

California High-Speed Rail Authority

Merced to Fresno Section: Central Valley Wye

Final Supplemental Environmental
Impact Report/Environmental Impact
Statement

Draft CEQA Findings of Fact and
Statement of Overriding Considerations

September 2020



The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by the State of California pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated July 23, 2019, and executed by the Federal Railroad Administration and the State of California.

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
μT	Microtesla
$^{\circ}\text{F}$	degrees Fahrenheit
2013 Supplemental Alternatives Analysis Report	<i>Merced to Fresno Section: Central Valley Wye Alternatives Supplemental Alternatives Analysis Report</i>
2016 Business Plan	<i>Connecting and Transforming California 2016 Business Plan</i>
AA	Assessment Area
AADT	annual average daily traffic
AB	Assembly Bill
AC	alternating current
ACGIH	American Conference of Governmental Industrial Hygienists
ACS	American Community Survey
ADL	aerially deposited lead
Authority	California High-Speed Rail Authority
BAAQMD	Bay Area Air Quality Management District
BAU	business-as-usual
Bay Area	San Francisco Bay Area
BCC	Birds of Conservation Concern
bcf/year	billion cubic feet per year
BETP	built environment treatment plan
BFE	base flood elevation
bgs	below ground surface
BMP	best management practice
BPS	best performance standards
BRMP	biological resources management plan
Btu	British thermal units
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal. Code Regs.	California Code of Regulations
Cal. Gov. Code	California Government Code
CAL FIRE	California Department of Forestry and Fire Protection
CARB	California Air Resources Board

Acronym	Definition
CAT	computed axial tomography
CCA	copper chromated arsenate
CCID	Central California Irrigation District
CDFW	California Department of Fish and Wildlife
CDOF	California Department of Finance
CDPH	California Department of Public Health
CEC	California Energy Commission
CED	California Energy Demand
CEDD	California Employment Development Department
Central Valley Wye	Merced to Fresno Project Section: Central Valley Wye
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbons
CGG	California Gas Gathering
CGS	California Geological Survey
CH ₄	methane
CHCD	California Department of Housing and Community Development
CMP	construction management plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO ₂	carbon dioxide
Conditions of Receivership	Conditions of Receivership for Paleontologic Salvage Collections
CP	construction package
CRAM	California Rapid Assessment Method
CRHR	California Register of Historical Resources
CT	computed tomography
CTP	construction transportation plan
CWD	Chowchilla Water District
cy	cubic yard
dBA	A-weighted decibels
DC	direct current
DOC	Department of Conservation

Acronym	Definition
DPM	diesel particulate matter
Draft Supplemental EIR/EIS	<i>California High-Speed Rail Merced to Fresno Section: Central Valley Wye Draft Supplemental Environmental Impact Report (EIR)/Supplemental Environmental Impact Statement (EIS)</i>
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
EA	environmental assessment
EFH	essential fish habitat
EINU	electrical interconnections and network upgrades
EIR	environmental impact report
EIR/EIS	environmental impact report/environmental impact statement
EIS	environmental impact statement
ELF	extremely low frequency
EM	electromagnetic
EMC	electromagnetic compatibility
EMFAC2014	Emission FACTors 2014
EMMA	Environmental Mitigation Management and Assessment
EO	Executive Order
ERA	environmentally restricted area
ESA	environmentally sensitive area, or environmental site assessment
FAA	Federal Aviation Administration
FBI	Federal Bureau of Investigation
FCC	Federal Communications Commission
Fed. Reg.	<i>Federal Register</i>
FESA	federal Endangered Species Act
FHWA	Federal Highway Administration
Final EIR/EIS	<i>Merced to Fresno Section Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)</i>
Final Supplemental EIR/EIS	<i>California High-Speed Rail Merced to Fresno Section: Central Valley Wye Final Supplemental Environmental Impact Report (EIR)/Supplemental Environmental Impact Statement (EIS)</i>
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FSZ	Farmland Security Zone
FTA	Federal Transit Administration

Acronym	Definition
FY	fiscal year
G	Gauss
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GC	general conformity
GHG	greenhouse gas
GHz	billion hertz
GIS	geographic information system
GO	General Order
HAP	hazardous air pollutant
HF	high frequency
HI	hazard index
HMF	heavy maintenance facility
HSR	high-speed rail
Hz	hertz
K	kindergarten
kHz	kilohertz
kV	kilovolts
L _{eq}	equivalent sound level
LID	low-impact development
LMF	light maintenance facility
LOS	level of service
m	meter
MCTC	Madera County Transportation Commission
mG	milligauss
MHz	megahertz
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	metropolitan planning organization
MRI	magnetic resonance imaging
MS4	municipal separate storm sewer system
MSAT	mobile source air toxics
MTC	Metropolitan Transportation Commission
N ₂ O	nitrous oxide
NAC	noise abatement criteria
NAIP	National Agriculture Imagery Program

Acronym	Definition
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NOD	Notice of Determination
NO _x	nitrogen oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	New Source Review
O ₃	ozone
OCS	overhead contact system
PA	Programmatic Agreement
Pb	lead
PHA	preliminary hazard analysis
PM	particulate matter
PM _{2.5}	particulate matter smaller than or equal to 2.5 microns in diameter
PM ₁₀	particulate matter smaller than or equal to 10 microns in diameter
Ppb	parts per billion
Ppm	parts per million
PRM	permittee-responsible mitigation
PRMMP	paleontological resources monitoring and mitigation plan
PRS	paleontological resources specialist
RCRA	Resource Conservation and Recovery Act
REL	reference exposure level
RF	radio frequency
Revised/Second Draft Supplemental EIR/EIS	<i>California High Speed Rail, Merced to Fresno Section, Central Valley Wye, Revised Draft Supplemental EIR/Second Draft Supplemental EIS, Biological Resources Analysis</i> (published March 2020)
RIMS II	Regional Input-Output Model
ROD	Record of Decision
ROG	reactive organic gases
RRP	Restoration and Revegetation Plan
RTP	regional transportation plans
SACOG	Sacramento Area Council of Governments
SAFE	Safer Affordable Fuel-Efficient Vehicles (Proposed) Rule
SB	Senate Bill

Acronym	Definition
Scoping Plan	Climate Change Scoping Plan
SHPO	State Historic Preservation Officer
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SPCC	spill prevention control and countermeasure
SR	State Route
SSP	system safety program
STB	Surface Transportation Board
SVP	Society of Vertebrate Paleontology
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminant
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
V	volts
VdB	vibration velocity level
VERA	Voluntary Emissions Reduction Agreement
VMT	vehicle miles traveled
VOCs	volatile organic compounds
WEAP	worker environmental awareness program
WEF	wildlife exclusion fencing

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 of the State Route (SR) 152 (North) to Road 11 Wye Alternative, the wye portion of the Merced to Fresno Project 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 Environmental Impact Report (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 SR 152 (North) to Road 11 Wye Alternative (the Preferred Alternative) for the Central Valley Wye portion of the Merced to Fresno Project Section that follows the existing Henry Miller Road and SR 152 rights-of-way in the east–west direction and the Road 11, SR 99, and BNSF Railway rights-of-way in the north–south direction. In total, the Preferred Alternative would span 51 miles. The findings described herein concern 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 (which includes record of proceedings associated with the Authority’s May 2012 approvals concerning the Merced to Fresno Project Section) is the Authority, 770 L Street, Suite 620 MS-1, Sacramento, California 95814, (916) 324-1541.

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2 PROJECT DESCRIPTION

2.1 Merced to Fresno Project 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 at 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 positive train control functions and 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 HSR system, including the Merced to Fresno Project Section.

In 2012, the Authority and FRA completed the *Merced to Fresno Section California High-Speed Rail Final EIR/EIS* (Final EIR/EIS; Authority and FRA 2012a), the CEQA and National Environmental Policy Act (NEPA) project-level analysis of HSR alignments and associated facilities from Merced to Fresno. On May 3, 2012, the Authority Board of Directors certified the Final EIR/EIS under CEQA (Resolution #HSRA 12-19) and approved the Hybrid Alignment as the north/south alignment for the Merced to Fresno Project Section, along with the Downtown Merced and Downtown Fresno Mariposa Street station locations (Resolution #HSRA 12-20). Although the Final EIR/EIS fully studied two alternatives for the “wye” portion of the Merced to Fresno Project Section, the Authority Board of Directors deferred a decision on the “wye” portion of the alignment, to allow for further consideration and analysis of wye alternatives. FRA made similar decisions in its September 2012 Record of Decision.

As further set forth in Chapter 6, Feasibility of Potential Alternatives, of this document, the Authority and FRA considered 17 different alignment alternatives for the Central Valley Wye, as published in several alternatives analysis documents. Following consultation with the public and with agencies of interest, the Authority and FRA eventually decided to carry forward four alignment alternatives for analysis in a supplement to the 2012 Final EIR/EIS.

On May 3, 2019, the Authority published the *Merced to Fresno Section: Central Valley Wye Draft Supplemental EIR/EIS* (Draft Supplemental EIR/EIS) for a 48-day public review period pursuant to CEQA (Authority 2019a). In the Draft Supplemental EIR/EIS, the Authority identified the SR 152 (North) to Road 11 Wye Alternative as the Preferred Alternative. Figure 2 depicts the Preferred Alternative.

Following the July 2019 execution of a Memorandum of Understanding (MOU) between FRA and the State of California, the Authority, acting as lead federal agency, published the Draft Supplemental EIR/EIS for a 45-day public review under NEPA (Authority 2019a). The NEPA public review period began on September 13, 2019, and ended on October 28, 2019.

In March 2020, the Authority published the *Merced to Fresno Section: Central Valley Wye Revised Draft Supplemental EIR/Second Draft Supplemental EIS, Biological Resources Analysis*

¹ “Intercity rail passenger transportation” is defined at 49 United States Code (U.S.C.) Section 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 (round trips) 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. Section 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.”

(Revised/Second Draft Supplemental EIR/EIS) (Authority 2020a) pursuant to both CEQA and NEPA for a 45-day review period between March 13, 2020, and April 27, 2020. This document was limited to making updates to the text of the biological resources analysis, reflecting additional background information, impacts, and mitigation measures associated with a candidate species for State of California special status and listed for such status following publication of the Draft Supplemental EIR/EIS.

On August 7, 2020, the Authority published the *Merced to Fresno Section: Central Valley Wye Final Supplemental EIR/EIS* (Final Supplemental EIR/EIS) pursuant to both CEQA and NEPA. The Final Supplemental EIR/EIS is a “full” document in that it includes the text of the Draft Supplemental EIR/EIS and the Revised/Second Draft Supplemental EIR/EIS, revisions to that text as described therein, comments received on these documents, and responses to those comments.



Figure 1 California HSR System

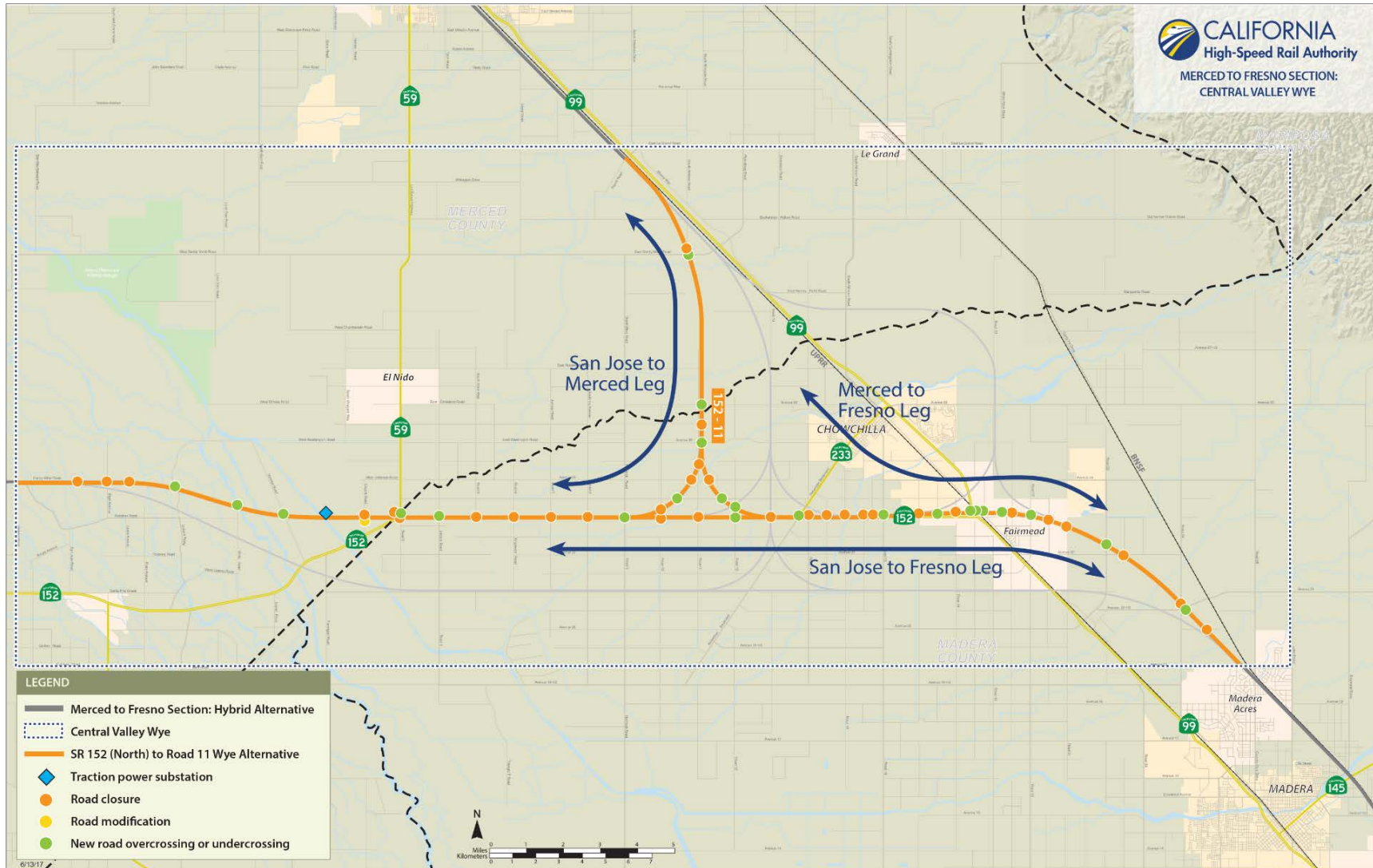


Figure 2 Preferred Alternative for the Central Valley Wye (SR 152 [North] to Road 11 Wye)

2.1.1 Description of the Preferred Alternative – SR 152 (North) to Road 11 Wye

As depicted on Figure 1, the Preferred Alternative connects with the previously approved north/south alignment of the Merced to Fresno Project Section to the east and thereby completes the project section.

As depicted in Figure 2 and described in further detail within the Final Supplemental EIR/EIS in Chapter 2, Alternatives, the Preferred Alternative would extend approximately 51 miles, mostly at grade on raised embankment, although it would also have several aerial structures over roads and waterways.

The wye configuration of this alternative would be located west-southwest of the city of Chowchilla, with the east–west axis along the north side of SR 152 and the north–south axis on the east side of Road 11.

The alignment of the Preferred Alternative would begin at the intersection of Henry Miller Road and Carlucci Road in Merced County and continue east, crossing the San Joaquin River, Eastside Bypass, and SR 59. The alignment would continue east at grade along the north side of SR 152 toward Chowchilla, splitting into two legs (four tracks) near Road 10. Two tracks would turn north toward Merced and two would continue west toward SR 99 and then south toward Fresno.

