation is required.

- Provide additional "harvest roads" due to the bifurcation.

Consistent with the discussion above, access surrounding the Farmland Reserve, Inc. properties would be maintained at the Cherry Avenue and Driver Road undercrossings. No environmental impacts are expected to result from closure of roads in the vicinity of the Farmland Reserve, Inc. property; therefore, no mitigation is required.

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7 STATEMENT OF OVERRIDING CONSIDERATIONS

The Fresno to Bakersfield Section Final Supplemental EIR and the CEQA Findings of Fact conclude that implementing the Preferred Alternative as part of the Fresno to Bakersfield Section of the HSR System, will result in certain significant impacts to the environment that cannot be avoided or substantially lessened with the application of feasible mitigation measures or feasible alternatives. This Statement of Overriding Considerations is therefore necessary to comply with CEQA, Public Resources Code, Section 21081, and the State CEQA Guidelines, Section 15093. The significant and unavoidable impacts and the benefits related to the Preferred Alternative are described below. The Authority Board has carefully weighed these impacts and benefits and finds that each of the benefits described below of implementing the Preferred Alternative, independently of the other described benefits, outweigh the significant and unavoidable environmental impacts.

7.1 General Findings on Significant and Unavoidable Impacts Associated with the Preferred Alternative

Based upon the Fresno to Bakersfield Section Final Supplemental EIR and the CEQA Findings of Fact contained herein, as well as the evidentiary materials supporting these documents, the Authority finds that implementing the Preferred Alternative could result in the following list of significant and unavoidable impacts to the environment:

Noise and Vibration

- Impact N&V #3 – Project Noise Impacts

Agricultural Land

- Impact AG #4 – Permanent Conversion of Agricultural Land to Nonagricultural Use

Aesthetic and Visual Resources

- Impact AVR #4 – Lower Visual Quality in the Shafter Town Landscape Unit
- Impact AVR #4 – Lower Visual Quality in the Rural San Joaquin Valley Landscape Unit
- Impact AVR #4 – Lower Visual Quality in the North Bakersfield Landscape Unit
- Impact AVR #4 – Lower Visual Quality in the Kern River Landscape Unit
- Impact AVR #5 – Visual Quality Effects to Valley Oaks Charter School

Cumulative Impacts

- The contribution of the Preferred Alternative to cumulatively considerable construction noise impacts would be cumulatively considerable because of the size of the HSR construction project relative to other development that may occur adjacent to the Preferred Alternative.
- The noise impacts associated with the Preferred Alternative, together with operational noise impacts of past, present, and reasonably foreseeable projects adjacent to transportation corridors would cause a cumulatively considerable noise impact. Because of the large number of sensitive receivers along transportation corridors, the project contribution to the noise impact would be cumulatively considerable.
- The contribution of the Preferred Alternative to cumulative impacts to agricultural lands would be cumulatively considerable because of the conversion of agricultural lands to nonagricultural land uses.
- The construction and operational visual impacts associated with the Preferred Alternative, together with the construction and operational visual impacts of past, present, and reasonably foreseeable projects would be cumulatively considerable.

- Continued urbanization and development projected under the cumulative condition could result in exposure and disruption of archaeological and paleontological resources and traditional cultural properties, and removal or damage to historic architectural resources, and would result in a cumulatively considerable impact. The Preferred Alternative's contribution to these impacts would be cumulatively considerable under CEQA.

With the approval of the Preferred Alternative and the adoption of the CEQA Findings of Fact, the Authority is committing to implement the mitigation measures identified for the portion of the Preferred Alternative from just north of Poplar Avenue in Kern County south to the intersection of 34th Street and L Street including the F Street Station to ensure that significant impacts are mitigated to a less-than-significant level to the extent feasible, and that the project's contribution to cumulative impacts is minimized and mitigated to the extent feasible. The Authority finds that the mitigation measures adopted with the findings are the appropriate measures to approve at this time because they apply to the Preferred Alternative.

The Authority further finds that while the mitigation measures it adopts as part of the CEQA

Findings of Fact will substantially lessen or avoid many of the significant environmental impacts discussed in the Draft Supplemental EIR/EIS, and mitigation adopted to address one area may result in beneficial effects in other subject areas, the above impacts will not all be mitigated to a less-than-significant level, and remain significant and unavoidable.

The Authority finds that each of the following specific economic, legal, social, technological, environmental and other considerations and benefits of the Preferred Alternative, separately and independently, outweigh the unavoidable adverse environmental effects of the project, and each one is an overriding consideration independently warranting project approval. The Authority finds that the significant unavoidable impacts of the project are overridden by each of these individual considerations, standing alone. The significant unavoidable environmental effects remaining after adoption of mitigation measures are considered acceptable in light of these significant benefits of the Preferred Alternative, as described in this statement of overriding considerations.

7.2 Overriding Considerations for the Preferred Alternative and the High-Speed Rail System

There are numerous benefits of the portion of the Preferred Alternative. In addition, there are numerous benefits of the HSR System as a whole, of which the Fresno to Bakersfield Section (and the F-B LGA) is an integral part. These benefits viewed both individually and collectively, outweigh the significant and unavoidable adverse effects of implementing the portion of the Preferred Alternative. These benefits are in the areas of transportation, the environment, land use planning, economics, and social considerations, and are set forth below.

A. Environmental Benefits of the HSR System

As discussed in Technical Appendix 1-B of the Draft Supplemental EIR/EIS, the benefits of the HSR include reduced vehicle miles traveled (VMT), reduced energy use for transportation, and reduced air pollution from transportation sources, including reduced emissions of GHGs (see Section 3.2, Transportation, and Section 3.3, Air Quality and Global Climate Change of the Fresno to Bakersfield Section Final EIR/EIS). These benefits were derived based on the assumption in the Fresno to Bakersfield Section Final EIR/EIS that the entire 800-mile system (Full System—both Phase 1 and 2) would be operational and serving 69 million riders (equivalent to HSR fares set at 83 percent of airfares) to 98 million riders (equivalent to HSR fares set at 50 percent of airfares) annually in 2035. The following summarizes the conclusions of specific benefits that were disclosed in the Fresno to Bakersfield Section Final EIR/EIS.

Benefits from a Reduction in Vehicle Miles Traveled

The Fresno to Bakersfield Section Final EIR/EIS concluded that the HSR project would divert automobile trips to HSR trips, thus reducing local and regional VMT. The Fresno to Bakersfield Section Final EIR/EIS identified a statewide VMT reduction of approximately 21 to 31 million miles daily with the implementation of a HSR project as compared to the No Project Alternative in

2035. The diversion from automobile to HSR was estimated to lead to a 7 to 10 percent statewide reduction in VMT on the state highway system. The reduction in both automobile and air travel VMT would provide benefits in the form of reduced congestion on both the state's highway system as well as at airports. Within the Fresno, Kings, Tulare, and Kern counties project area, the VMT reduction was estimated at 5.4 to 8.0 million miles daily.

Benefits from a Reduction in Air Pollution and Greenhouse Gas Emissions

It was disclosed in the Fresno to Bakersfield Section Final EIR/EIS that the HSR project would have a beneficial effect on (i.e., reduce) statewide emissions of applicable pollutants due to projected reductions of pollutants generated by vehicle and air travel. The analysis in the Final EIR/EIS included the estimated change in emissions due to projected reductions of on-road VMT and intrastate air travel, and increases in electrical demand (required to power the HSR). As compared to the No Project Alternative in 2035, all air pollution emissions analyzed (i.e., carbon monoxide, particulate matter smaller than or equal to 10 microns in diameter, particulate matter smaller than or equal to 2.5 microns in diameter, oxides of nitrogen, and volatile organic compounds) would be reduced.

The HSR project was included in the Assembly Bill 32 scoping plan to help the State meet GHG emission reduction targets. The reduction in GHG emissions statewide was estimated to be approximately 2.5 million metric tons per year of carbon dioxide (CO₂) emissions for the HSR when compared to the 1.7 million metric tons per year of CO₂ emissions for the No Project Alternative.

Benefits from a Reduction in Energy Use

The Fresno to Bakersfield Section Final EIR/EIS showed how the new HSR travel mode would divert both automobile trips and air travel, resulting in less energy use for transportation. As compared to the No Project Alternative in 2035, the Fresno to Bakersfield Section Final EIR/EIS concluded that the HSR would reduce transportation energy consumption by 63,262 to 94,760 million British thermal units daily.

7.2.2 Benefits of the Preferred Alternative When Considered with the Previously Approved Fresno to Bakersfield Section Preferred Alternative

The Preferred Alternative when considered with the previously approved Fresno to Bakersfield Preferred Alternative (2014) has numerous benefits that outweigh the unavoidable adverse impacts in the Fresno to Bakersfield section of the HSR system.

A. Provides an Essential Building Block to Establish Very High-Speed Passenger Service

A benefit from the Preferred Alternative from when considered with the previously approved Fresno to Bakersfield Preferred Alternative, is that this piece of the HSR system provides the essential back-bone of the system in the Central Valley, from which the remainder of the system can continue to be planned, environmentally evaluated, and eventually constructed and operated. Construction has been initiated in the Central Valley, because the Central Valley forms the foundation of the HSR system (Authority's 2012 and 2014 Business Plan). As identified in the 2018 Business Plan, ridership and revenue forecasts show that the initial line—from San Francisco to Bakersfield through the Silicon Valley—will produce revenue that can help fund construction from the Central Valley southward to the Los Angeles Basin. As a very large linear infrastructure project, the roughly 800-mile statewide system, or even the roughly 540-mile Phase 1 of the system between San Francisco and Los Angeles, cannot feasibly be planned, environmentally reviewed, constructed, and be ready for operation all at once. Construction must begin somewhere, and the Fresno to Bakersfield Section of the system provides a benefit of serving as a critical foundation of the system, without which the remainder of the system would not be built and made operational as efficiently.

B. Provides Economic and Employment Benefits from Construction

Construction of the Preferred Alternative would generate sales tax revenue gains for the region over the construction period that have been estimated at about \$589,000 per year for the estimated six-year construction period. These sales tax revenue gains would increase local government revenues during the construction period and provide an economic benefit.

Employment from construction of the Preferred Alternative would provide employment benefits in the region. It is estimated that about 11,028 one-year, full-time job equivalents would be created within the cities of Shafter and Bakersfield and Kern County over the construction period. Direct jobs in the construction sector comprise about 52 percent of the total estimate, or about 5,786 one-year, full-time job equivalents. Job creation is anticipated to be highest during peak construction years of 2021-2022, requiring about 3,033 workers annually, with about 1,591 of these as direct jobs in the construction sector and about 1,442 as indirect and induced jobs in other sectors. The provision of new construction and non-construction job opportunities over the construction period in the San Joaquin Valley, which has suffered very high unemployment during the recent recession, particularly in the construction sector, is an important project benefit. In May 2018, the Authority was joined by workers representing multiple local union halls to announce that more than 2,000 construction jobs have been created since the start of the HSR project.

C. Provides a New Expedited and Consistent Travel Option

As discussed in the 2018 Business Plan, the Central Valley ranks as one of California's most underserved regions when it comes to transport. With HSR, a trip from as far south as Bakersfield and other key locations in the Central Valley to the San Francisco Bay Area will take two hours or less, and the travel duration will be the same every time no matter how congested the roads or how inclement the weather. HSR in the Central Valley would provide a new, faster, and reliable mobility option for travelers.

D. Summary of Benefits of Preferred Alternative

In summary, the Authority finds that there are benefits associated with the Preferred Alternative that will occur independently of any other construction of the high-speed rail system. The Authority further finds that the portion of the Preferred Alternative offers benefits in conjunction with the already-approved portion of the Fresno to Bakersfield section of the HSR system. Each of these benefits individually, as well as in combination, are sufficient overriding considerations that outweigh the significant and unavoidable environmental impacts of implementing the Preferred Alternative.

7.2.3 Benefits of the Preferred Alternative as Part of the Statewide High-Speed Rail System

The Preferred Alternative also has numerous benefits that outweigh the unavoidable adverse impacts in the Fresno to Bakersfield Section of the high-speed train system when viewed as part of the larger, statewide HSR system. These benefits are documented in the Supplemental EIR/EIS in the areas of transportation, air quality, energy, land use, and socioeconomics and are appropriate to consider in light of the Authority's first-tier decisions to move forward with a statewide electrified HSR system.