In addition to alignment construction, the Preferred Alternative includes electrical interconnections and network upgrades consisting of a traction power substation, switching station facilities, and upgrades to electrical lines, as further described in the Final Supplemental EIR/EIS.

2.1.2 Impact Avoidance and Minimization Features

In consultation with appropriate federal and state agencies, the Authority has developed a set of standardized impact avoidance and minimization features that it is applied to the statewide HSR system. The Preferred Alternative incorporates these impact avoidance and minimization features, as identified in Appendix 2-B of the Final Supplemental EIR/EIS. As a result of applying these measures, the Preferred Alternative will avoid significant adverse environmental impacts in several resource areas and will reduce adverse environmental impacts in other areas. These measures are part of the Preferred Alternative, and thus are mandatory elements that must be implemented by the Authority during design, construction, and operation of the Preferred Alternative.

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

- Transportation – Sections 3.2.2 and 3.2.4.2
- Air Quality and Global Climate Change – Sections 3.3.2 and 3.3.4.2
- Noise and Vibration – Sections 3.4.2 and 3.4.4.3
- Electromagnetic Fields and Electromagnetic Interference – Sections 3.5.2 and 3.5.4.2
- Public Utilities and Energy – Sections 3.6.2 and 3.6.4.2
- Biological Resources and Wetlands – Sections 3.7.2 and 3.7.5.2
- Hydrology and Water Resources – Sections 3.8.2 and 3.8.4.2
- Geology, Soils, Seismicity, and Paleontological Resources – Sections 3.9.2, 3.9.4.1, and 3.9.4.2
- Hazardous Materials and Wastes – Sections 3.10.2 and 3.10.4.2
- Safety and Security – Sections 3.11.2 and 3.11.4.2

- Socioeconomics and Communities – Sections 3.12.2 and 3.12.4.2
- Land Use and Development – Sections 3.13.2 and 3.13.4.2
- Agricultural Resources and Farmlands – Sections 3.14.2 and 3.14.4.2
- Parks and Recreation – Sections 3.15.2 and 3.15.4.2
- Aesthetics and Visual Resources – Sections 3.16.2 and 3.16.4.2
- Cultural Resources – Sections 3.17.2 and 3.17.5.2

These impact avoidance and minimization features are enforceable components of the project. Their implementation will be monitored and reported on in conjunction with project monitoring.

3 FINDINGS ON THE UTILIZATION OF A SUPPLEMENTAL EIR/EIS FOR THE CENTRAL VALLEY WYE

CEQA Guidelines Section 15163 provides for a lead agency to utilize a supplement to a previously certified EIR to address proposed project changes if the additions needed to make the prior EIR adequate are minor. A supplement to the prior EIR need contain only the information necessary to make the prior EIR adequate, and the lead agency can circulate the supplement without recirculating the prior final EIR. The Authority makes the following findings of fact related to its use of a supplement to the Final EIR/EIS:

- The Authority approved the north/south alignment of the Merced to Fresno Project Section and the downtown Merced and downtown Fresno Mariposa Street station locations in May 2012, but deferred a decision on the wye to allow for further consideration and analysis of alternatives;
- The Authority commenced construction on the north/south alignment of the Merced to Fresno Project Section in January 2015;
- Construction is now underway on the north/south alignment of the Merced to Fresno Project Section between Avenue 19 in Madera County (north of Madera Acres) and Fresno;
- The Authority is not revisiting its 2012 decisions on the Merced to Fresno Project Section or making any new discretionary decisions related to the north/south alignment of the Merced to Fresno Project Section or the Merced or Fresno station locations at this time;
- The Central Valley Wye alternatives evaluated in the Final Supplemental EIR/EIS connect to the previously approved north/south alignment of the Merced to Fresno Project Section as illustrated on Figure 2;
- The Supplemental EIR/EIS provides added focus on and detail about the impacts of the Central Valley Wye alternatives in Madera and Merced counties;
- The Supplemental EIR/EIS has provided additional opportunities for public engagement and comment on this unique and important portion of the Merced to Fresno Project Section; and
- Use of a subsequent EIR that evaluated the Central Valley Wye alternatives and also repeated the analysis of the approved north/south alignment and Merced and Fresno stations would have detracted from the purpose of evaluating the Central Valley Wye alternatives and created public confusion.

Based on these facts, the Authority finds that the utilization of a supplement to the Final EIR/EIS pursuant to CEQA Guidelines Section 15163 is the appropriate environmental analysis document under the unique circumstances of the Merced to Fresno Project Section and served CEQA's information disclosure purposes.

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4 FINDINGS ON SPECIFIC IMPACTS AND MITIGATION MEASURES

The environmental effects of the Preferred Alternative that would be significant under CEQA are described in Chapter 3 of Volume I of the Final Supplemental EIR/EIS. 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/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 Final Supplemental EIR/EIS. In adopting these findings and mitigation measures, the Authority also adopts a Statement of Overriding Considerations. The Statement of Overriding Considerations (Chapter 7, Statement of Overriding Considerations) describes the economic, social, and other benefits of the Preferred Alternative that will render these significant unavoidable environmental impacts acceptable.

CEQA Guidelines Section 15163, subdivision (e), requires that the findings below include a finding for each significant effect shown in the previous EIR as revised by the supplemental EIR. Due to the limited geographic focus of the Final Supplemental EIR/EIS, numerous significant impacts discussed in the Final EIR/EIS were attributable only to the north/south alignment (Hybrid Alternative) and the Merced and Fresno stations.

To the extent required by section 15163(e), the Authority hereby affirms its prior findings as adopted in Resolution #HSRA 12-20 for those significant impacts identified in the 2012 Final EIR/EIS that are not revised by the Supplemental EIR/EIS, but does not repeat them here. For clarity, a table of those previous impact findings that are not revised by the Supplemental EIR/EIS is included as Attachment B, Significant Impacts from the Final EIR/EIS that are Not Revised by the Final Supplemental EIR/EIS, to these findings.

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, as described in the Final Supplemental EIR/EIS and Final EIR/EIS include:

- Transportation
- Air Quality and Global Climate Change
- Noise and Vibration
- Electromagnetic Fields and Electromagnetic Interference*
- Public Utilities and Energy
- Biological Resources and Wetlands
- Hydrology and Water Resources*
- Geology, Soils, Seismicity, and Paleontological Resources*
- Hazardous Materials and Wastes
- Safety and Security
- Socioeconomics and Communities
- 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 both the Final Supplemental EIR/EIS and Final EIR/EIS were identified as less than significant without mitigation or beneficial are designated by an asterisk (*).

4.1 Transportation (Section 3.2 in the Final Supplemental EIR/EIS and Final EIR/EIS)

The Final EIR/EIS identified that the Hybrid Alternative with either the Avenue 21 or Avenue 24 wye design options would require permanent road closures that would potentially lead to property access issues in the Chowchilla and Madera areas. This impact, TR #1, was identified as significant because of the potential property access issues (See Final EIR/EIS, pp. 3.2-48 to 3.2-49). The Authority adopted TR-MM# 1, which requires access maintenance for property owners or provision of alternative access. The Authority made a finding that the impact would be reduced to a less-than-significant level.

The Final Supplemental EIR/EIS revises this impact discussion in Impact TR# 11: Permanent Loss of Property Access (See Final Supplemental EIR/EIS, pp. 3.2-43 to 3.2-44). The Preferred Alternative would result in the permanent loss of property access to one parcel. The impact is less than significant because the design of the Preferred Alternative requires either the provision of access to the parcel as part of final design, or alternatively that the Authority would acquire the parcel, thereby eliminating the access issue. Therefore, the impact does not lead to either inadequate emergency access or a hazard, which would be characterized as a significant impact (2012 CEQA Findings of Fact, p. 3-2). Because the impact as revised in the Final Supplemental EIR/EIS is less than significant, no finding is required.

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

Once operational, the Preferred Alternative would have a beneficial effect on air quality and greenhouse gas (GHG) emissions (see Impacts AQ #8 and AQ #9 in Section 3.3 of the Final Supplemental EIR/EIS and pages 3.3-45 to 56, describing criteria pollutant and GHG emissions reductions from HSR operations). The Preferred Alternative incorporates standardized impact avoidance and minimization features that reduce emissions associated with construction; however, significant air quality impacts will occur. Implementation of the mitigation measures required for the Preferred Alternative will reduce these impacts to a less-than-significant level.

4.2.1 Impact AQ #1: Temporary Direct Impacts on Air Quality within the San Joaquin Valley Air Basin

Construction of the Preferred Alternative would result in an exceedance of the San Joaquin Valley Air Pollution Control District's (SJVAPCD) CEQA thresholds for emissions of nitrogen oxide (NO_x) and particulate matter less than 10 microns in diameter (but larger than 2.5 microns)(PM₁₀). Table 3.3-16 of the Final Supplemental EIR/EIS details mass emissions from construction of the Preferred Alternative. This analysis is consistent with the discussion and conclusions in Impact AQ #1 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.3-40 to 3.3-42, 3.3-76, 3.3-78).

The Final EIR/EIS disclosed potential impacts prior to mitigation for the criteria pollutants NO_x and volatile organic compounds (VOC). As noted above, in the Final Supplemental EIR/EIS, construction of the Preferred Alternative would result in significant emissions of criteria pollutants NO_x and PM₁₀ (prior to mitigation). Several factors have contributed to the PM₁₀ exceedance disclosed in the Final Supplemental EIR/EIS that had not been observed in the Final EIR/EIS. In the Final Supplemental EIR/EIS, the study area extends 13 miles further west than the study area used in the Final EIR/EIS. In addition, there have been changes to the construction schedule, quantities, and emissions estimation methodologies since issuance of the Final EIR/EIS that are reflected in the analysis and conclusions of the Final Supplemental EIR/EIS.

Notwithstanding, in both the Final EIR/EIS and the Final Supplemental EIR/EIS, potential impacts after mitigation would be less than significant.

Implementation of the following mitigation measures would minimize pollutants generated during construction of the Preferred Alternative and offset actual emissions to net zero. (Because of length, mitigation measure text is presented separately in Attachment A, Mitigation Measures, to these CEQA findings.)

- **AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment**
- **AQ-MM #2: Reduce Criteria Exhaust Emission from On-Road Construction Equipment**
- **AQ-MM #3: Reduce the Potential Impact of Concrete Batch Plants**
- **AQ-MM #4: Offset Project Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement (VERA)**

Mitigation Measure AQ-MM #1 would be effective at reducing emissions from off-road construction equipment at the construction site; however, this measure would be capable of reducing emissions only to the extent that is feasible under current technology. The success of this mitigation would hinge on the availability of newer and cleaner equipment and the contractor's efforts to obtain the equipment. By requiring documentation of the contractor's efforts, the Authority would hold contractors accountable if they failed to show reasonable effort in acquiring cleaner equipment.

Mitigation Measure AQ-MM #2 would be effective at reducing emissions from on-road construction vehicles; however, this measure would be capable of reducing emissions only to the extent that is feasible under current technology. The success of this mitigation would hinge on the availability of the current calendar year's fleet mix and the contractor's efforts to obtain the equipment. By requiring documentation of the contractor's efforts, the Authority would be able to hold contractors accountable if they failed to show reasonable effort in acquiring such fleet mix.

Mitigation Measure AQ-MM #3 would be effective at reducing emissions from concrete batch plants; however, this measure would be capable of reducing emissions through control measures only to the extent that is feasible under current technology. Establishing a buffer between sensitive receptors and concrete plants would further reduce the potential for particulate matter to migrate from the plant to the sensitive receptors.

With implementation of Mitigation Measures AQ-MM #1, AQ-MM #2, and AQ-MM #3, regional construction phase emissions of NO_x and PM₁₀ for certain years could still be greater than applicable thresholds. These construction phase emissions would be offset through the implementation of AQ-MM #4.

Mitigation Measure AQ-MM #4 would be effective in offsetting emissions generated during construction of the Preferred Alternative through the funding of emission-reduction projects. The Authority has been utilizing this mitigation measure for construction of HSR in the San Joaquin Valley Air Basin (SJVAB), and the SJVAPCD has effectively implemented the construction offset program described in its MOU with the Authority (Authority and SJVAPCD 2014). It is anticipated that sufficient offsets are available from the SJVAPCD, and this measure would be fully effective at reducing emissions to net zero (Authority and SJVAPCD 2014).

The Authority finds that Mitigation Measures AQ-MM #1, AQ-MM #2, AQ-MM #3, and AQ-MM #4 are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the Preferred Alternative's construction NO_x and PM₁₀ impacts to less-than-significant levels.

4.2.2 Impact AQ #2: Temporary Direct Impacts on Implementation of an Applicable Air Quality Plan

Construction of the Preferred Alternative would result in an exceedance of SJVAPCD's CEQA thresholds for NO_x and PM₁₀ emissions, which could conflict with the SJVAPCD's ozone and PM₁₀ plans. A conflict with or obstructing the implementation of an applicable air quality plan is a significant impact. This analysis is consistent with the discussion and conclusions in AQ #3 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information

and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.3.42, 3.3-78). The Final EIR/EIS disclosed a conflict with the ozone plan as a potential impact prior to mitigation. The Final Supplemental EIR/EIS discloses a conflict with the ozone plan and PM₁₀ plan as a potential impact prior to mitigation. This difference is a result of the Final Supplemental EIR/EIS having a study area that extends 13 miles further west than the study area used in the Final EIR/EIS as well as changes to the construction schedule, quantities, and emissions estimation methodologies. Both the 2012 Final EIR/EIS and the Final Supplemental EIR/EIS include mitigation that reduce to a less-than-significant level all conflicts with all state implementation plan elements. Thus, in the Final Supplemental EIR/EIS, no new impacts would occur after mitigation.

Emissions from construction of the Preferred Alternative would be temporary, occurring for approximately 5 years for the majority of construction and over a 2- to 3-year timeframe for electrical interconnections and network upgrade elements. Construction activities would generate emissions of multiple pollutants from the operation of heavy-duty construction equipment. NO_x emissions are anticipated to exceed relevant thresholds for 4 years, and PM₁₀ emissions are anticipated to exceed the SJVAPCD threshold for 3 years.

Implementation of the following mitigation measures would minimize pollutants generated during construction of the Preferred Alternative and offset actual emissions to net zero. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment

AQ-MM #2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment

AQ-MM #3: Reduce the Potential Impact of Concrete Batch Plants

AQ-MM #4: Offset Project Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement (VERA)

Mitigation Measure AQ-MM #1 would be effective at reducing emissions from off-road construction equipment at the construction site; however, this measure would be capable of reducing emissions only to the extent that is feasible under current technology. The success of this mitigation would hinge on the availability of newer and cleaner equipment and the contractor's efforts to obtain the equipment. By requiring documentation of the contractor's efforts, the Authority would hold contractors accountable if they failed to show reasonable effort in acquiring cleaner equipment.

Mitigation Measure AQ-MM #2 would be effective at reducing emissions from on-road construction vehicles; however, this measure would be capable of reducing emissions only to the extent that is feasible under current technology. The success of this mitigation would hinge on the availability of the current calendar year's fleet mix and the contractor's efforts to obtain the equipment. By requiring documentation of the contractor's efforts, the Authority would be able to hold contractors accountable if they failed to show reasonable effort in acquiring such fleet mix.