A. Transportation Benefits

The capacity of California's intercity transportation system is insufficient to meet existing and future demand and the current and projected future congestion of the system will continue to result in deteriorating transportation conditions, reduced reliability, and increased travel times. The system has not kept pace with the tremendous increase in population, economic activity, and tourism in California. The interstate highway system, commercial airports, and conventional passenger rail system serving the intercity travel market are operating at or near capacity and will require large public investments for maintenance and expansion to meet existing demand and future growth over the next 20 years and beyond. Moreover, the ability to expand major highways

and key airports is uncertain; some needed expansions may be impractical or may be constrained by physical, political, or other factors.

As described in the Chapter 1 of the Draft Supplemental EIR/EIS, the HSR System would meet the need for a safe and reliable mode of travel that would link the major metropolitan areas of the state and deliver predictable, consistent travel times sustainable over time. The HSR System also would provide quick, competitive travel times between California's major intercity markets. For intermediate intercity trips such as Fresno to Los Angeles, the HSR System would provide considerably quicker travel times than either air or automobile transportation, and would bring frequent HSR service to portions of the state such as the Central Valley that are not well served by air transportation. In addition, the passenger cost for travel via the HSR service would be lower than for travel by air for the same intercity markets.

By providing a new intercity, interregional, and regional passenger mode, the HSR System will improve connectivity and accessibility to other existing transit modes and airports. Travel options available in the Central Valley and other areas of the state with limited bus, rail, and air service for intercity trips will be improved. The HSR System within the Central Valley would provide beneficial transportation impacts beyond additional modal connectivity. The change from vehicles to HSR would reduce daily auto trips and corresponding vehicle delay and congestion. A substantial amount of intercity auto travel (primarily using SR 99) would divert to HSR service, relieving projected future congestion on SR 99. The reduction in future intercity trips would also improve the ability of SR 99 to accommodate freight traffic and would improve projected travel speeds on the freeway. The HSR System also provides system redundancy in cases of extreme events such as adverse weather or petroleum shortages (HSR trains are powered by electricity which can be generated from non-petroleum-fueled sources; automobiles and airplanes currently require petroleum). The HSR System will provide a predominantly separate transportation system that will be less susceptible to many factors influencing reliability, such as capacity constraints, congestion, and incidents that disrupt service.

The HSR System will add capacity to the state's transportation infrastructure and reduce traffic on certain intercity highways and around airports to the extent that intercity trips are diverted to the HSR System. As stated in Section 3.2 of the Fresno to Bakersfield Section Final EIR/EIS, diversions from the automobile to HSR could lead to a projected 7 percent to 10 percent reduction in vehicles miles traveled on the highway system to and from the Fresno/Bakersfield region (7 percent if based on a ticket price of 83 percent of airfare cost, or 10 percent if based on a ticket price of 50 percent of air fare cost). This translates to a reduction in daily VMT in Fresno, Kings, Tulare, and Kern counties of 5.4 to 8 million miles daily in 2035 as compared to No Project. The HSR System also will decrease injuries and fatalities due to diversion of trips from highways, will improve connectivity, and will add a variety of connections to existing modes, additional frequencies, and greater flexibility.

The HSR System within the Central Valley would provide a new regional surface transportation system that complements and connects with existing transportation modes. At a regional level, HSR service would reduce vehicle miles traveled by providing motorists an alternative to relying on existing interregional and intercity freeways and highways. The HSR System would be grade-separated from freeways, highways, and roads, allowing vehicular traffic to pass unimpeded under or over the rail corridor.

The State's growing population, and the growing demand on the State's transportation system, was the early impetus for high-speed rail in California. The same trends that motivated the State to investigate, support, and proceed to plan the high-speed rail system are just as compelling today as in the last two decades. The State's need for a safe, reliable, and fast mode of intercity travel to meet its growing transportation demands continues to a critical policy basis for moving the project forward.

The F Street Station would be located near a network of regional highways in an area with no existing train service as well as in proximity to the Kern River Parkway and would provide a direct connection to that facility. The location of the F Street Station would complement existing public

transportation in metropolitan Bakersfield including local buses, intercity buses, Amtrak trains, and paratransit services. Vehicle circulation from the F Street Station would be organized to maximize separation of flows of private vehicle and public transit circulation to reduce delays of public transit caused by traffic congestion. The existing transit center to the east of F Street provides a convenient connection to Chester Avenue, where the City of Bakersfield plans to construct a future bus rapid transit line. The transit center would also be connected to the primary building of the F Street Station with a dedicated bike/pedestrian walkway that is grade-separated at F Street. This dedicated bike/pedestrian walkway, proposed as part of the Preferred Alternative, would run the length of the F Street Station site and would provide bike and pedestrian access between Chester Avenue, the main station building entrance, and the Kern River trail system. The nearest existing bike lanes or paths are on Chester Avenue adjacent to the station site. Additional bike lanes also exist along P and Q Streets, 21st Street, 30th Street, 34th Street, and the Kern River Parkway, while there are planned bike lanes along Edison Highway to the east of the proposed station and near the intersection of Airport Drive and Golden State Avenue north of the Kern River and the proposed station area (City of Bakersfield and Kern County 2010).

B. Environmental Benefits

In addition to reducing highway congestion, the HSR System as a whole will provide substantial improvement in air quality and transportation energy efficiency. The HSR System will decrease air pollution statewide and in all air basins analyzed by reducing pollution generated by automobile combustion engines; air pollution is of particular concern in the San Joaquin Valley, which will benefit greatly from operation of the HSR. This is a result of decreased vehicle miles traveled by automobiles and decreased automobile congestion. Emissions of CO, PM₁₀, PM_{2.5}, NO_x, VOC, and CO₂ will all be reduced as compared to the No Project Alternative in 2035. Compared to the No Project scenario, the HSR System will result in a reduction in transportation energy consumed of 63,262 to 94,760 million British thermal units daily. The HSR Project would result in a reduction of 12.7 million barrels of oil and 1.7 to 2.5 million metric tons per year of CO₂ emissions compared to the No Project Alternative by 2035, helping the state reduce GHG emissions consistent with the goals of Assembly Bill 32 (AB 32) and Executive Order S-3-05. The Central Valley contribution to this reduction would be up to 0.56 million metric tons (1.2 billion pounds) of GHG emissions annually by 2035 for the Preferred Alternative.

The statewide HSR System has minimized environmental impacts following existing transportation corridors to the maximum extent feasible. The Preferred Alternative and the F Street Station location and the alignment and station locations for the system as a whole have been crafted to avoid and/or minimize the potential impacts to cultural, park, recreational and wildlife refuges to the greatest extent feasible in light of the project's objectives. In this way, the HSR System meets the purpose and need and project objectives for improving the state's transportation options, while doing so in an environmentally sensitive way.

The USACE and the USEPA have both concurred (USACE, May 5, 2017, and USEPA, May 22, 2017) that the Preferred Alternative is the LEDPA. For this reason, the Preferred Alternative is the alternative for this portion of the Fresno to Bakersfield Section that will have the highest likelihood of being efficiently constructed and operated.

C. Consistency with State Policies in Executive Order S-3-05, Assembly Bill 32, Senate Bill 375, Senate Bill (SB) 2X and First Update to the Climate Change Scoping Plan, Senate Bill 743, Executive Order B-30-15, Senate Bill 32, and the Short-Lived Climate Pollutant Reduction Strategy

In 2005, California set statewide targets for reducing GHG emissions. Executive Order S-3-05 requires that GHG emissions be reduced to 2000 levels by the year 2010, to 1990 levels by the year 2020, and 80 percent below 1990 levels by the year 2050. Shortly after the issuance of this executive order, the California State Legislature passed AB 32, the Global Warming Solutions Act of 2006. AB 32 recognizes that California is the source of substantial amounts of GHG emissions and that global climate change poses a serious threat to the economic well-being, public health,

natural resources, and the environment of California. AB 32 requires that the CARB, the state agency charged with regulating air quality, establish a statewide greenhouse gas emissions limit to be achieved by 2020, with the intent that the emissions limit continue in existence and be used to maintain and continue reductions in emissions of greenhouse gasses beyond 2020. AB 32 also requires that CARB create a plan and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases” in California. This plan was developed by CARB in 2008 as the Climate Change Scoping Plan (California Air Resources Board 2008), the state’s road map to reaching the GHG reduction goals required by AB 32. The Plan supports the implementation of a High-Speed Rail System to provide more mobility choice and reduce GHG emissions. The “Approved Scoping Plan” was adopted by the CARB in December 2008 and reapproved by the CARB in August 2011 after additional alternatives analysis was added in response to litigation.

Adopted in September 2008, Senate Bill 375 (SB 375) provides a new planning process to coordinate community development and land use planning with RTPs, in an effort to reduce sprawling land use patterns, and thereby reduce VMT and associated VMT. SB 375 is one major tool being utilized to meet the AB 32 goals. SB 375 sets priorities to help California meet GHG reduction goals and requires that RTPs prepared by metropolitan planning organizations include a “sustainable communities strategy” that supports the GHG emission reduction targets set by CARB. Because of the potential for increased transit-oriented development-type development and other land use planning benefits from HSR implementation in the Bakersfield area, the HSR will be supportive of the Kern Council of Governments Sustainable Communities Strategy document by providing a HSR as a transportation opportunity with its associated benefits to land use patterns, which will contribute to the SCS document goal to meet SB 375 GHG reduction targets. The SCS completed by Kern Council of Governments) includes California HSR through Kern County, and therefore includes the analysis performed to demonstrate that Kern Council of Governments’ RTP/SCS meets the greenhouse gas emission reduction targets set by CARB per the requirements of SB 375.

In April 2011, Governor Brown signed SB 2X requiring California to generate 33 percent of its electricity from renewable energy by 2020. In May 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB 2014). This first update defines CARB’s climate change priorities for the next five years and sets the groundwork to reach post-2020 goals set forth in Executive Order S-3-05. The update highlights California’s progress toward meeting the “near-term” 2020 GHG emission reduction goals defined in the original Climate Change Scoping Plan (CARB 2008). It also evaluates how to align the state’s longer-term GHG reduction strategies with other state policy priorities, like those for water, waste, natural resources, clean energy and transportation, and land use (CARB 2014).

On September 27, 2013, Governor Brown signed SB 743, which creates a process to change the way that transportation impacts are analyzed under CEQA. SB 743 requires the Governor’s Office of Planning and Research to amend the CEQA Guidelines to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. Measurements of transportation impacts may include VMT, VMT per capita, automobile trip generation rates, or automobile trips generated. Once the CEQA Guidelines are amended, auto delay will no longer be considered a significant impact under CEQA. Transportation impacts related to air quality must still be analyzed under CEQA (Office of Planning and Research 2017).

In April 2015, Governor Brown issued Executive Order B-30-15, which expanded the goals of Executive Order S-3-05 by calling for a new target of 40 percent below 1990 levels by 2030. This Executive Order also directed all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in Executive Order S-3-05 of reducing emissions 80 percent under 1990 levels by 2050. The new emission reduction target of 40 percent below 1990 levels by 2030 is intended to make it possible to reach the state’s ultimate goal set by Executive Order S-3-05.

In October 2015, Governor Brown signed into legislation SB 350, which requires retail seller and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030, with interim goals of 40 percent by 2024, and 45 percent by 2027.

On September 8, 2016 Governor Brown signed into law SB 32, effectively extending California's landmark AB 32 to the year 2030. SB 32 effectively establishes a new greenhouse gas reduction goal for statewide emissions of 40 percent below 1990 levels by 2030. This goal is 40 percent more stringent than the current AB 32 mandated goal of 1990 levels by 2020. In terms of metric tons, this means that statewide, California not only needs to reduce emissions from 441.5 million metric tons (MMT) of carbon dioxide equivalents (CO₂e) in 2014 to 431 MMT CO₂e by 2020, but will now need to cut emissions to 258.6 MMT CO₂e by 2030.