Mitigation Measure AQ-MM #3 would be effective at reducing emissions from concrete batch plants; however, this measure would be capable of reducing emissions through control measures only to the extent that is feasible under current technology. Establishing a buffer between sensitive receptors and concrete plants would further reduce the potential for particulate matter to migrate from the plant to the sensitive receptors.

With implementation of Mitigation Measures AQ-MM #1, AQ-MM #2, and AQ-MM #3, regional construction phase emissions of NO_x and PM₁₀ for certain years could still be greater than applicable thresholds. These construction phase emissions would be offset through the implementation of Mitigation Measure AQ-MM #4.

Mitigation Measure AQ-MM #4 would be effective in offsetting emissions generated during construction of the Preferred Alternative through the funding of emission-reduction projects. The Authority has been utilizing this mitigation measure for construction of HSR in the SJVAB, and the

SJVAPCD has effectively implemented the construction offset program described in its MOU with the Authority (Authority and SJVAPCD 2014). It is anticipated that sufficient offsets are available from the SJVAPCD, and this measure would be fully effective at reducing emissions to net zero.

The Authority finds that Mitigation Measures AQ-MM #1, AQ-MM #2, AQ-MM #3, and AQ-MM #4 are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the Preferred Alternative's construction NO_x and PM₁₀ impacts to less-than-significant levels, and thereby avoid the conflict with the SJVAPCD's ozone and PM₁₀ plans, rendering the impact less than significant.

4.2.3 Impact AQ #3: Temporary Indirect Impacts on Air Quality outside the SJVAB

Construction of the Preferred Alternative would require material hauling activities within the San Francisco Bay Area Air Basin at levels that would generate emissions that would exceed the Bay Area Air Quality Management District's (BAAQMD) CEQA threshold for NO_x. Therefore, the Preferred Alternative would contribute a significant level of regional NO_x pollution within the San Francisco Bay Area Air Basin and conflict with the BAAQMD's Ozone Attainment Plan and 2017 Clean Air Plan. The impact is therefore significant under CEQA. This analysis is consistent with the discussion and conclusions in Impact AQ #2 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section. In addition, the discussion revises the prior analysis by considering hauling within the San Francisco Bay Area Air Basin only, and eliminates consideration of hauling within the South Coast Air Basin that was considered in the Final EIR/EIS (See Final Supplemental EIR/EIS, p. 3.3-23; Final EIR/EIS, pp. 3.3-42, 3.3-76, 3.3-78).

The Final EIR/EIS stated that the South Coast Air Basin was a potential source for ballast and sub-ballast construction materials. Based on information available to the Authority in preparation of the Final Supplemental EIR/EIS, sources of ballast and sub-ballast construction materials located in the South Coast Air Basin area are no longer considered viable.

Construction activities would require hauling material from locations in the San Francisco Bay Area Air Basin to various construction sites around the Preferred Alternative. Hauling impacts on air quality were evaluated for six hauling scenarios, representing combinations of supplies from the different quarries and different methods of hauling (either by truck to the nearest railhead and railway for the remainder of the distance or by truck the entire distance). Air quality impacts were identified for all six hauling scenarios as a result of emissions generated by the diesel trucks and train engines used to move material to the construction sites for the Preferred Alternative.

Implementation of the following measure mitigates this impact:

AQ-MM #5: Purchase Offsets and Off-Site Emission Mitigation for Emissions Associated with Hauling Ballast Material in Certain Air Districts

Mitigation Measure AQ-MM #5 would be effective in offsetting emissions generated from material hauling outside of the SJVAB during construction of the Preferred Alternative through the purchase of offsets to achieve conformity or result in NO_x generation below the applicable CEQA threshold. It is anticipated that sufficient offsets are available from the BAAQMD; this measure would be fully effective at reducing emissions to below thresholds, and therefore fully effective at avoiding conflicts with the BAAQMD 2017 Clean Air Plan.

The Authority finds that Mitigation Measure AQ-MM #5 is required under the Preferred Alternative and would reduce the Preferred Alternative's potential regional air quality impact related to material hauling outside the SJVAB to less-than-significant levels. This would avoid conflicts with the BAAQMD 2017 Clean Air Plan, rendering the impact less than significant.

4.2.4 Final EIR/EIS Impact AQ #4: Localized Impacts from Concrete Batch Plans

The Final EIR/EIS identified that alignment construction could expose sensitive receptors to substantial pollutant concentrations from concrete batch plants, a significant impact. The Final EIR/EIS addressed concrete batch plant emissions as a separate impact from other construction-related emissions. Mitigation Measure AQ-MM #3 in the Final EIR/EIS reduced the impact from concrete batch plants to a less-than-significant level by requiring concrete batch plants to be located at least 1,000 feet from sensitive receptors, reducing the impact to a less-than-significant level (Final EIR/EIS, pp. 3.3-44 to 3.3-45, 3.3-78).

The Final Supplemental EIR/EIS assessed the potential for construction-related activities, including concrete batch plants, to result in substantial pollutant concentrations within the SJVAB in Impacts AQ #1 and AQ #2. In contrast to the Final EIR/EIS, the Final Supplemental EIR/EIS does not assess concrete batch plants separately. The analysis of Impacts AQ #1 and AQ #2 in the Final Supplemental EIR/EIS references multiple mitigation measures to reduce these impacts, including AQ-MM #3, which did not change substantially between the Final EIR/EIS and the Final Supplemental EIR/EIS.

The Authority finds that with the application of Mitigation Measure AQ-MM #3, concrete batch plants associated with the Central Valley Wye would be sited at least 1,000 feet from sensitive receptors, thereby reducing substantial pollutant concentrations in the immediate vicinity of sensitive receptors, rendering the air quality impact of such batch plants to a less-than-significant level.

4.3 Noise and Vibration (Section 3.4 in the Final Supplemental EIR/EIS and Final EIR/EIS)

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

4.3.1 Impact NV #1: Temporary Exposure of Sensitive Receptors to Construction Noise

The FRA noise criteria (as shown in Table 3.4-5) for residential uses are 80 A-weighted decibels (dBA) for daytime noise levels for the 8-hour equivalent sound level and 70 dBA for nighttime noise levels. As shown in Table 3.4-12 in the Final Supplemental EIR/EIS, noise levels from construction of the Preferred Alternative would exceed these criteria, resulting in daytime noise impacts on 66 single-family residences and nighttime impacts on 101 single-family residences. Accordingly, construction noise impacts from the Preferred Alternative are significant under CEQA.

Construction of the Preferred Alternative would require the use of mechanical equipment, including hand-held pneumatic tools, scrapers, bulldozers, dump trucks, and tie and rail equipment, that could generate temporary increases in noise over a period of 1 to 3 years at any given location along the rail alignments or along local roads that provide access to the project footprint. These activities would result in the transmission of construction noise on a periodic and temporary basis and an increase in ambient noise levels in locations where construction of the Preferred Alternative would occur in proximity to sensitive receptors. Noise impacts would occur during construction activities and would cease after construction is complete.

This analysis is consistent with the analysis in the Final EIR/EIS, Impact N&V #1: Construction Noise, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.4-30 to 3.4-31, 3.4-62).

Implementation of the following measure mitigates this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

NV-MM #1: Construction Noise Mitigation

NV-MM #1 in the Final EIR/EIS was revised in the Final Supplemental EIR/EIS to add additional specificity regarding compliance with applicable noise limits, the addition of provisions for a “hotline” for the public to report noise complaints, and the addition of annual reporting requirements. Mitigation Measure NV-MM #1 would be effective in minimizing noise impacts at nearby sensitive receptors because it provides a range of feasible and effective noise-reducing features that can be implemented during construction to ensure adherence to FRA construction noise limits, while providing flexibility for the contractor to select the approaches to meet the noise limits.

The Authority finds that Mitigation Measure NV-MM #1 is required under the Preferred Alternative and that implementation of this mitigation measure would reduce construction noise below the FRA construction noise limits; therefore, this impact would be reduced to a less-than-significant level.

4.3.2 Impact NV #4: Permanent Traffic-Generated Noise from Realigned State Highways and Local Roads

Two sensitive receptors (single-family residences) would experience a permanent increase in noise levels where roadway realignments would move traffic noise sources closer toward the sensitive receptors. Traffic on these realigned roads near these residences would permanently increase ambient noise levels and potentially expose people to noise levels that would approach or exceed the Federal Highway Administration (FHWA) Noise Abatement Criteria, which would be a significant impact.

State and local roadways would be realigned under the Preferred Alternative, bringing traffic closer to sensitive receptors, including single-family residences. A section of SR 152 up to 1.25 miles in length would be realigned to the south to accommodate the Preferred Alternative and new overcrossings. In most instances, this realignment would not result in impacts on sensitive receptors from traffic noise. For residences on the north side of this portion of SR 152, the roadway would be farther away, and traffic noise would diminish relative to existing conditions. Almost all residences on the south side of SR 152 that fall within the distance where they could experience noise levels above FHWA Noise Abatement Criteria are presently very close to the road, and all but two would be removed during construction. Therefore, only two sensitive receptors would remain that would experience an increase in traffic noise following realignment of this portion of SR 152.

This analysis augments the discussion in Final EIR/EIS Section 3.4 by providing a more detailed evaluation of traffic noise from relocated state highways and local roads in the area of the Central Valley Wye (Final EIR/EIS, p. 3.4-45).

The following measure would lessen but not fully avoid this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

NV-MM #3: Implement Proposed California High-Speed Rail Project Noise and Vibration Mitigation Guidelines

Mitigation Measure NV-MM #3 would be effective in reducing the impact from traffic noise as a result of realigned roadways moving vehicular traffic closer to the sensitive receptors through the use of building sound insulation, that would reduce the noise effects on the interior of the residences, but not in outdoor spaces.

The Authority’s Noise and Vibration Mitigation Guidelines provide the following criteria, among others, for evaluating the reasonableness of noise barriers as mitigation for severe noise impacts: The minimum number of affected sites should be 10, and the length of a noise barrier should be at least 800 feet unless there are special circumstances that will be studied on a case-by-case basis. The Noise and Vibration Mitigation Guidelines also describe factors required to determine

the cost effectiveness of noise barriers: the unit construction cost and the number of benefitted receptors. The general assumed cost for constructing a noise barrier along an at-grade portion of the highway is estimated to be \$70.00 per square foot, and the total cost of mitigation cannot exceed \$95,000 per benefitted receptor.

The noise barrier component of NV-MM #3 is not considered reasonable or feasible mitigation for this impact because they would only benefit a single sensitive receptor in each location and therefore would not meet the minimum of 10 benefitted receptors in the Authority's Noise and Vibration Mitigation Guidelines. Moreover, because the noise barriers would only benefit a single sensitive receptor in each location and must be constructed at least 800 feet in length, construction costs would exceed \$95,000 per benefitted receptor.

The Authority finds that Mitigation Measure NV-MM #3 is required in the Preferred Alternative and that the building sound insulation component would reduce the project's impact on sensitive receptors as a result of exposure to traffic-related noise; however, the impact would remain significant. The Authority finds that there are no other feasible mitigation measures or alternatives that could be adopted to reduce the remaining traffic-related noise 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 approval of the Preferred Alternative.

4.3.3 Impact NV #5: Intermittent Permanent Exposure of Sensitive Receptors to Noise from HSR Operations

Operations of the Preferred Alternative would generate noise levels above existing ambient levels, exposing 35 single-family residences to noise levels categorized as a severe impact as established by the FRA for high-speed ground transportation. This is considered a significant impact under CEQA. The level of operational noise would depend on the number of trains per day, speed of the trains, track configuration, and receptor distance to the tracks. This analysis is consistent with the analysis in the Final EIR/EIS, Impact N&V #3: Severe Operational Noise Impacts, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.4-32, to 3.4-39 to 3.4-40, 3.4-62).

The following measures would lessen but not fully avoid this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

NV-MM #2: Additional Noise Analysis during Final Design

NV-MM #3: Implement Proposed California High-Speed Rail Project Noise and Vibration Mitigation Guidelines

NV-MM #4: Vehicle Noise Specification

Mitigation Measure NV-MM #2 would be effective because it would provide detailed operational noise information that would inform potential refinements to the final design and mechanisms to monitor changes by reviewing the report prepared during the final design. In addition, it could provide information that would lead to the development of additional mitigation measures or modifications to existing ones.

Mitigation Measure NV-MM #3 would be effective in reducing the impact from train operations through the use of building sound insulation for sensitive receptors subject to severe noise impacts. Sound levels would be reduced on the interior of residences, but not the exterior. The Authority's Noise and Vibration Mitigation Guidelines provide the following criteria, among others, for evaluating the reasonableness of noise barriers as mitigation for severe noise impacts: The minimum number of affected sites should be 10, and the length of a noise barrier should be at least 800 feet unless there are special circumstances that will be studied on a case-by-case basis. The Noise and Vibration Mitigation Guidelines also describe factors required to determine the cost effectiveness of noise barriers: the unit construction cost and the number of benefitted

receptors. The general assumed cost for constructing a noise barrier along an at-grade portion of the highway is estimated to be \$70.00 per square foot, and the total cost of mitigation cannot exceed \$95,000 per benefitted receptor.

The noise barrier component of NV-MM #3 is not considered reasonable or feasible mitigation for this impact because they would only benefit a single sensitive receptor in each location, and therefore would not meet the minimum of 10 benefitted receptors in the Authority's Noise and Vibration Mitigation Guidelines. Moreover, because the noise barriers would only benefit a single sensitive receptor in each location and must be constructed at least 800 feet in length, construction costs would exceed \$95,000 per benefitted receptor.

Mitigation Measure NV-MM #4 has the potential to result in noise level reduction based on the selection of train sets that meet more stringent noise emissions guidelines.

The Authority finds that Mitigation Measures NV-MM #2, NV-MM #3, and NV-MM #4 are included in the Preferred Alternative and would reduce the Preferred Alternative's impact on sensitive receptors as a result of exposure to noise generated by the operations of trains; however, the impact would remain significant. The Authority finds that there are no other feasible mitigation measures or alternatives that could be adopted to reduce the remaining HSR operations noise impacts to a less-than-significant level. 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 approval of the Preferred Alternative.

4.3.4 Final EIR/EIS Impact N&V #2: Construction Vibration

The Final EIR/EIS identified that the Merced to Fresno Project Section could have significant vibration impacts during construction if pile driving were utilized, because there was potential to exceed the applicable thresholds if piling is 25 to 50 feet from buildings. The Final EIR/EIS identified Mitigation Measure N&V-MM #2, which the Authority adopted through Resolution #HSRA 12-20, requiring documentation of condition and repair of buildings within 50 feet of construction (Final EIR/EIS, pp. 3.4-31 to 3.4-32, 3.4-48, 3.4-62). The Final Supplemental EIR/EIS revises this analysis by explaining that the Authority has incorporated N&V-IAMF#1 into the Preferred Alternative, which will effectively prevent vibration exceeding applicable thresholds and corollary building damage or annoyance. The impact is therefore less than significant (Final Supplemental EIR/EIS, pp. 3.4-27 to 3.4-28). Because the prior impact, as revised in the Final Supplemental EIR/EIS for the Preferred Alternative, is less than significant, no finding is required.