SB 605 (Lara, Chapter 523, Statutes of 2014) directed CARB to develop a comprehensive short-lived climate pollutant (SLCP) strategy, in coordination with other state agencies and local air quality management and air pollution control districts. Short-lived climate pollutants include three main components: black carbon, fluorinated gases, and methane. CARB staff released a proposed SLCP Strategy in April 2016. In September 2016, Governor Brown signed SB 1383 (Lara, Chapter 395, Statutes of 2016) mandating CARB to take certain specific actions with regard to the SLCP strategy. SB 1383 identifies specific reduction targets for three SLCPs (i.e., black carbon, fluorinated gases, and methane), which the SLCP Strategy, currently being revised by CARB, will address.

The transportation sector is responsible for about 40 percent of California's GHG emissions (Office of the Governor 2007). Emissions of criteria pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide) and GHG emissions from motor vehicles are directly related to the amount of fuel burned and affect air quality in the San Joaquin Valley. The San Joaquin Valley Air Basin exceeds federal and state air quality standards for ozone, PM_{2.5}, and for the state's 24-hour standard for PM₁₀. The projected population growth (see Section 3.19, Regional Growth of the Draft Supplemental EIR/EIS) in the San Joaquin Valley will result in an increase in VMT (see Section 3.2, Transportation of the Draft Supplemental EIR/EIS) and the volume of pollutants emitted by motor vehicles. The continued increase in traffic will exacerbate the existing air quality problem and impede the region's ability to attain state and federal ambient air quality standards. Because emissions are directly proportional to the amount of fuel burned, offering effective transportation choices that can reduce driving will be critical for reducing these emissions.

Compared to travel by car, an electric-powered HSR System would reduce CO₂ emissions. The HSR System would provide a more energy-efficient travel mode; a trip on the HSR System would use one-third the energy of a similar trip by air, and one-fifth the energy of a trip made by car (Bay Area Council Economic Institute 2008). In addition, the HSR System affords a new opportunity to serve as the backbone of a comprehensive transportation network with connectivity between the statewide, regional, and local transit systems. Providing an interconnected network of alternative transportation options that support more concentrated development around major transit access points, establishes a new framework for the state to integrate land use and transportation decision-making.

The Draft Supplemental EIR/EIS considered the air quality emissions associated with the Preferred Alternative as part of the Fresno to Bakersfield Section as a whole. As shown in Table 3.3-13 in the Draft Supplemental EIR/EIS, emission results indicate the project would result in a net regional decrease in emissions of criteria pollutants. These decreases would be beneficial to the San Joaquin Valley Air Basin and help the basin meet its attainment goals for ozone and particulates (PM₁₀ and PM_{2.5}).

D. Land Use Planning Benefits

In the vicinity of HSR stations, the HSR System will generally be compatible with local, regional, and state plans and policies that support rail systems, including the HSR, and transit-oriented development. It will offer opportunities for increased infill development and redevelopment of downtown centers, which would reduce pressures for conversion of surrounding agricultural land

to non-agricultural uses. The HSR System will promote transit-oriented, higher-density development around transit nodes as the key to stimulate in-fill development that makes more efficient use of land and resources, can better sustain population growth, and reduce development pressures on the surrounding agricultural lands. The increased density of development in and around urban HSR stations yields the additional public benefit of making public infrastructure improvements more cost-effective. The HSR station in Bakersfield would create a beneficial change in visual character when viewed from adjacent downtown locations. As discussed in Impact AVR #4 of the Draft Supplemental EIR/EIS, the F Street Station would be a dominant feature to the north of SR 204. Regardless of the station's exact appearance, it would be designed with a distinctive and potentially iconic architectural form to create a beneficial change in visual character when viewed from adjacent locations in the Central Bakersfield Landscape Unit. The indirect effects of the project would be most noticeable at the HSR stations and are expected to result in an overall increase in visual quality (Section 3.16). Additionally, the HSR System is expected to be a catalyst for wider adoption of smart growth principles in communities near the F Street station.

The HSR System will also meet the need for improved inter-modal connectivity with existing local and commuter transit systems. HSR stations in California, including the F Street Station, will be multi-modal transportation hubs. The concept of the HSR station as a transportation hub is also consistent with the Revised 2012 Business Plan, the primary difference being a lower level of ridership projected during the early years on implementation and operation. The F Street Station will provide linkage with local and regional transit, airports, and highways. In particular, convenient links to other rail services (heavy rail, commuter rail, light rail, and conventional intercity) will promote transit-oriented development at stations by increasing ridership and pedestrian activity at these "hub" stations. A high level of accessibility and activity at the stations can make the nearby area more attractive for additional economic activity.

The May 2018 City of Bakersfield Vision Plan describes a phased effort to link the F Street Station and the Amtrak Station through the development of transit, bicycle, and pedestrian improvements to enable passengers to transfer from the HSR train to local commuter transit. These improvements include bus rapid transit on Chester and California Avenues, a downtown shuttle, and mobility hubs at the Amtrak Station, HSR station, and the Golden Empire Transit Center. While these services are central to connecting the HSR station and downtown, they provide the added benefit of offering a new alternative form of transportation for non-HSR riders throughout downtown. The Vision Plan also proposes public realm improvements along three corridors to form a pedestrian friendly loop around the downtown area, connecting residential, commercial, and parks, and open space areas and activating the F Street Station area.

As discussed in Appendix 8-A of the Draft Supplemental EIR/EIS, the F Street Station presents opportunities for infill development, revitalization of existing large buildings, new job creation, and transit-oriented housing. The second phase of implementation detailed in the Vision Plan lays out a framework for redeveloping the area around the F Street Station. Garces Circle would be transformed from an automobile-oriented roundabout into a high-density, mixed-use retail, residential and office district. This new district will be supported by rehabilitating adjacent mixed-use and single-family neighborhoods.

E. Economic and Social Benefits

The HSR System will generate economic benefits related to revenue generated by the system, economic growth and jobs generated by construction and operation of the system, benefits from reduced delays to air and auto travelers, and economic advantages related to proximity to the HSR System.