4.4 Public Utilities and Energy (Section 3.6 in the Final Supplemental EIR/EIS and Final EIR/EIS)

The Final EIR/EIS identified that roadway realignments associated with the Hybrid Alternative would conflict with an electrical substation northeast of the city of Madera as shown in Final EIR/EIS Figure 3.6-6, and would potentially conflict with an electrical substation along the Avenue 21 wye. The Final EIR/EIS identified that conflict with a fixed facility like an electrical substation as a significant impact. The Authority adopted Mitigation Measure PUE-MM #1 to avoid the conflict caused by the Hybrid Alternative, and PUE-MM #2 to move the substation along the Avenue 21 wye and eliminate the conflict. The Authority previously made a finding that these two mitigation measures reduced the impact to less than significant under CEQA by eliminating the conflict (2012 CEQA findings, pp. 3-25 and 3-26).

The Final Supplemental EIR/EIS does not revise PUE-MM #1 as to the electrical substation associated with the previously approved Hybrid Alternative. Only to the extent required by CEQA, the Authority reaffirms its prior finding.

As described in Table 3.6-7 of the Final Supplemental EIR/EIS, the Preferred Alternative avoids the conflict with the electrical substation associated with the Avenue 21 to Road 13 Wye Alternative, and thereby avoids a significant impact. No further finding is therefore required.

4.5 Biological Resources (Section 3.7 in the Final Supplemental EIR/EIS and Final EIR/EIS)

These findings address impacts associated with the Preferred Alternative.

Construction Impacts

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

Up to 39 special-status plant species have the potential to occur in the footprint of the Preferred Alternative and as a result may be directly affected by construction of the Preferred Alternative. Table 3.7-12 of the Final 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.

Direct impacts from construction may result from permanent ground-disturbing activities, including construction of the track, access roads, road crossings, and buildings that may directly affect 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.

Substantial adverse effects on special-status plant species and habitats suitable for special-status plant species during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #1c: Conduct Protocol-Level Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts on Aquatic Resources

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, Enhancement, or Creation on Mitigation Sites

BIO-MM #43: Compensate for Impacts on Listed Plant Species

The Authority will avoid and minimize impacts on 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 and commonly used on large infrastructure projects to reduce impacts on special-status plant species.

Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect environmentally sensitive areas (ESA). Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. BIO-MM #1c would require surveys to identify special-status plants that were not identified in areas where permission to enter was not granted prior to construction, potentially allowing for some level of avoidance of special-status plant

species. BIO-MM #2a requires development of a Restoration and Revegetation Plan (RRP) that would outline various restoration procedures, and BIO-MM #2b would allow for the removal of special-status plant species prior to disturbance. BIO-MM #3a and BIO-MM #3b would allow for habitat restoration and preservation for special-status plant species.

Mitigation Measures BIO-MM #4, and BIO-MM #43 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts would result from transportation to and from the mitigation sites and from ground-disturbing activities on these sites to create habitat. The Final Supplemental EIR/EIS determined that potential secondary impacts on air quality, agricultural farmland, and cultural resources could occur as a result of these activities. For potential air quality impacts related to criteria pollutants, the following mitigation measures would be implemented. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment

AQ-MM #2: Reduce Criteria Exhaust Emissions from On-Road Construction Vehicles

AQ-MM #4: Offset Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement (VERA)

See Section 3.4 of the Final EIR/EIS for more information on these mitigation measures and how they reduce impacts. With implementation of these mitigation measures, it is anticipated that criteria pollutant emission association with the off-site mitigation sites would effectively reduce potential impacts.

For potential impacts on Important Farmland, the following mitigation measure would be implemented. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AG-MM #1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)

Although this mitigation measure would reduce the impact of the conversion of Important Farmland at the mitigation sites, it may not completely avoid it, and a net loss of Important Farmland may occur. This conversion is not considered a new impact but is captured in Impact AG #2: Permanent Conversion of Important Farmland to Nonagricultural Use. As noted in Section 3.14, agricultural farmland has been converted to nonagricultural uses on a large scale throughout the San Joaquin Valley as a result of development pressures, and because agricultural farmland cannot be created, the loss of any such land is considerable. This impact is unavoidable, and no additional mitigation is possible. For more information, refer to Section 3.14 of the Final EIR/EIS as well as Section 4.9.1 of this document.

The potential impacts on cultural resources of the establishment and management of the mitigation sites is captured in two impacts discussed in Section 3.17, Cultural Resources: Impact CUL #1: Permanent Disturbance of Unknown Archaeological Sites, and Impact CUL #5: Common Impacts on Archaeological Resources.

The following mitigation measures would reduce potential impacts of the off-site mitigation sites. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

CUL-MM #1: Amend Archaeological and Built-Environment Treatment Plans

CUL-MM #2: Mitigate Adverse Effects on Archaeological and Built-Environment Resources Identified During Phased Identification. Comply with the Stipulations Regarding the Treatment of Archaeological and Historic Built Resources in the Programmatic Agreement (PA) and Memorandum of Agreement (MOA)

CUL-MM #3: Halt Work in the Event of an Archaeological Discovery and Comply with the PA, MOA, Archaeological Treatment Plan, and all State and Federal Laws, as Applicable

In conclusion, there are no new or unique impacts associated with the establishment and management of the off-site mitigation areas that have not already been evaluated and addressed in the Final Supplemental EIR/EIS.

By avoiding, minimizing, and compensating for direct impacts on special-status plants and implementing other mitigation measures to avoid and minimize secondary impacts associated with off-site mitigation, impacts on special-status plant species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on 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 discussion and conclusions reached in the Final EIR/EIS in Impact BIO #3: Construction of the HST alternatives would disturb suitable habitat that has potential to support special-status plant species, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.7-59 - 3.7-60 and 3.7-156 - 3.7-157).

4.5.2 Impact BIO #2: Indirect Impacts on Special-Status Plant Species and Other Native Plants

Up to 39 special-status plant species have the potential to occur immediately adjacent to the footprint of the Preferred Alternative and as a result may be indirectly affected by construction-period activities. Table 3.7-12 of the Final Supplemental EIR/EIS presents the potential for occurrence of special-status species within the footprint vicinity, based on the presence of suitable habitat, the range of the species, and the proximity of known occurrences of the species.

Construction activities associated with the Preferred Alternative would require ground disturbance and equipment operation in the project footprint. Indirect construction impacts on special-status plant species and native plant species could 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.

Indirect substantial adverse effects on special-status and other native plant species and habitats suitable for special-status plant species during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #1c: Conduct Protocol-Level Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species

BIO-MM #3a: Prepare and Implement a Habitat Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project’s compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #1c would require surveys to identify special-status plants in areas where permission to enter was not granted prior to construction, thereby minimizing or avoiding disturbance of plant species. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures, and Mitigation Measure BIO-MM #2b would provide for the removal of special-status plant species prior to disturbance. Mitigation Measures BIO-MM #3a, BIO-MM #3b, and BIO-MM #4 would provide for on-site and off-site restoration and preservation of special-status plant species and other native plants, respectively.

Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1.

By avoiding and minimizing indirect impacts on special-status plants, effects on special-status plant species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the indirect impacts on special-status plant species and their habits by reducing the impact to a less-than-significant level under CEQA.²

This finding is consistent with the discussion and conclusions reached regarding indirect impacts on plants in the Final EIR/EIS in Impact BIO#3: Construction of the HST alternatives would disturb suitable habitat that has potential to support special-status plant species, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.7-60 and 3.7-156 to 3.7-157).

4.5.3 Impact BIO #3: Direct Impacts on Special-Status Wildlife – Invertebrates

Five special-status invertebrate species have the potential to occur in the footprint of the Preferred Alternative and as a result may be directly affected by construction activities. Table 3.7-7 of the Final Supplemental EIR/EIS presents the potential for occurrence of special-status wildlife species within or near the project footprint, based on the presence of suitable habitat, the range of the species, and the proximity of known occurrences of the species.

Construction associated with the Preferred Alternative would require ground disturbance and other construction activities in areas suitable as habitat for these invertebrate species. Direct impacts on special-status invertebrates could include permanent loss of vernal pools occupied by vernal branchiopods, loss of elderberry shrubs occupied by valley elderberry longhorn beetle, and loss of annual grassland and valley sink scrub occupied by Crotch bumble bee as well as injury or mortality of individuals of these species during construction. These direct construction impacts may result from permanent ground-disturbing activities, including construction of the track, access roads, road crossings, and buildings, that may directly affect individuals or populations of special-status plant species.

Substantial adverse effects on special-status invertebrate species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

² The Authority has determined that the mitigation measures that avoid and minimize impacts are sufficient to reach a less-than-significant finding concerning indirect impacts. Although the compensatory mitigation associated with BIO-MM #3b would help offset indirect effects, this mitigation measure is not required to reach a less-than-significant finding on this indirect impact.

- BIO-MM #1b: Establish and Implement a Compliance Reporting Program**
- BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan**
- BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat**
- BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites**
- BIO-MM #5: Conduct Pre-Construction Surveys for Vernal Pool Wildlife Species**
- BIO-MM #6: Implement Seasonal Vernal Pool Work Restriction**
- BIO-MM #7: Implement and Monitor Vernal Pool Avoidance and Minimization Measures Within Temporary Impact Areas**
- BIO-MM #9a: Work Stoppage**
- BIO-MM #44: Provide Compensatory Mitigation for Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat**
- BIO-MM #45: Provide Compensatory Mitigation for Impacts on Valley Elderberry Longhorn Beetle**
- BIO-MM #52: Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee**
- BIO-MM #53: Provide Compensatory Mitigation for Impacts on Crotch Bumble Bee Habitat**

Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measure BIO-MM #9a would allow the Project Biologist to halt work to prevent the death or injury to any special-status wildlife species found in a work area. Additionally, the Authority would implement Mitigation Measures BIO-MM #5 and BIO-MM #6, which would identify and document vernal pool fauna and habitat, guide the mitigation of unavoidable impacts on vernal pool fauna, and include best management practices (BMP) to provide for seasonal avoidance of special-status vernal pool branchiopods and vernal pool-dependent species. Mitigation Measure BIO-MM #7 would include BMPs to reduce impacts on vernal pools within temporary impact areas. Mitigation Measures BIO-MM #3b, BIO-MM #4, BIO-MM #44 and BIO-MM #45 would allow for on-site and off-site restoration and preservation of habitat for special-status invertebrate species. The Authority would also implement Mitigation Measure BIO-MM #52, concerning the Crotch bumble bee, which will identify occupied habitat and avoid and minimize impacts on individuals. Mitigation Measure BIO-MM #53 would also provide for the off-site preservation of suitable habitat for this species.

Mitigation Measures BIO-MM #44, BIO-MM #45, BIO-MM #52, and BIO-MM #53 all identify species-specific requirements to incorporate into the mitigation sites that would be established under compliance with BIO-MM #4 and thus have the potential to result in the same secondary impacts. All secondary impacts that could result from incorporation of Mitigation Measures BIO-MM #4, BIO-MM #44, BIO-MM #45, BIO-MM #52, and BIO-MM #53 are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on special-status invertebrate species, impacts on special-status invertebrate species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status invertebrate species and their habits by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached for vernal pool branchiopods and valley elderberry longhorn beetle in the Final EIR/EIS Impact Bio#4: *Construction of the HST alternatives would disturb suitable habitat that has potential to support vernal pool branchiopods* and Impact Bio#5: *Construction of the HST alternatives would disturb suitable habitat that has potential to support the valley elderberry longhorn beetle*; however, these discussions have been revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.7-63 and 3.7-157 to 3.7-158).

4.5.4 Impact BIO #5: Direct Impacts on Special-Status Wildlife – Fish

Implementation of the Preferred Alternative would require construction activities within and adjacent to the San Joaquin River, including pile driving in the channel. Impacts from these activities on special-status fish may include reduced habitat suitability as a result of increased shading from overhead elevated structures, interruptions to fish passage from new bridge footings, and disturbance and possible mortality if sound levels from pile driving reach the lethal range. Construction of the Preferred Alternative may also require dewatering, which may result in direct impacts on special-status fish and their habitat from sedimentation, turbidity, altered water temperatures, oxygen depletion, accidental spills of contaminants, and stranding and mortality. In total, the Preferred Alternative would directly affect 2.18 acres suitable habitat for of all six special-status species with the potential to occur in the project footprint or vicinity.

Substantial adverse effects on special-status fish species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #8a: Work Windows for Fish

BIO-MM #8b: Pile Driving Underwater Sound Pressure Measures

BIO-MM #8c: Water Diversion Measures for Fish

BIO-MM #8d: Fish Rescue Plan

BIO-MM #9a: Work Stoppage

BIO-MM #42: Measure Pile Driving Sound Pressure and Attenuate Underwater Sound

Mitigation Measure BIO-MM #8a would require specific work windows to coincide with periods when fish are least likely to be affected by construction activities. Mitigation Measure BIO-MM #9a would allow the Project Biologist to halt work to prevent the death or injury to any special-status wildlife species found in a work area. Mitigation Measures BIO-MM #8b and BIO-MM #42 would require measures to monitor and minimize underwater sound pressures that could injure or kill fish. Mitigation Measure BIO-MM #8c would require specific design requirements related to dewatering to avoid injuring or killing fish that are within the work area. Mitigation Measure BIO-MM #8d would provide a plan for fish rescue if water depths are low within the cofferdam. Mitigation Measures BIO-MM #3b and BIO-MM #4 would allow for on-site and off-site restoration and preservation of special-status fish species habitat.

By avoiding, minimizing, and compensating for direct impacts on special-status fish species, impacts on special-status fish species will be reduced.

Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1. By avoiding, minimizing, and compensating for direct impacts on

special-status fish species, impacts on special-status fish species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status fish species and their habits by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached in the Final EIR/EIS Impact Bio#9: *Construction of the HST alternatives would disturb special-status fish due to potential for turbidity, sediment deposition, and noise exposure*, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-63 and 3.7-160).

4.5.5 Impact BIO #7: Direct Impacts on Special-Status Wildlife – Amphibians

Construction of the Preferred Alternative would involve temporary activities in upland and aquatic habitats suitable for special-status amphibians and could result in the permanent conversion of occupied aquatic and upland habitat to HSR infrastructure. Specifically, construction of the Preferred Alternative would result in 45.26 acres of temporary impacts and 29.06 acres of permanent impacts on habitat areas suitable for western spadefoot, a special-status amphibian species. The footprint and surrounding vicinity also includes potential habitat for California tiger salamander.

Direct impacts resulting from construction activities could include mortality, injury, or harassment of adults, eggs or egg masses, and larvae; permanent or temporary destruction, degradation, fill, or pollution of breeding, foraging, or movement habitat; and the temporary loss of burrows or other upland refugia. Mortality, injury, or harassment may also occur if these species become trapped in open excavated areas. Direct impacts also include the permanent conversion of occupied aquatic and upland habitat to HSR infrastructure; fragmentation of habitats and landscapes, which would interfere with seasonal movement and dispersal of special-status amphibians; and changes to micro/local hydrology, which could affect inundation periods of aquatic habitat.

Substantial adverse effects on special-status amphibian species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #9a: Work Stoppage

BIO-MM #9b: Conduct Pre-Construction Surveys for Special-Status Reptile and Amphibian Species

BIO-MM #10: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species

BIO-MM #11: Conduct Pre-Construction Surveys for California Tiger Salamander

BIO-MM #12: Implement Avoidance and Minimization Measures for California Tiger Salamander

BIO-MM #13: Conduct Emergence and Larval Surveys for Western Spadefoot

BIO-MM #46: Compensate for Impacts on California Tiger Salamander

Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measure BIO-MM #9a would allow the Project Biologist to halt work to prevent the death or injury to any special-status wildlife species found in a work area. Mitigation Measures BIO-MM #9b and BIO-MM #10 would implement pre-construction surveys in suitable habitats to determine the presence of amphibian species and require the contractor's project biological monitor to oversee construction activities to avoid special-status amphibians or relocate them outside the construction area. Mitigation Measures BIO-MM #11 and BIO-MM #12 would require surveys for potential breeding habitat for the presence of California tiger salamander and installation and maintenance of exclusion fencing along the perimeter of the HSR right-of-way within California tiger salamander suitable habitat areas. Mitigation Measure BIO-MM #13 would conduct pre-construction emergence and larval surveys for western spadefoot during the fall and winter rainy season. Mitigation Measures BIO-MM #3b, BIO-MM #4, and BIO-MM #46 would allow for on-site and off-site restoration and preservation of habitat for special-status amphibian species.

Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on special-status amphibian species, impacts on special-status amphibian species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status amphibian species and their habits by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached for California tiger salamander and western spadefoot in the Final EIR/EIS Impact Bio#6: *Construction of the HST alternatives would disturb California tiger salamander habitat* and Impact Bio#7: *Construction of the HST alternatives would disturb western spadefoot toad habitat*; however, these discussions have been revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-63 and 3.7-158 - 3.7-159).

4.5.6 Impact BIO #9: Direct Impacts on Special-Status Wildlife – Reptiles

Construction of the Preferred Alternative would require construction of infrastructure in habitat that is potentially suitable for special-status reptile species, including western pond turtle, blunt-nosed leopard lizard, Blainville's horned lizard, giant garter snake, silvery legless lizard, and San Joaquin coachwhip, which could convert or fragment occupied habitat or landscapes. Direct impacts may include mortality, injury, or harassment of adults, eggs, or juveniles because of construction activities and vehicle use. Other direct impacts may include the permanent conversion of occupied habitat to HSR infrastructure and habitat fragmentation, which would interfere with seasonal movement and dispersal of special-status reptiles.

Substantial adverse effects on special-status reptile species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

- BIO-MM #1b: Establish and Implement a Compliance Reporting Program**
- BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan**
- BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat**
- BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites**
- BIO-MM #9a: Work Stoppage**
- BIO-MM #9b: Conduct Pre-Construction Surveys for Special-Status Reptile and Amphibian Species**
- BIO-MM #10: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species**
- BIO-MM #14: Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard**
- BIO-MM #15: Implement Avoidance Measures for Blunt-Nosed Leopard Lizard**
- BIO-MM #16: Conduct Western Pond Turtle Pre-Construction Surveys and Relocation**
- BIO-MM #17: Conduct Western Pond Turtle Monitoring**
- BIO-MM #18: Implement Western Pond Turtle Avoidance and Relocation**
- BIO-MM #19: Avoid Suitable Giant Garter Snake Habitat**
- BIO-MM #20: Conduct Work in Giant Garter Snake Habitat during the Active Season**
- BIO-MM #21: Conduct Pre-Construction Surveys and Implement Minimization Measures for Giant Garter Snakes**
- BIO-MM #22: Conduct Pre-Construction Surveys for Blainville's Horned Lizards, San Joaquin Coachwhip, and Silvery Legless Lizards**
- BIO-MM #23: Conduct Blainville's Horned Lizards, San Joaquin Coachwhip, and Silvery Legless Lizards Monitoring, Avoidance, and Relocation**
- BIO-MM #47: Compensate for Impacts on Blunt-Nosed Leopard Lizard and Nelson's Antelope Squirrel**
- BIO-MM #51: Provide Compensatory Mitigation for Impacts to Giant Garter Snake Habitat**

Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measure BIO-MM #9a would allow the Project Biologist to halt work to prevent the death or injury to any special-status wildlife species found in a work area. Mitigation Measures BIO-MM #9b and BIO-MM #10 would implement avoidance and minimization measures for special-status reptile and amphibian species including pre-construction surveys in suitable habitats to determine the presence of reptile species and require the contractor's project biological monitor to oversee construction activities to avoid special-status reptiles or relocate them (for species other than blunt-nosed leopard lizard) outside the construction area. Mitigation Measures BIO-MM #14 and BIO-MM #15 would require surveys in suitable habitats to determine the presence of blunt-nosed leopard lizard and visual pre-construction surveys in areas of potential blunt-nosed leopard lizard habitat no more than 30 days before ground-disturbing activities, which would avoid take of this fully protected species. Mitigation Measures BIO-MM #16 and BIO-MM #17 would involve conducting pre-construction surveys to determine the presence or absence of western pond turtles and requiring the project biologist to observe all construction activities within western pond turtle habitat identified during the pre-construction surveys and submit a memorandum documenting compliance. Mitigation Measure BIO-MM #18

would include measures to avoid the western pond turtle; if avoidance is not feasible, the project biologist would coordinate with the California Department of Fish and Wildlife (CDFW) to determine where to relocate western pond turtles. Mitigation Measures BIO-MM #19 and BIO-MM #20 would protect giant garter snake aquatic habitat by installing ESA fencing and requiring all construction activities affecting giant garter snake habitat to occur between May 1 and October 1, which is the active period for this species. Mitigation Measure BIO-MM #21 would require a project biologist to conduct a pre-construction survey for giant garter snake within 24 hours before construction. Mitigation Measures BIO-MM #22 and BIO-MM #23 would require a biological monitor to conduct pre-construction surveys in suitable habitats to determine the presence or absence of Blainville’s horned lizards, San Joaquin coachwhip, and silvery legless lizards and observe all construction activities in suitable habitat, avoid the horned Mitigation Measures BIO-MM #3b, BIO-MM #4, BIO-MM #47, and BIO-MM #51 would allow for on-site and off-site restoration and preservation of habitat for special-status reptile species.

Mitigation Measures BIO-MM #47 and BIO-MM #51 would result in secondary impacts similar to those that would occur with implementation of Mitigation Measure BIO-MM #4. All secondary impacts that could result from incorporation of Mitigation Measures BIO-MM #4, BIO-MM #47, and BIO-MM #51 are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on special-status reptile species, impacts on special-status reptile species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status reptile species and their habits by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached for western pond turtle in the Final EIR/EIS Impact Bio#8: *Construction of the HST alternatives would disturb habitat that supports the western pond turtle*, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pgs. 3.7-63 and 3.7-159 - 3.7-160).

4.5.7 Impact BIO #11: Direct Impacts on Special-Status Wildlife – Birds

Construction of the Preferred Alternative would require grubbing, grading excavation, and driving off-road, which could directly affect any of the twelve special-status birds identified in Table 3.7-12 of the Final Supplemental EIR/EIS by altering or removing nesting or foraging habitat, disturbing or destroying nests, perches or burrows, or affecting behavior in ways that could reduce overall fitness or breeding success. Additionally, electrical components of the Preferred Alternative could introduce electrocution or strike hazards to the landscape, which could kill or injure birds. Because many special-status birds have the potential to occur over large areas of various land cover types in the project footprints, the extent of direct impacts on habitat for these species is large relative to impacts on other types of special-status wildlife habitat.

Substantial adverse effects on special-status bird species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #9a: Work Stoppage**BIO-MM #24a: Conduct Pre-Construction Surveys and Delineate Active Nest Buffers and Exclusion Areas for Breeding Birds****BIO-MM #24b: Conduct Pre-Construction Surveys and Monitoring for Raptors****BIO-MM #25a: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies****BIO-MM #25b: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat****BIO-MM #25c: Bird Protection****BIO-MM #26: Conduct Protocol and Pre-Construction Surveys for Swainson's Hawks****BIO-MM #27: Swainson's Hawk Nest Avoidance and Monitoring****BIO-MM #28: Monitor Removal of Nest Trees for Swainson's Hawks****BIO-MM #29: Conduct Protocol-Level Surveys for Burrowing Owls****BIO-MM #30: Implement Avoidance and Minimization Measures for Burrowing Owl****BIO-MM #48: Provide Compensatory Mitigation for Loss of Swainson's Hawk Nesting Trees and Habitat****BIO-MM #49: Provide Compensatory Mitigation for Loss of Burrowing Owl Active Burrows and Habitat**

Mitigation Measures BIO-MM #24a and BIO-MM #24b require the project biologist to 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 September 1). Mitigation Measures BIO-MM #25a and BIO-MM #25b would identify whether or not any active tricolored blackbird colonies are present at the time of construction and avoid and mitigate for impacts on those colonies. Mitigation Measure BIO-MM #25c would require the project biologist to verify that the catenary system, masts, and other structures, such as fencing, are designed to be bird and raptor safe. Mitigation Measures BIO-MM #26 and BIO-MM #27 would require the project biologist to conduct pre-construction surveys for Swainson's hawks during the nesting season (March 1 to August 1) and, if active nests are found, monitor them until the young fledge or for the length of construction, whichever occurs first. Mitigation Measure BIO-MM #28 would require the biological monitor to monitor nest trees for Swainson's hawks; if removal is required, the Authority would obtain take authorization through a Section 2081 Incidental Take Permit from CDFW and implement Mitigation Measure BIO-MM #48 to provide compensatory mitigation for Swainson's Hawk habitat loss. Mitigation Measures BIO-MM #29 and BIO-MM #30 would require a qualified, agency-approved biologist to conduct protocol-level surveys and prepare a memorandum identifying how BMPs would be implemented related to burrowing owl avoidance and minimization features. Mitigation Measure BIO-MM #49 describes how active burrows permanently lost during construction would be mitigated. Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measures BIO-MM #3b and BIO-MM #4 would allow for on-site and off-site restoration and preservation of habitat for special-status bird species, respectively. Mitigation Measure BIO-MM #9a would allow the Project Biologist to halt work to prevent the death or injury to any special-status wildlife species found in a work area.

Mitigation Measures BIO-MM #25b, BIO-MM #48, and BIO-MM #49 would result in secondary impacts similar to those that would occur with implementation of Mitigation Measure BIO-MM #4. All secondary impacts that could result from incorporation of Mitigation Measures BIO-MM #4, BIO-MM #25b, BIO-MM #50, and BIO-MM #51 are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on special-status bird species, special-status bird species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status bird 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 Final EIR/EIS Impact Bio#10: *Construction of the HST alternatives would disturb nesting Swainson's hawk*, Impact Bio#11: *Construction of the HST alternatives would disturb breeding birds, including raptors*, and Impact Bio#12: *Construction of the HST alternatives would disturb or cause the loss of burrowing owls*; however, these discussions have been revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-160 - 3.7-161).

4.5.8 Impact BIO #13: Direct Impacts on Special-Status Wildlife – Mammals

Construction of the Preferred Alternative would include nighttime construction, construction of infrastructure, and ground disturbance. These activities could result in modification of habitat for special-status mammals as well as potential mortality. Accordingly, construction could result in direct temporary and permanent impacts on special-status mammals, as presented in Table 3.7-13 of the Final Supplemental EIR/EIS. As part of project design, the Authority would develop and implement requirements to install artificial dens along wildlife exclusion fencing to enable special-status mammal and other terrestrial wildlife movement through work areas during construction. Thus, measures incorporated as part of project design would minimize, but not entirely avoid, impacts on special-status bat species, San Joaquin kit fox, American badger, ringtail, and special-status rodent species.

Substantial adverse effects on special-status mammal species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will mitigate these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #9a: Work Stoppage

BIO-MM #31: Conduct Pre-Construction Surveys for Special-Status Bat Species

BIO-MM #32: Implement Bat Avoidance and Relocation Measures

BIO-MM #33: Implement Bat Exclusion and Deterrence Measures

BIO-MM #34: Conduct Pre-Construction Surveys for American Badger Den Sites and Implement Minimization Measures

BIO-MM #35: Conduct Pre-Construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures

BIO-MM #36: Conduct Pre-Construction Surveys for San Joaquin Kit Fox

BIO-MM #37: Minimize Impacts on San Joaquin Kit Fox

BIO-MM #38: Construction in Wildlife Movement Corridors

BIO-MM #39a: Establish Wildlife Crossings**BIO-MM #39b: Install Aprons or Barriers within Security Fencing****BIO-MM #40: Conduct Pre-Construction Surveys for Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat****BIO-MM #41: Monitoring, Avoidance and Relocation of Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat****BIO-MM #50: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat**

Mitigation Measures BIO-MM #31 and BIO-MM #32 would require a qualified, agency-approved biologist to conduct visual and acoustic pre-construction surveys for roosting bats at potential roost sites no more than 30 days before the start of ground-disturbing activities and prepare a memorandum identifying how BMPs would be implemented during ground-disturbing activities if active or hibernation roosts are found during the pre-construction surveys. As necessary, roosts would be removed with approval from CDFW between August 1 and October 31. Mitigation Measure BIO-MM #33 would require the project biologist to prepare a memorandum identifying how BMPs related to ground-disturbing activities would be implemented if nonbreeding or non-hibernating individuals or groups of bats are found during the pre-construction surveys. Mitigation Measure BIO-MM #34 would require the project biologist to conduct pre-construction surveys for American badger dens within suitable habitats no more than 30 days before the start of ground disturbance and establish a 50-foot buffer around occupied American badger dens found during the pre-construction surveys. Mitigation Measure BIO-MM #35 requires similar surveys and buffers for ringtail and ringtail den sites, with a 100-foot buffer established around occupied maternity dens throughout the pup-rearing season. Mitigation Measures BIO-MM #36 and BIO-MM #37 would require the project biologist to conduct pre-construction surveys between May 1 and September 30 and prepare a memorandum identifying how BMPs related to construction activity would be implemented to minimize impacts on San Joaquin kit fox. Mitigation Measures BIO-MM #40 and BIO-MM #41 would require a qualified, agency-approved biologist to conduct pre-construction monitoring for special-status rodents within the species' ranges 14 days prior to ground disturbance, establish buffers around occupied burrows, and provide for relocation if buffers are not feasible. Mitigation Measure BIO-MM #38 would require the contractor's project biologist to submit a construction avoidance and minimization plan for wildlife movement linkages to the Authority through the mitigation manager for concurrence. Mitigation Measure BIO-MM #39a would require that wildlife crossings be established to accommodate wildlife movement across permanently fenced infrastructure, and BIO-MM #39b requires that the Project Biologist review final permanent fencing plans. Mitigation Measure BIO-MM #1a would require the establishment of fencing to protect ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measures BIO-MM #3b and BIO-MM #4 would allow for on-site and off-site restoration and preservation of special-status mammal species habitat, respectively. Mitigation Measure BIO-MM #9a would allow the Project Biologist to halt work to prevent the death or injury to any special-status wildlife species found in a work area. Mitigation Measure BIO-MM #52 describes how the permanent loss of San Joaquin kit fox habitat would be mitigated.

Mitigation Measure BIO-MM #50 would result in secondary impacts similar to those that would occur with implementation of Mitigation Measure BIO-MM #4. All secondary impacts that could result from incorporation of Mitigation Measures BIO-MM #4 and BIO-MM #50 are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on special-status mammal species, the Preferred Alternative's impacts on special-status mammal species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct

impacts on special-status mammal species and their habits by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached with respect to bats, badgers, and San Joaquin kit fox in the Final EIR/EIS Impact Bio#13: *Construction of the HST alternatives would disturb breeding or nonbreeding bats*, Impact Bio#14: *Construction of the HST alternatives would disturb American badger dens*, and Impact Bio#15: *Construction of the HST alternatives would disturb San Joaquin kit fox dens*; however, these discussions have been revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-64 and 3.7-161 - 3.7-163).

4.5.9 Impact BIO #14: Indirect Impacts on Special-Status Wildlife – Mammals

As described above in Section 4.5.8, Impact BIO #13: Direct Impacts on Special-Status Wildlife – Mammals, construction of the Preferred Alternative would include nighttime construction, construction of infrastructure, and ground disturbance. In addition to the direct impacts described under Impact BIO #13, construction activities required for the Preferred Alternative, such as excavation, vegetation removal, construction of the railbed, placement of temporary structures and staging areas, and equipment operation, could result in indirect impacts on special-status mammal species during ground-disturbing activities. Construction of the Preferred Alternative would result in large-scale changes to existing land uses within the project footprints, which could fragment existing habitats. Additionally, large-scale movement of earthen materials and equipment could introduce or spread invasive plant species, resulting in indirect habitat modification for special-status mammals.

Indirect substantial adverse effects on special-status mammal species and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #31: Conduct Pre-Construction Surveys for Special-Status Bat Species

BIO-MM #32: Implement Bat Avoidance and Relocation Measures

BIO-MM #33: Implement Bat Exclusion and Deterrence Measures

BIO-MM #34: Conduct Pre-Construction Surveys for American Badger Den Sites and Implement Minimization Measures

BIO-MM #35: Conduct Pre-Construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures

BIO-MM #36: Conduct Pre-Construction Surveys for San Joaquin Kit Fox

BIO-MM #37: Minimize Impacts on San Joaquin Kit Fox

BIO-MM #38: Construction in Wildlife Movement Corridors

BIO-MM #39a: Establish Wildlife Crossings

BIO-MM #39b: Install Aprons or Barriers within Security Fencing**BIO-MM #40: Conduct Pre-Construction Surveys for Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat****BIO-MM #41: Monitoring, Avoidance and Relocation of Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat****BIO-MM #50: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat**

The mitigation measures listed above are identical to the mitigation measures applied to Impact BIO #13 (see Section 4.5.8, above) and would reduce both direct and indirect impacts on special-status mammal species. Therefore, a summary of how these measures reduce project impacts, as well as potential secondary impacts that could result from implementation of Mitigation Measures BIO-MM #4 and BIO-MM #50, is provided above.

By avoiding and minimizing indirect impacts on special-status mammal species, impacts on special-status mammal species will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the indirect impacts on special-status mammal species and their habits by reducing the impact to a less-than-significant level under CEQA.³

This finding is consistent with the discussions and conclusions regarding indirect impacts reached in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pg. 3.7-65).

4.5.10 Impact BIO #15: Direct Impacts on Special-Status Plant Communities

Construction of the Preferred Alternative would require disruption of plants and permanent removal of vegetation within the HSR right-of-way; however, adjacent vegetation requiring removal to accommodate construction activities (i.e., access and laydown area) would be restored after construction activities are completed. Construction could nonetheless permanently remove some extent of special-status plant communities, resulting in direct construction impacts, such as permanent alteration of such communities. Within the context of special-status plant communities, vernal pools and riparian community types typically provide the greatest functions and values for special-status species, are typically the most uncommon types on the landscape, and thus are considered of greatest importance for protection and management. The Preferred Alternative would result in a combined total of 1.77 acres of permanent direct impacts on vernal pool, indirect bisected vernal pool, mixed riparian, seasonal wetland, and valley sink scrub plant communities and a combined total of 4.76 acres of temporary direct impacts on mixed riparian, other riparian, seasonal wetland, and valley sink scrub plant communities.

Substantial adverse effects on special-status plant communities and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #15 to less than significant. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

³ The Authority has determined that the mitigation measures that avoid and minimize impacts are sufficient to reach a less-than-significant finding concerning indirect impacts. Although the compensatory mitigation associated with BIO-MM #3b would help offset indirect effects, this mitigation measure is not required to reach a less-than-significant finding on this indirect impact.

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #1c: Conduct Protocol-level Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

Mitigation Measure BIO-MM #1a would require the establishment of protection around ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project's compliance activities on a monthly and daily basis. Mitigation Measures BIO-MM #1c and BIO-MM #2b would involve conducting protocol-level surveys to identify special-status plants in areas where permission to enter was not granted prior to construction and allow for the removal of special-status plant species prior to disturbance. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measures BIO-MM #3 and BIO-MM #4 would allow for on-site and off-site restoration and preservation of special-status plant species.

Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on special-status plant communities, impacts on special-status plant communities will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status plant communities by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached in the Final EIR/EIS Impact Bio#16: *Construction of the HST alternatives would temporarily convert special-status plant communities (e.g., Great Valley mixed riparian forest, coastal and valley freshwater marsh, vernal pools)*, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pg. 3.7-163).

4.5.11 Impact BIO #16: Indirect Impacts on Special-Status Plant Communities

Construction of the Preferred Alternative would require substantial ground disturbance, resulting in colonization by invasive plant species, and be an indirect impact on plant communities, including special-status plant communities. Other potential indirect impacts on special-status plant communities could include the collection of construction dust on special-status plants and their communities, an increased risk of fire (e.g., construction equipment use and smoking by construction workers) in adjacent open spaces, and large-scale changes to existing land uses within the project footprint, which could fragment existing habitats.

Indirect substantial adverse effects on special-status plant communities and their habitats during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #1c: Conduct Protocol-Level Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities**BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan****BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species****BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat****BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites**

The mitigation measures listed above are identical to the mitigation measures applied to Impact BIO #15 (see Section 4.5.10, Impact BIO #15: Direct Impacts on Special-Status Plant Communities) and would reduce both direct and indirect impacts on special-status mammal species. Therefore, a summary of how these measures reduce project impacts, as well as potential secondary impacts that could result from implementation of BIO-MM #4, is provided above. By avoiding and minimizing indirect impacts on special-status plant communities, impacts will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on special-status plant communities by reducing the impact to a less-than-significant level under CEQA.⁴

This finding is consistent with the discussions and conclusions reached regarding indirect impacts in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pg. 3.7-70 et seq).

4.5.12 Impact BIO #17: Direct Impacts on Jurisdictional Aquatic Resources

Construction of the Preferred Alternative would occur in some locations where jurisdictional aquatic resources (i.e., aquatic resources regulated under Section 404 of the Clean Water Act, regulated as waters of the state, or otherwise regulated under California Fish and Game Code Section 1600 et seq.) are present. Although project design features would include means to avoid or minimize the removal or modification of local hydrology or the redirection of flows within aquatic resources, the Preferred Alternative would result in temporary and/or permanent direct impacts on the following jurisdictional water types:

- Vernal pool (permanent)
- Indirect bisected vernal pool (permanent)
- Seasonal wetland (permanent and temporary)
- Constructed basin (permanent and temporary)
- Constructed watercourse (permanent and temporary)
- Natural watercourse (permanent and temporary)
- Mixed riparian (permanent and temporary)
- Other riparian (permanent and temporary)

Direct impacts that constitute substantial adverse effects on state or federally protected wetlands during construction are considered significant impacts under CEQA.

⁴ The Authority has determined that the mitigation measures that avoid and minimize impacts are sufficient to reach a less-than-significant finding concerning indirect impacts. Although the compensatory mitigation associated with BIO-MM #3b would help offset indirect effects, this mitigation measure is not required to reach a less-than-significant finding on this indirect impact.

Implementation of the following mitigation measures will reduce these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project’s compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measures BIO-MM #3a and BIO-MM #4 would allow for no net loss of functions and values of aquatic resources through the creation, restoration, enhancement, and preservation of wetlands or other waters.

Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on jurisdictional aquatic resources, impacts will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on jurisdictional aquatic resources by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached in the Final EIR/EIS Impact Bio#17: *Construction of the HST alternatives would have indirect impacts on jurisdictional waters*, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-70 et seq. and 3.7-164).

4.5.13 Impact BIO #19: Direct Impacts on Critical Habitat

The Preferred Alternative would affect critical habitat for vernal pool fairy shrimp and vernal pool tadpole shrimp. Construction activities that would overlap with vernal pool areas designated as critical habitat could disrupt that natural plant communities of the critical habitat area such that the critical habitat would be degraded. In total, the Preferred Alternative would have direct impacts on 2.94 acres of mapped critical habitat, including 0.21 acre of aquatic habitat within that area.

Substantial adverse effects on critical habitat during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #19 to less than significant. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

Because vernal pool habitats, regardless of their designation as critical habitat, are considered jurisdictional aquatic resources, the mitigation measures listed above (Mitigation Measures BIO-MM #3b and BIO-MM #4) to reduce direct impacts on critical habitat resulting from construction of

the Preferred Alternative are identical to the mitigation measures that would reduce the impacts described above under Impact BIO #17, Direct Impacts on Jurisdictional Aquatic Resources. Therefore, the identified mitigation measures would reduce impacts in the same manner as described above. Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1.

By avoiding and minimizing indirect impacts on critical habitat, impacts will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on critical habitat by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussions and conclusions reached in the Final EIR/EIS Impact Bio#18: *Construction of the HST alternatives would disturb critical habitat*, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-70 et seq. and 3.7-164 – 3.7-165).

4.5.14 Impact BIO #21: Direct Impacts on Essential Fish Habitat

Construction of the Preferred Alternative would require construction of bridges and aerial crossings over essential fish habitat (EFH) within the San Joaquin River, which, since restoration, has provided a migratory corridor for salmonids. Although the Preferred Alternative would not modify the physical characteristics of the channel, final bridge design may require placing pilings in the San Joaquin River. Construction activities required to install these pilings could result in direct impacts on EFH, including noise-related impacts, as well as upslope or upstream topography and hydrology modifications, which could affect water quality.

Substantial adverse effects on EFH during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce Impact BIO #21 to less than significant. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1b: Establish and Implement a Compliance Reporting Program

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #8a: Work Windows for Fish

BIO-MM #8b: Pile Driving Underwater Sound Pressure Measures

BIO-MM #8c: Water Diversion Measures for Fish

BIO-MM #8d: Fish Rescue Plan

BIO-MM #42: Measure Pile Driving Sound Pressure and Attenuate Underwater Sound

Mitigation Measure BIO-MM #8a would require specific work windows to coincide with periods when fish are least likely to be affected. Mitigation Measure BIO-MM #8b would require measures to monitor and minimize underwater sound pressures that could injure or kill fish. Mitigation Measure BIO-MM #8c would require specific design requirements related to dewatering to avoid injuring or killing fish that are within the work area. Mitigation Measure BIO-MM #8d would provide a plan for fish rescue if water depths are low within the cofferdam. Mitigation Measure

BIO-MM #42 would require measures to monitor and minimize underwater sound pressures that could injure or kill fish. Mitigation Measure BIO-MM #1a would require the establishment of protection around ESAs. Mitigation Measure BIO-MM #1b will establish a compliance reporting requirement in which the Project Biologist will document the project’s compliance activities on a monthly and daily basis. Mitigation Measure BIO-MM #2a requires development of an RRP that would outline various restoration procedures. Mitigation Measures BIO-MM #3b and BIO-MM #4 would allow for on-site and off-site restoration and preservation of special-status fish species habitat, respectively.

Mitigation Measure BIO-MM #4 could have secondary impacts on other resources from implementing restoration activities at off-site mitigation sites. These impacts are the same as described for Impact BIO #1.

By avoiding, minimizing, and compensating for direct impacts on EFH, these impacts will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on EFH by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Final EIR/EIS Impact Bio#19: *Construction of the HST alternatives would disturb Essential Fish Habitat*, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pgs. 3.7-70 et seq. and 3.7-165).

4.5.15 Impact BIO #23: Direct Impacts on Wildlife Movement Corridors

Construction activities required for the Preferred Alternative would have the potential to create temporary and permanent linear barriers to wildlife movement. Placement of barriers within natural lands and known linkages during construction activities may affect the ability of special-status species and other free-ranging animals to move freely within essential connectivity areas, the Sandy Mush Road area, and modeled wildlife movement corridors. Although construction activities have the potential to directly interfere with established wildlife movement corridors, these activities would not be long-term activities, and construction phasing is anticipated to allow some dispersal over the construction period. In total, the Preferred Alternative would directly affect 10.42 miles of wildlife corridors. Additionally, the Preferred Alternative is within the Pacific Flyway, a major north–south migratory pathway for birds that encompasses the majority of the West Coast. Along the Pacific Flyway, there are key rest stops where birds of many species gather to feed and regain strength before continuing. However, because the major migratory stop-over areas in the region are located primarily within the Grassland Ecological Area, which is west of the Preferred Alternative, the project is not expected to substantially affect stop-over areas within the flyway.

Direct impacts that interfere substantially with wildlife movement corridors during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #25c: Bird Protection

BIO-MM #38: Construction in Wildlife Movement Corridors

BIO-MM #39a: Establish Wildlife Crossings

BIO-MM #39b: Install Aprons or Barriers within Security Fencing

Prior to construction of the project, Mitigation Measure BIO-MM #25c would require that the Authority verify that that the catenary system, masts, and other structures such as fencing, electric lines, communication towers and facilities are designed to be bird- and raptor-safe in accordance with applicable recommendations. Mitigation Measure BIO-MM #38 would require the Project Biologist to submit an avoidance and minimization plan for wildlife movement linkages.

BIO-MM #39a would require the assessment and placement of established wildlife crossings. The crossings would be placed by considering applicable landscape and habitat variables to both accommodate animal movement and create linkages to core habitat areas. Information developed in the assessment would inform the final design to facilitate safe animal passage across the HSR alignment, maintain landscape-level habitat connectivity, and prevent injury to wildlife species attempting to cross the Preferred Alternative. Mitigation Measure BIO-MM #39b would require the installation of permanent security fencing along portions of the HSR infrastructure that are adjacent to wildlife movement corridors and natural habitats, which would prevent injury to wildlife species attempting to cross the HSR infrastructure. Mitigation Measure BIO-MM #39c would require measures to avoid the entrapment of aerial species and interaction between electrical infrastructure and aerial species, thereby avoiding injuries or fatalities. There would be no secondary impacts from implementation of Mitigation Measures BIO-MM #25c, BIO-MM #38, BIO-MM #39a, and BIO-MM #39b.

By avoiding, minimizing, and compensating for direct impacts on wildlife movement corridors, these impacts will be reduced. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the direct impacts on wildlife movement corridors by reducing the impact to a less-than-significant level under CEQA.

This finding is consistent with the conclusions reached in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pg. 3.7-76 et seq.).

4.5.16 Impact BIO #24: Indirect Impacts on Wildlife Movement Corridors

Construction of the Preferred Alternative would require concentrated use of heavy vehicles and equipment within existing agricultural and urban development areas, causing indirect impacts on portions of wildlife corridors outside of but adjacent to the project footprints. Indirect impacts may include disruptions to wildlife movement through lighting, noise, motion, and startle impacts that could occur from construction activities. Such lighting, noise, motion, and startle impacts could occur for the duration of construction activities that are adjacent to each affected wildlife movement corridor.

Indirect effects that interfere substantially with wildlife movement corridors during construction are considered significant impacts under CEQA.

Implementation of the following mitigation measures will reduce these impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AVR-MM #2: Minimize Light Disturbance during Construction

NV-MM #1: Construction Noise Mitigation

Implementation of Mitigation Measure AVR-MM #2 would shield nighttime construction lighting and direct it downward so that the light source would not be visible off-site and the light would not fall outside the boundaries of the project site. Implementation of Mitigation Measure NV-MM #1 would require the contractor to monitor construction noise to verify compliance with noise limits. The Authority finds that the above-listed mitigation measures are required under the Preferred Alternative and that implementation of these measures would substantially lessen the indirect impacts on wildlife movement corridors and reduce the impact to a less-than-significant level under CEQA.