Construction of the HSR System will generate the equivalent of approximately 239,000 construction-related job years for construction of the Silicon Valley to Central Valley Line (Authority 2018b, page 3), including approximately 11,028 job years within Kern County (Authority and FRA 2017c, page 5-44). Operations and maintenance of the HSR System would directly employ about 3,400 people by 2040 (Authority 2014, p. 61), and the potential statewide creation

of about 400,000 long-term permanent jobs. Operation of the HSR System is estimated to create up to 3,800 direct jobs (Authority 2016, page 90), and overall about 47,500 new jobs within the region. In addition, the HSR System would improve the economic productivity of workers engaging in intercity travel by providing an option to avoid the delays and unpredictability associated with air and highway travel. These economic benefits are in marked contrast to the cost of expanding airports and highways, which would be approximately twice the cost of the HSR System to meet the future transportation demand, assuming this type of expansion is even feasible (Authority 2012, page 3-15).

Experiences in other countries have shown that an HSR System can provide a location advantage to those areas in proximity to an HSR station because an HSR System would improve accessibility to labor and customer markets, potentially improving the competitiveness of the state's industries and the overall economy. Businesses that locate in proximity to an HSR station could operate more efficiently than businesses that locate elsewhere (Section 3.13 of the Draft Supplemental EIR/EIS). This competitive advantage may be quite pronounced in high-wage employment sectors that are frequently in high demand in many communities. Finally, the HSR System would provide an opportunity for connectivity for sectors of the population who currently are limited in their travel options. In addition, HSR is a mode of transportation that can enhance and strengthen urban centers. In combination with appropriate local land use policies, the increased accessibility afforded by the high-speed service could encourage more intensive development and may lead to higher property values around stations.

F. Benefits Will Accrue Slowly Under the Phased Implementation Approach in the Authority's Business Plans, But Will Still be Significant Benefits and They Will Build Over Time

The Authority's 2016 Business Plan describes a phased implementation strategy for construction of the HSR System. This strategy is supported in the Authority's 2018 Business Plan (page 17). In contrast to the assumptions in the Fresno to Bakersfield Section Final EIR/EIS, the Business Plans identify the HSR System being constructed in phases over time, rather than having all 800 miles of the statewide system being constructed concurrently and with fully developed operations in 2035. Because the system will be constructed and implemented more slowly over time than assumed in the Fresno to Bakersfield Section Final EIR/EIS, benefits of the system will also accrue more slowly over time than calculated in the Fresno to Bakersfield Section Final EIR/EIS.

Statewide automobile VMT reductions for a Phase 1 Blended approach would be approximately 36-38 percent of the benefits described above, and air travel VMT reductions about 37-45 percent of that described above (Authority and FRA 2014c). As described in the 2016 Business Plan (Authority 2016), the savings associated with riders on the initial Silicon Valley to Central Valley line are one part of the broader GHG emissions reductions that will occur through development of the HSR system. Reductions are projected to start at almost 120,000 metric tons of carbon dioxide equivalent (MT CO₂e) in 2025. Over time, and as high-speed rail expands to the full Phase 1 system, it will contribute substantially to reducing GHG emissions. The average annual savings of the Phase 1 system through 2040 is projected to be just over 1 million MT CO₂e, as opposed to the 1.7 to 2.5 million MT annually in 2035 as discussed in the Draft Supplemental EIR/EIS. In addition, energy use benefits would be less for a Phase 1 Blended approach, totaling approximately 31,300 to 52,000 million British thermal units daily, versus the 63,262 to 94,755 million British thermal units daily in 2035, as described in the Fresno to Bakersfield Section Final EIR/EIS. This still amounts to a savings of 5,400 to 9,000 barrels of oil per day (Authority and FRA 2014c).

Finally, the Authority has previously committed to power the high-speed train with an energy portfolio of 100 percent renewable sources. This commitment has been reaffirmed in the 2018 Business Plan (page 11). The environmental benefit of powering the high-speed train with 100 percent renewable energy is substantial in terms of CO₂ reduction benefits. Over time, a 100 percent renewable portfolio has potential to double the GHG reduction benefits from high-speed train operations over a non-renewable portfolio.

In summary, although benefits of the HSR system in the areas of VMT reduction, GHG reduction, and reduced transportation energy use are initially lower than described in the Draft Supplemental EIR/EIS main impact analysis based on the phased implementation strategy in the Authority's Business Plans, the benefits are still significantly positive, the benefits will continue to accrue and grow over time, and they will eventually achieve the level of benefit the Fresno to Bakersfield Section Final EIR/EIS describes. These benefits therefore still outweigh the significant and unavoidable adverse environmental impacts described in the Final Supplemental EIR and CEQA Findings of Fact.

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ATTACHMENT A: BIOLOGICAL RESOURCES MITIGATION MEASURES

The mitigation measures in this section identify avoidance, minimization, and compensation measures to minimize potential impacts and effects on biological resources (e.g., special-status plant and wildlife species, habitats of concern, wildlife movement corridors, and native flora and fauna) by the HSR alignment and station. Many of these mitigation measures have multiple benefits that avoid, protect, or compensate for the impacts and effects on various biological resources.

Implementation of the mitigation measures 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 and compensatory mitigation will be the responsibility of the Authority.

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

Section 3.7.1 of the Draft Supplemental EIR/EIS presents the regulatory programs that apply to the Preferred Alternative. Table 3.7-1 addresses the federal requirements and Table 3.7-2 addresses the state requirements. The primary agreements and regulatory requirements include the federal ESA (Section 7), CESA (Section 2081), CWA (Section 404), Porter Cologne Act (Section 401), and State Fish and Game Code (Section 1600).

The mitigation measures presented below were refined in some cases as a result of coordination with federal, state, and local agencies. Representative agencies involved in early coordination include USFWS, USACE, USEPA, CDFW, and SWRCB. This coordination effort included consideration of the types, timing, and locations of mitigation measures, including consideration for early implementation, as feasible.

The Authority has been coordinating with the USFWS and CDFW through regular meetings, project-specific site visits, potential mitigation site visits, and permit applications to ensure that proposed mitigation measures are sufficient to address impacts on special-status species and wildlife movement corridors. Comment letters from the California Department of Fish and Wildlife on the mitigation measures were incorporated into the Fresno to Bakersfield Section Final EIR/EIS where feasible and effective. Also, the conservation measures identified in the USFWS Biological Opinion (USFWS 2013 and 2018) to avoid, minimize, and reduce potential take of species protected under the federal ESA have been incorporated into the Fresno to Bakersfield Section Final EIR/EIS and the Final Supplemental EIR.

Similarly, the Authority has coordinated with USEPA and USACE through the Integration Memorandum of Understanding among the FRA, the Authority, USACE, and USEPA and the associated Checkpoints and through comment letters received on the Fresno to Bakersfield Section environmental documents, including the Draft EIR/EIS and the Revised DEIR/Supplemental DEIS. Comments from these agencies as part of the Supplemental Checkpoint C process and Draft Supplemental EIR/EIS have also been considered and incorporated in the Final Supplemental EIR/EIS.

As background, the Memorandum of Understanding established three checkpoints on which the signatory agencies work through the National Environmental Policy Act/Section 404 and Section 408 processes. Coordination efforts include meetings, conference calls, project and mitigation site visits, and review of technical documents. Checkpoint A established the projects purpose and

need. Checkpoint B identified the range of alternatives to be studied in the EIR/EIS. Checkpoint C identified the preliminary LEDPA.

The Authority has prepared a number of reports related to Checkpoint C that substantiate the conditions described in the Draft Supplemental EIR/EIS and discuss at length the condition of jurisdictional waters in the study area. These documents are publicly available on the Authority's website. These reports include the Supplemental Checkpoint C Summary Report (Authority and FRA 2017d), the 2013 Checkpoint C Summary Report (Authority and FRA 2013a), the Watershed Evaluation Report (Authority and FRA 2013b), and an Evaluation of Wetland Condition Using the California Rapid Assessment Method, of the Watershed Evaluation Report (Authority and FRA 2013c). Checkpoint C required a substantial amount of information to evaluate the impacts on aquatic, biological, and other environmental resources. Specifically, Checkpoint C looks closely at both the quantity and the quality of aquatic resources and the associated direct and indirect impacts in order to determine the Preliminary LEDPA.

The 2008 Mitigation Rule states a preference for mitigation using a watershed approach, but acknowledges that for linear projects, where impacts are distributed across multiple watersheds, more ecological functions and values may be created, enhanced, or restored in fewer consolidated mitigation projects. Because of the degraded condition of jurisdictional waters in the region, the focus of compensatory mitigation will be on consolidated mitigation projects because they provide the best opportunity for ecological benefit for the region. Compensatory mitigation may also be consolidated in the watersheds that would experience significant ecological loss of jurisdictional waters in excellent or good condition.

The habitat creation, restoration, and/or revegetation ratios presented here are based upon and ultimately depend on the type of impact (i.e., permanent or temporary), scarcity of the resource, and performance anticipated. In regards to special-status species, the avoidance, minimization, and mitigation measures are specific to special-status species' known geographic ranges and their suitable habitats, and species-specific measures will not be required when the habitat or range is not located within the construction footprint.

The following roles and definitions represent the Authority, Contractor, and lead biology positions responsible for monitoring, reporting, and implementing the mitigation measures and associated terms and conditions. Other support roles may include restoration ecologists, landscape architects, and special-status species experts.

- **Mitigation Manager:** The Mitigation Manager provided by the Design-Build Contractor is responsible for overseeing the Environmental Team's implementation, reporting, and compliance of all project environmental commitments. The Mitigation Manager will support the construction management team. The Project Biologist will report to the Mitigation Manager to verify compliance with biological resources mitigation measures. The Mitigation Manager will report the status of each mitigation measure to the Authority in accordance with the MMEP.
- **Project Biologist, Regulatory Specialist (Waters), Project Botanist:** The Project Biologist(s), Regulatory Specialist(s), and Project Botanist(s) provided by the Design-Build Contractor will represent the construction management team, will report directly to the Authority, will implement the mitigation reflected in the construction drawings and specifications, and will be responsible for reporting and overseeing the biological resources mitigation measures from the Final Fresno to Bakersfield Section EIR/EIS. The Project Biologist(s), Regulatory Specialist(s), Project Botanist(s) will also be responsible for implementing mitigation measures in compliance MMEP and with the terms and conditions outlined in the USFWS, USACE, SWRCB, and CDFW permits. The Project Biologist(s) Regulatory Specialist(s), Project Botanist(s) will report to the overall construction management team Mitigation Manager (Mitigation Compliance Manager), interact with the designated Resident Engineer for the Fresno to Bakersfield Section and work to provide quality assurance on the implementation of the biological resources mitigation program as performed by the Contractor and the designated Project Biological Monitor(s). It is anticipated that the Project Biologist(s),

Regulatory Specialist(s), and Project Botanist(s) will have specialized support from other biological monitors and work with the Mitigation Manager during deployment of the monitors and in performance of their respective responsibilities.

- **Project Biological Monitor:** The Project Biological Monitor(s) provided by the Design-Build Contractor will be approved by and report directly to the Project Biologist. The Project Biological Monitor 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 MMEP and compliance assurance.

These mitigation measures are based on mitigation strategies from the Statewide Program EIR/EIS, which have been refined and adapted for this proposed project. These mitigation measures will be incorporated into the MMEP and grouped by construction period impacts and project impacts. Construction period mitigation measures include all temporary impacts and effects associated with ground-disturbing activities. Project mitigation measures include all permanent impacts and effects associated with ground-disturbing activities, as well as impacts and effects from HST operation and maintenance activities.

Common Mitigation Measures for Biological Resources

The following common mitigation measures shall be implemented, as applicable, during construction period impacts and project impacts to avoid and/or minimize impacts and effects on biological resources. In addition, resource-specific mitigation measures shall be implemented to directly or indirectly avoid or minimize the impacts and effects to the specific biological resource (e.g., special-status species, habitats of concern, and wildlife movement corridor). Many of the common mitigation measures apply throughout the biological resources program and cover multiple species and habitats.

The conservation measures identified in the USFWS Biological Opinion and amendment (USFWS 2013 and 2018) and the Supplemental Biological Assessment (Authority and FRA 2017e) to avoid, minimize, and reduce potential take of species protected under the federal ESA have been incorporated into this Final EIR/EIS and include all of the common mitigation measures.

In addition, mitigation measures will be applied as described in Section 3.4, Noise and Vibration; Section 3.15, Parks, Recreation, and Open Space; and Section 3.16, Aesthetics and Visual Resources to avoid and minimize impacts and effects on biological resources. These measures are:

- N&V-MM#3. Implement Proposed California High-Speed Train Project Noise Mitigation Guidelines.
- PC-MM#1. Compensation for Staging in and Temporary Closures of Park Property During Construction.
- PP-MM#1. Acquisition of Park Property.
- AV-MM#1b. Minimize Light Disturbance during Construction.