This finding is consistent with the discussion and conclusions reached in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, Pg. 3.7-76 et seq.).

4.6 Hazardous Materials and Wastes (Section 3.10 of the Final Supplemental EIR/EIS and Final EIR/EIS)

With implementation of the recommended mitigation measure identified in the finding for Impact HMW #5, the Preferred Alternative would not result in any significant and unavoidable impacts related to hazardous materials and waste.

4.6.1 Impact HMW #5: Temporary Direct Impacts from Hazardous Materials and Wastes Activities in Proximity to Schools and Recreational Areas

Construction activities for the Preferred Alternative would require the handling of hazardous substances within 0.25 mile of Fairmead Elementary School (including playgrounds) and the Fairmead Head Start Childcare Center. Students or employees at these facilities could be exposed to a health or safety hazard in the event of accidental release of hazardous materials or wastes, a significant impact.

During construction, demolition, and excavation, the project could produce hazardous air emissions or involve handling extremely hazardous wastes in quantities above the threshold levels referenced in Public Resources Code Section 21151.4 and described in Health and Safety Code Section 25532(j); in some cases, this could occur within 0.25 mile of schools and recreational areas. Additionally, hazardous wastes such as asbestos-containing materials and lead-based paint could be encountered during construction activities as a result of the demolition of existing structures within the project footprint; this impact would be temporary during construction activities.

Impact HMW #5 in the Final Supplemental EIR/EIS is consistent with the discussion in Impact HMW#1 in the Final EIR/EIS; however, the Final Supplemental EIR/EIS revises the analysis for the Preferred Alternative, which addresses the Fairmead Elementary School and Fairmead Head Start Childcare Center, which were not affected by the wye design options in the Final EIR/EIS (See Final EIR/EIS, p. 3.10-13, 3.10-25, 3.10-29.)

The following measure mitigates this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

HMW-MM #1: Limit Use of Extremely Hazardous Materials near Schools during Construction

Mitigation Measure HMW-MM #1 would be effective because it would eliminate the use of extremely hazardous materials within at least 0.25 mile of nearby schools, thereby reducing the potential impacts from accidental dispersal of these materials.

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

4.7 Socioeconomics and Communities (Section 3.12 of the Final Supplemental EIR/EIS and Final EIR/EIS)

Under CEQA, economic and social impacts resulting from a project are not treated as significant environmental impacts (CEQA Guidelines, Sections 15064, subdivision (a), 15131, subdivision (a)).

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.

The following sets forth the Authority's determination regarding whether a physical change is significant, as determined by the significance criteria listed in Section 3.12.6.1 of the Final Supplemental EIR/EIS and the requirements set forth in CEQA Guidelines, Section 15064, subdivision (e), regarding social and economic impacts.

4.7.1 Impact SO #2: Permanent Impacts on Communities—Community Cohesion

Construction of the Preferred Alternative would result in a physical division in the community of Fairmead. It would introduce a new linear feature that would divide the community in the east-west direction and block residential views, which include distant views of the Sierra Nevada.

As explained in the Final 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 would result in disruption to community cohesion and division of existing rural communities because it would introduce permanent infrastructure and associated physical changes. Community cohesion could be permanently affected by the physical division of communities, residential and business displacements, permanent road closures, and the degradation of visual quality. The impact is therefore significant.

The discussion of Impact SO#2 in the Final Supplemental EIR/EIS augments the discussion of community division effects in the Final EIR/EIS and provides updated analysis and an enhanced focus on impacts on the community of Fairmead from SR 152 alternatives that were not studied in the Final EIR/EIS (See Final EIR/EIS, pp. 3.12-42 to 3.12-47).

Implementation of the following mitigation measures would reduce this impact to the extent feasible. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

SO-MM #1: Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods

SO-MM #2: Implement Measures to Reduce Impacts Associated with the Division of Communities

Mitigation Measure SO-MM #1 would be effective because it would help the Authority understand the different relocation needs of individual displaced residents as well as the community connections between the residents. With application of this mitigation measure, the Authority would assist displaced residents with finding new suitable housing within the communities where they currently reside, if desired, and would work with them through community workshops to support long-term neighborhood cohesion.

Mitigation Measure SO-MM #2 would be effective because it would include robust community outreach efforts to obtain input from a large number of community members. Local residents would provide input on the design of the Preferred Alternative within their community. Furthermore, this would be a collaborative effort with local communities, which would facilitate conversations regarding land uses that are compatible with community desires and needs as well as visually appealing, thereby helping to strengthen community cohesion.

Mitigation Measure SO-MM #2 will require the reconfiguration of land or construction of replacement structures for community facilities affected by the Preferred Alternative to maintain community cohesion in Fairmead. 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 consistent with local land

use plans and subject to separate site-specific analysis under CEQA, including measures to mitigate impacts to a less-than-significant level.

The Authority finds that Mitigation Measures SO-MM #1 and SO-MM #2 are required under the Preferred Alternative and that implementation of these measures would reduce the impacts caused by community division, but the impact would not be reduced to a less-than-significant level. In addition, the Authority will implement mitigation measures as described in Chapter 5, Environmental Justice, of the Final Supplemental EIR/EIS (which are also included in the mitigation monitoring enforcement plan). While analysis of environmental justice is not required under CEQA and is not separately discussed in these CEQA findings, EJ-MM #1 and EJ-MM #2 also contribute to reduction of the impacts caused by community division through providing funding and resources to address the Fairmead community's lack of sewer and water service, as well as to support development of a community center for Fairmead. The Authority finds that there are no other feasible mitigation measures or alternatives that would reduce this impact on community cohesion caused by physical division 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 approval of the Preferred Alternative.

4.7.2 Impact SO #7: Temporary Impacts on Children's Health and Safety

The Preferred Alternative is within 460 feet of a childcare facility (Fairmead Head Start Childcare Center) and an elementary school (Fairmead Elementary School and playground). Students or employees at these facilities could be exposed to a health or safety hazard in the event of accidental release of hazardous materials or wastes.

During construction, demolition, and excavation, the project could produce hazardous air emissions or involve handling extremely hazardous wastes in quantities above the threshold levels referenced in Public Resources Code Section 21151.4 and described in Health and Safety Code Section 25532(j); in some cases, this could occur within 0.25 mile of schools and recreational areas. Additionally, hazardous wastes such as asbestos-containing materials and lead-based paint could be encountered during construction activities as a result of the demolition of existing structures within the project footprint; this impact would be temporary during construction activities. The impact is significant under CEQA.

The discussion of Impact SO #7 in the Final Supplemental EIR/EIS augments the discussion of impacts on children's health and safety in the Final I EIR/EIS and provides updated analysis and an enhanced focus on impacts specific to the Preferred Alternative, which was not studied in the Final EIR/EIS (See Final EIR/EIS, pp. 3.12-42 to 3.12-47.)

The following measure mitigates this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

HMW-MM #1: Limit Use of Extremely Hazardous Materials near Schools during Construction

Mitigation Measure HMW-MM #1 would be effective because it would eliminate the use of extremely hazardous materials within at least 0.25 mile of nearby schools, thereby reducing the potential impacts from accidental dispersal of these materials.

The Authority finds that Mitigation Measure HMW-MM #1 is required under the Preferred Alternative and that implementation of this mitigation measure would substantially lessen or avoid the Preferred Alternative's impacts associated with temporary hazardous material and waste activities in proximity to schools, and therefore, the impact on children's health and safety will be reduced to a less-than-significant level.

4.7.3 Impact SO #8: Permanent Impacts on Children's Health and Safety

Two sensitive receptors (single-family residences) would experience a permanent increase in noise levels where roadway realignments would move traffic noise sources closer to sensitive receptors. Traffic on realigned roads near residences would permanently increase ambient noise

levels and potentially expose children to noise levels that would approach or exceed the FHWA Noise Abatement Criteria, which would be a significant impact.

State and local roadways would be realigned under the Preferred Alternatives, bringing traffic closer to sensitive receptors, including single-family residences. A section of SR 152 up to 1.25 miles in length would be realigned to the south to accommodate the Preferred Alternative and new overcrossings. In most instances, this realignment would not result in impacts on sensitive receptors from traffic noise. For residences on the north side of this portion of SR 152, the roadway would be farther away, and traffic noise would diminish relative to existing conditions. Almost all residences on the south side of SR 152 that fall within the distance where they could experience noise levels above FHWA Noise Abatement Criteria are presently very close to the road, and all but two would be removed during construction. Therefore, only two sensitive receptors would remain that would experience an increase in traffic noise following a realignment of this portion of SR 152. Children could reside at these residences, in which case children could be exposed to increased traffic noise levels.

The discussion of Impact SO #8 in the Final Supplemental EIR/EIS augments the discussion of impacts on children's health and safety in the Final EIR/EIS and provides updated analysis and an enhanced focus on impacts specific to the Preferred Alternative (See Final EIR/EIS, p. 3.12-49).

Implementation of the following measure would minimize this impact but would not reduce it to a less-than-significant level. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

NV-MM #3: Implement Proposed California High-Speed Rail Project Noise and Vibration Mitigation Guidelines

Mitigation Measure NV-MM #3 would be effective in reducing the impact from traffic noise as a result of realigned roadways moving vehicular traffic closer to the sensitive receptors through the use of building sound insulation.

The Authority's Noise and Vibration Mitigation Guidelines provide the following criteria, among others, for evaluating the reasonableness of noise barriers as mitigation for severe noise impacts: The minimum number of affected sites should be 10, and the length of a noise barrier should be at least 800 feet unless there are special circumstances that will be studied on a case-by-case basis. The Noise and Vibration Mitigation Guidelines also describe factors required to determine the cost effectiveness of noise barriers: the unit construction cost and the number of benefitted receptors. The general assumed cost for constructing a noise barrier along an at-grade portion of the highway is estimated to be \$70.00 per square foot, and the total cost of mitigation cannot exceed \$95,000 per benefitted receptor. The noise barrier component of NV-MM #3 is not considered reasonable or feasible mitigation for this impact because they would only benefit a single sensitive receptor in each location and therefore would not meet the minimum of 10 benefitted receptors in the Authority's Noise and Vibration Mitigation Guidelines. Moreover, because the noise barriers would only benefit a single sensitive receptor in each location and must be constructed at least 800 feet in length, construction costs would exceed \$95,000 per benefitted receptor.

The Authority finds that Mitigation Measure NV-MM #3 is required in the Preferred Alternative and that the building sound insulation component would reduce the Preferred Alternative's impact on sensitive receptors, including children, as a result of exposure to traffic-related noise; however, the impact would remain significant. The Authority finds that there are no other feasible mitigation measures or alternatives that could be adopted to further reduce the remaining traffic-related noise 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 approval of the Preferred Alternative.

4.7.4 Impact SO #18: Permanent Impacts on Children's Health and Safety

Operations associated with the Preferred Alternative would generate noise levels above existing ambient levels, exposing 61 single-family residences to moderate noise impacts and 35 single-

family residences to severe noise impacts. Children could live at these residences and therefore could be exposed to elevated noise levels. The level of operational noise would depend on the number of trains per day, speed of the trains, track configuration, and receptor distance to the tracks; however, the exposure to severe levels is a significant impact. The discussion of Impact SO#18 in the Final Supplemental EIR/EIS augments the discussion of impacts on children's health and safety in the Final EIR/EIS and provides updated analysis and an enhanced focus on impacts specific to the Preferred Alternative (See Final EIR/EIS, p. 3.12-49).

Implementation of the following measures would minimize this impact to the extent feasible. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

NV-MM #2: Additional Noise Analysis during Final Design

NV-MM #3: Implement Proposed California High-Speed Rail Project Noise and Vibration Mitigation Guidelines

Mitigation Measure NV-MM #2 would be effective because it would provide detailed operational noise information that would inform potential refinements to the final design and mechanisms to monitor changes by reviewing the report prepared during the final design. In addition, it could provide information that would lead to the development of additional mitigation measures or modifications to existing ones.

Mitigation Measure NV-MM #3 would be effective in reducing the impact from train operations through the use of building sound insulation for sensitive receptors that would be subject to severe noise impacts. The Authority's Noise and Vibration Mitigation Guidelines provide the following criteria, amongst others, for evaluating the reasonableness of noise barriers as mitigation for severe noise impacts: The minimum number of affected sites should be 10, and the length of a noise barrier should be at least 800 feet unless there are special circumstances that will be studied on a case-by-case basis. The Noise and Vibration Mitigation Guidelines also describe factors required to determine the cost effectiveness of noise barriers: the unit construction cost and the number of benefitted receptors. The general assumed cost for constructing a noise barrier along an at-grade portion of the highway is estimated to be \$70.00 per square foot, and the total cost of mitigation cannot exceed \$95,000 per benefitted receptor. The noise barrier component of NV-MM #3 is not considered reasonable or feasible mitigation for this impact because they would only benefit a single sensitive receptor in each location and therefore would not meet the minimum of 10 benefitted receptors in the Authority's Noise and Vibration Mitigation Guidelines. Furthermore, because the noise barriers would only benefit a single sensitive receptor in each location and must be constructed at least 800 feet in length, construction costs would exceed \$95,000 per benefitted receptor.

The Authority finds that Mitigation Measures NV-MM #2 and NV-MM #3 are required in the Preferred Alternative and would reduce the Preferred Alternative's impact on sensitive receptors, including children, as a result of exposure to severe noise generated by operations of trains; however, the impact would remain significant. The Authority finds that there are no other feasible mitigation measures or alternatives that could be adopted to further reduce the remaining train operations-related severe noise impact. 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 approval of the Preferred Alternative.

4.8 Land Use and Development (Section 3.13 of the Final Supplemental EIR/EIS and Final EIR/EIS)

The Preferred Alternative would be constructed within the San Joaquin Valley, an area where agriculture is a major part of the economic base. Agriculture is the land use that would be most affected by project construction and operation. Other land uses include commercial, industrial, residential, and mixed uses. Generally, the counties and cities along the Preferred Alternative alignment aim to preserve agricultural land while also planning for new growth areas and transit options. Approximately 25 miles of the Preferred Alternative would be in a new right-of-way

adjacent to existing transportation rights-of-way, and approximately 26 miles would extend across non-transportation land uses in a new right-of-way where none currently exists.

4.8.1 Impact LU #3: Permanent Direct Impacts on Land Use Patterns

The Preferred Alternative would result in the physical conversion of portions of the community of Fairmead to transportation-related uses. This conversion would also convert 111 acres of land identified for future development in the draft *Fairmead Colony Area Plan* (Madera County Planning Department 2012), which would reduce and restrict access between portions of the community and could result in a substantial change in the pattern or density of land use in this community that would be incompatible with existing and planned land uses.

Construction activities associated with the Preferred Alternative would permanently convert existing land uses to transportation uses within the permanent rights-of-way. Numerous road closures would occur, potentially resulting in reductions and restrictions in access between portions of the community. However, permanently closed segments of road would typically be less than 1 mile, and access to properties adjacent to these closed roads would be maintained. In addition, the Preferred Alternative would include new grade-separated interchanges approximately every 2 miles, which would maintain access throughout communities and avoid any changes to the current patterns of land use. Although existing land uses could continue to exist along the new rights-of-way, this conversion of land and reductions and restrictions in access to city or community centers could result in direct impacts through altered land use patterns and corresponding changes in land use and zoning designations. The impact is considered significant under CEQA.