BIO-MM #1: Designate Project Biologist(s), Regulatory Specialist (Waters), Project Botanist, and Project Biological Monitor. 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 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.

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 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 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 Management 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 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, 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 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 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: 1) Chemical vegetation control noting planned usage and 2) 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 Weed Control Plan during the construction period. The Authority will require that HST 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 Resource Management Plan. During final design, the Mitigation Manager, or its designee (Project Biologist, Regulatory Specialist or Project Botanist) will prepare the 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 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 master schedule that shows that construction of the project, Pre-construction surveys, and establishment of buffers and exclusion zones to protect sensitive biological resources.
- Specific measures for the protection of special-status species.
- Identification (on construction plans) of the locations and quantity of habitats to be avoided or removed, along with the locations where habitats are to be restored.
- 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.
- Sources of plant materials and methods of propagation.
- Identification of specific parameters consistent with mitigation ratios and permit conditions for determining the amount of replacement habitat for temporary disturbance areas.
- Specifications 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.
- Specification of performance standards for the re-established plant communities within the construction limits.
- Specification of the remedial measures to be taken if performance standards are not met (e.g., a form of adaptive management).
- 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.
- Measures to preserve topsoil and control erosion.
- Design of protective fencing around Environmentally Sensitive Areas (ESA), environmentally restricted areas, and the construction staging areas.
- Specification of the locations and quantities of gallinaceous guzzlers (catch basin/artificial watering structures) and the monitoring of water levels in them.
- Locations of trees to be protected as wildlife habitat (roosting sites) and locations for planting replacement trees.
- Specification of the purpose, type, frequency, and extent of chemical use for insect and disease control operations as part of vegetative maintenance within sensitive habitat areas.

- Specific construction monitoring programs for habitats of concern and special-status species, as needed.
- 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.
- 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 RRP for temporarily disturbed upland communities. (Site restoration will also be 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 re-grading 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.

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 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 MMEP 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.

BIO-MM #8: Wildlife Excursion Fencing. The Contractor, under the supervision of the Project 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.

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 document compliance with this measure.

BIO-MM #10: Monofilament Netting. Thirty days before and during the implementation of ground-disturbing activities, the Project Biologist will verify 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.

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.

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 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 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.

BIO-MM #13: Work Stoppage. During ground-disturbing activities, the Project Biologist, Regulatory Specialist (Waters), and Project Botanist or Project 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; work may continue in other areas. Before construction, the Contractor will obtain written permission from CDFW to capture and relocate any non-listed wildlife species (does not include domesticated animals) from within the project footprint.

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.

BIO-MM #15: Post-Construction Compliance Reports. After each construction package, construction phase, permitting phase, or other portion of the HST 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., USFWS, 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.

BIO-MM #16: Conduct Protocol-Level Pre-Construction Surveys for Special-Status Plant Species and Special Status Plant Communities. Prior to construction, 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 prior to construction. 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 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 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.

BIO-MM #22: Conduct Pre-Construction Surveys for Special Status Reptile and Amphibian Species. Before the start of ground-disturbing activities, the Project Biologist will conduct pre-construction 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.

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 species. Otherwise, the Project Biological Monitor will relocate 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.

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.

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.

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 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 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 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 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 Pre-Construction Surveys and Delineate Active Nest Exclusion Areas of Other Breeding Birds. Before the start of ground-disturbing activities, the Project Biologist will conduct visual pre-construction 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 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 Pre-Construction 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 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 compliance with this measure.

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.

BIO-MM #33: Swainson's Hawk Nest Avoidance and Monitoring. If active Swainson's hawk nests (defined as a nest used one or more times in the last 5 years) are found within 0.5-mile of the construction footprint during the nesting season (March 1 to 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.

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 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.

BIO-MM #35: Conduct Protocol Surveys for Burrowing Owl. 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 2012). 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 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.

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 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 (meters)		
		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 Pre-Construction 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 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.

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 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. The small-mammal trapping surveys will occur within the construction footprint in potentially suitable habitat for special-status small-mammal species. The trapping will be conducted before the start of construction and phased with project build-out; trapping 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 Pre-construction Surveys for Special-Status Bat Species. Thirty days 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 basis or at other appropriate intervals, to the Mitigation Manager to document compliance with this measure.

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.

BIO-MM #42: Bat Exclusion and Deterrence. During ground-disturbing activities, if non-breeding or non-hibernating individuals or groups of bats are found within the construction footprint, the 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.

BIO-MM #43: Conduct Pre-construction 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.

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.

BIO-MM #45: Conduct Protocol Level Pre-Construction Surveys for San Joaquin Kit Fox. Before the start of ground-disturbing activities, the Project Biologist will conduct pre-construction surveys in accordance with USFWS' San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999b). Pre-construction surveys for the kit fox will be conducted between May 1 and September 30 within the 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.

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.

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).

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.

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 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.

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 with flashing or slats will be maintained during operation of the HST 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 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 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:

- Identification of suitable sites to receive the listed plants.
 - 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.
 - Authority-proposed permittee-responsible mitigation sites.
 - Other locations approved by USFWS.
- 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.

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 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.

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 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.

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.

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 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.

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. 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.

BIO-MM #62: Prepare and Implement a Site-Specific Comprehensive Mitigation and Monitoring Plan. As part of the USFWS, USACE, SWRCB, and CDFW permit applications and before the start of ground-disturbing 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 values or conditions) of the compensatory mitigation project.
- Description of the proposed compensatory mitigation site.
- Maintenance activities during the monitoring period.
- Monitoring 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 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 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 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. 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 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). Regulatory compliance for jurisdictional waters includes relevant terms and conditions from the USACE 404 Permit, SWRCB 401 Permit, and CDFW 1600 Streambed Alteration Agreement. 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.
- In lieu fee contribution 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 biota, California tiger salamander, and western spadefoot toad. Where an HST alternative affects an existing conservation area (e.g., Allensworth ER), the Authority will modify the mitigation ratio to meet the 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.

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:

- 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

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 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.

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 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 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 *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 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.