The Final Supplemental EIR/EIS revises the Final EIR/EIS discussion of permanent impacts on land use and land use patterns by providing updated analysis and an enhanced focus on impacts specific to SR 152 alternatives, including the Preferred Alternative. (See Final EIR/EIS, pp. 3.13-30).

The following measures would reduce this impact to less-than-significant levels. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

SO-MM #1: Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods

SO-MM #2: Implement Measures to Reduce Impacts Associated with the Division of Communities

AVR-MM #3: Incorporate Design Criteria for Elevated Guideways and Station Elements That Can Adapt to Local Context

Mitigation Measure SO-MM #1 would be effective because it would help the Authority understand the different relocation needs of individual displaced residents as well as the community connections between the residents. With application of this mitigation measure, the Authority would assist displaced residents with finding new suitable housing within the communities where they currently reside, if desired, and would work with them through community workshops to support long-term neighborhood cohesion.

Mitigation Measure SO-MM #2 would be effective because it would include robust community outreach efforts to obtain input from a large number of community members. Local residents would provide input on the design of the Preferred Alternative within their community as a means of implementing design options that are compatible with existing community character. As noted in the Final Supplemental EIR/EIS on p. 3.13-29, this would be a collaborative effort with local communities, which would facilitate conversations regarding land uses and design that are compatible with community desires and needs as well as visually appealing, thereby helping to strengthen community cohesion and thus avoid secondary effects.

Mitigation Measure AVR-MM #3 would be effective in minimizing the aesthetic and visual impacts of HSR infrastructure because the implementation of a context-sensitive design process and the

resulting design elements would enhance the visual landscape, increasing the vividness and unity of the HSR infrastructure and reducing visual quality impacts.

The Authority finds that Mitigation Measures SO-MM #1, SO-MM #2, and AVR-MM #3 are required in the Preferred Alternative and would reduce the project's land use impact on the community of Fairmead to a level of less than significant.

4.9 Agricultural Lands (Section 3.14 of the Final Supplemental EIR/EIS and Final EIR/EIS)

Much of the Preferred Alternative alignment passes through rural lands in Merced and Madera Counties in a variety of agricultural uses. Implementation of the Preferred Alternative would result in the conversion of agricultural land to nonagricultural use; divide lands under agricultural use, resulting in parcel severance; and convert lands under Williamson Act or Farmland Security Zone contracts, potentially voiding those contracts.

4.9.1 Impact AG #2: Permanent Conversion of Agricultural Land to Nonagricultural Use

The Preferred Alternative would permanently convert approximately 2,337 acres of Important Farmland to nonagricultural use to construct HSR infrastructure and ancillary facilities. Important Farmland includes farmland classified as Prime, Unique, Farmland of Statewide Importance, or 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 as unlikely to continue to support agricultural use because of their resultant size, shape, access, location, or other project-related factors. The permanent conversion of Important Farmland to nonagricultural use is a significant impact under CEQA.

The Final Supplemental EIR/EIS discussion of Impact AG #2 is consistent with, but augments, the Final EIR/EIS discussion of Impact AG #1 (See Final EIR/EIS, pp. 3.14-31 to 3.14-32, 3.14-43). The acreage of converted Important Farmland for the wye portion of the Merced to Fresno Project Section is greater in the Final Supplemental EIR/EIS than in the Final EIR/EIS, however, due to the increased length of the wye as it extends to the west.

The following measure would lessen but not fully avoid this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AG-MM #1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)

Although implementation of Mitigation Measure AG-MM #1 cannot fully avoid the significant impact of converting Important Farmland to HSR project use, the Authority nevertheless finds that Mitigation Measure AG-MM #1 will substantially lessen this impact by providing compensation in the form of permanently preserved Important Farmlands that otherwise could be converted to nonagricultural use. The Authority further finds that this mitigation measure is included in the Preferred Alternative and 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 in the Central Valley. In light of the net loss of Important Farmland, the Authority finds that the conversion of Important Farmland to nonagricultural 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 approval of the Preferred Alternative.

4.9.2 Impact AG #3: Creation of Remnant Parcels of Important Farmland

The Preferred Alternative will result in indirect impacts on Important Farmland as a result of parcel severance by the HSR system (i.e., the permanent project footprint). Some parcels could be severed from a larger parcel because the right-of-way boundary of the Preferred Alternative would bisect the parcels, and some parcels could be severed because roadway access would be restricted or eliminated. Although some remnant parcels would remain in agricultural use, remnant parcels of 20 acres or less have the potential to become unfarmable because of the lack of access or the size, shape, location, or other hardship. The Preferred Alternative would result in a total of 192 acres of remnant parcels from 140 total farmland parcels. This acreage reflects a significant impact.

The Final Supplemental EIR/EIS discussion of Impact AG #3 is consistent with, but augments, the Final EIR/EIS discussion of Impact AG #2 (Final EIR/EIS, pp. 3.14-33 to 3.14-34, 3.14-43).

The following measure would lessen but not fully avoid this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AG-MM #1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)

Although implementation of Mitigation Measure AG-MM #1 cannot fully avoid the significant impact from creating remnant parcels of Important Farmland, the Authority nevertheless finds that Mitigation Measure AG-MM #1 will substantially lessen this impact by providing compensation in the form of permanently preserved Important Farmlands that otherwise could be converted to nonagricultural use. The Authority further finds that this mitigation measure is included in the Preferred Alternative and 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 remnant parcels is an unavoidable consequence of constructing the railroad right-of-way, the HSR project will create remnant parcels that may no longer be economically or physically feasible for continued farming operations, effectively creating a net loss of Important Farmland in the Central Valley.

In light of the net loss of Important Farmland, the Authority finds that the creation of remnant parcels 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 approval of the Preferred Alternative.

4.10 Aesthetics and Visual Resources (Section 3.16 of the Final Supplemental EIR/EIS and Final EIR/EIS)

Implementation of the Preferred Alternative could result in impacts on aesthetics and visual resources during both construction and operation. Construction equipment and activities would temporarily introduce new elements to the landscape, while operation of the HSR train would include a new and permanent feature to the landscape. In the Final Supplemental EIR/EIS, analysis of these impacts was broken into five landscape units—the San Joaquin River Landscape Unit, the Rural Agricultural Landscape Unit, the Freeway and Expressway Landscape Unit, the Robertson Boulevard Landscape Unit, and the Fairmead Landscape Unit. Each landscape unit was broken into one or more key viewpoints, which provide representative examples of existing views of the landscape, as seen by viewer groups within each landscape unit. Key viewpoints are used to illustrate how the proposed project would change the views. Additional impacts would result from introduced light and glare.

4.10.1 Impact AVR #1: Degraded Visual Quality for Residential Viewers during Construction

Clearing, earthmoving, and erection of project facilities, which will occur during a 1- to 3-year portion of the construction period, would introduce new lines, forms, and colors that would contrast with the existing landscape’s 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. The Preferred Alternative would pass concentrations of residences at Robertson Boulevard and near Fairmead. The residents in this area would be subjected to visual quality degradation during construction. Residential viewers would be affected by the Preferred Alternative where construction activities occur within 0.25 mile of their viewpoint. This impact would result in degraded visual quality because it would introduce features, such as large pieces of construction equipment, that would contrast with the established character of a view and alter the existing visual character and quality of a residential area. Because construction could reduce the visual quality category of a landscape by one or two levels, depending on the setting and viewer sensitivity, which would often be moderate or, in some cases, high, the effect of project construction on existing visual quality would be significant under CEQA.

The discussion is consistent with the discussion of Impact VQ #1 and VQ #2 in the Final EIR/EIS (See Final EIR/EIS, p. 3.16-29, 3.16-64).

The following measures would mitigate this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AVR-MM #1: Minimize Visual Disruption from Construction Activities

AVR-MM #2: Minimize Light Disturbance during Construction

Mitigation Measure AVR-MM #1 would be effective in minimizing the aesthetic and visual impacts of construction activities associated with the Preferred Alternative because it would reduce the area and scale of such impacts as well as exposure to areas of decreased visual quality.

Mitigation Measure AVR-MM #2 would be effective in minimizing aesthetic and visual impacts of light spillover from nighttime construction on nearby viewer groups.

The Authority finds that Mitigation Measures AVR-MM #1 and AVR-MM #2 are required under the Preferred Alternative and that implementation of these mitigation measures would substantially lessen or avoid impacts associated with the visual disturbance during construction of the Preferred Alternative; therefore, this impact will be reduced to less than significant under CEQA.

4.10.2 Impact AVR #4: Decreased Visual Quality in the Robertson Boulevard Landscape Unit

The introduction of the HSR to the Robertson Boulevard Landscape Unit for the Preferred Alternative would require reconstruction of the interchange at SR 152, bringing the boulevard over both the freeway and the HSR. This change would disturb approximately 4,088 linear feet of the tree row along Robertson Boulevard, extending the existing tree row gap at the SR 152 interchange from approximately 1,700 feet to approximately 3,600 feet, thereby diminishing the visual strength of the visual resource lining the roadway. The impact is significant under CEQA because the Preferred Alternative would substantially damage the Robertson Boulevard Tree Row, a visual resource, by requiring the removal of trees and disrupting the continuous line of palm trees along Robertson Boulevard.

The discussion is consistent with and augments the discussion of Impact VQ #5 in the Final EIR/EIS (See Final EIR/EIS, p. 3.16-45 and 3.16-65).

The following measures would lessen but not fully avoid this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AVR-MM #3: Incorporate Design Criteria for Elevated Guideways and Station Elements That Can Adapt to Local Context**AVR-MM #4: Provide Vegetation Screening along At-Grade and Elevated Guideways Adjacent to Residential Areas****AVR-MM #6: Landscape Treatments along the HSR Overcrossings and Retained Fill Elements**

Mitigation Measure AVR-MM #3 would help ensure that the design of the Preferred Alternative would integrate with the local design context by implementing context-sensitive design solutions for project-related infrastructure. This mitigation measure would be effective in minimizing the aesthetic and visual impacts of HSR infrastructure because implementation of a context-sensitive design process and the resulting design elements would enhance the visual landscape, increasing the vividness and unity of the HSR infrastructure and reducing visual quality impacts.

Mitigation Measure AVR-MM #4 would result in the planting of trees along the edges of the HSR rights-of-way in locations adjacent to residential areas to visually screen the elevated guideway and the residential area. This mitigation measure would be effective in minimizing the aesthetic and visual impacts of HSR infrastructure because it would reduce the contrast between existing views and views of HSR infrastructure. The planting of trees and other vegetation to provide visual relief to sensitive viewers from HSR facilities would introduce new visual features, such as hedgerows, that would block distant views. This mitigation measure is typical of visual treatments applied to similar infrastructure facilities and would be designed in coordination with local jurisdictions. In the context of the flat, open landscape of the resource study area, the planting of flora to block views of the HSR facilities would reduce the extent of the visual contrast between the industrial aesthetic of the HSR and the surrounding rural/agricultural area, but the flora would also block views that were previously open.

Mitigation Measure AVR-MM #6 would minimize the visual impact of the Preferred Alternative's new wall structures through a combination of architectural details and the planting of low-maintenance trees and other vegetation. Collectively, these steps would screen the structure, minimize graffiti, and reduce the effects of large walls. This mitigation measure would be effective in minimizing the aesthetic and visual impacts of HSR infrastructure because it would reduce the visual impact on sensitive viewers resulting from the contrast between existing views and views of HSR infrastructure.

The Authority finds that Mitigation Measures AVR-MM #3, AVR-MM #4, and AVR-MM #6 are required under the Preferred Alternative and that implementation of these measures would substantially lessen impacts on the visual quality of the Robertson Boulevard Landscape Unit during construction. However, they would not reduce the visual quality impact to a less-than-significant level under CEQA, and no other feasible mitigation is available to avoid, minimize, or compensate for the impact. To the extent that this significant adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support approval of the Preferred Alternative.

4.10.3 Impact AVR #5: Decreased Visual Quality in the Fairmead Landscape Unit

As described in Section 3.16.4.3 of the Final Supplemental EIR/EIS, the Preferred Alternative will result in significant visual quality impacts on the Fairmead Landscape Unit. The Preferred Alternative would pass within 0.25 mile of clusters of residences north of the community of Fairmead, and associated infrastructure would introduce permanent changes to the aesthetic and visual quality of existing residential views that would contrast with the rural and agricultural setting and rural residential aesthetic.

Although design standards for Preferred Alternative infrastructure would include approaches to integrate structures within a community and reduce the intrusiveness of new facilities on residential views, they would not fully avoid the degradation of residential views. New elevated HSR infrastructure would block views from adjacent viewpoints and become a feature of the landscape. This would be a significant impact under CEQA because the Preferred Alternative would substantially degrade the existing visual character or quality of the Fairmead Landscape Unit and its surroundings because it would result in the loss of distant scenic views and the existing rural residential aesthetic for residential viewers in this area.

The discussion is consistent with and augments the discussion of Impact VQ #3 in the Final EIR/EIS (See Final EIR/EIS, p. 3.16-31, 3.16-37, 3.16-38, and 3.16-64).

The following measures would lessen but not fully avoid this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AVR-MM #4: Provide Vegetation Screening along At-Grade and Elevated Guideways Adjacent to Residential Areas

AVR-MM #5: Replant Unused Portions of Lands Acquired for the HSR

AVR-MM #6: Landscape Treatments along the HSR Overcrossings and Retained Fill Elements

Mitigation Measure AVR-MM #4 would result in the planting of trees along the edges of the HSR rights-of-way in locations adjacent to residential areas to visually screen the elevated guideway and the residential area. This mitigation measure would be effective in minimizing the aesthetic and visual impacts of HSR infrastructure because it would reduce the contrast between existing views and views of HSR infrastructure. The planting of trees and other vegetation to provide visual relief to sensitive viewers from HSR facilities would introduce new visual features, such as hedgerows, that would block distant views. This mitigation measure is typical of visual treatments applied to similar infrastructure facilities and would be designed in coordination with local jurisdictions. In the context of the flat, open landscape of the resource study area, the planting of flora to block views of the HSR facilities would reduce the extent of the visual contrast between the industrial aesthetic of the HSR and the surrounding rural/agricultural area, but the flora would also block views that were previously open.

Mitigation Measure AVR-MM #5 would require that the Authority plant vegetation within lands acquired for the project (e.g., shifting roadways) that are not used for the HSR or related supporting infrastructure. Plantings would allow adequate space between the vegetation and the HSR alignment and catenary lines. All street trees and other visually important vegetation removed in these areas during construction would be replaced with similar vegetation that, upon maturity, would be similar in size and character to the removed vegetation. The Authority would make sure that vegetation would be continuously maintained, and appropriate irrigation systems would be installed within the planting areas. No species from the Invasive Species Council of California's list of invasive species would be planted. This mitigation measure would be effective in minimizing the aesthetic and visual impacts of land made fallow because it would replace vegetation removed during construction and enhance the visual appeal of areas in proximity to HSR infrastructure, thereby reducing the area and scale of such impacts as well as exposure to areas of decreased visual quality.

Mitigation Measure AVR-MM #6 would minimize the visual impact of the Preferred Alternative's new wall structures through a combination of architectural details and the planting of low-maintenance trees and other vegetation. Collectively, these steps would screen the structure, minimize graffiti, and reduce the effects of large walls. This mitigation measure would be effective in minimizing the aesthetic and visual impacts of HSR infrastructure because it would reduce the visual impact on sensitive viewers resulting from the contrast between existing views and views of HSR infrastructure.

The Authority finds Mitigation Measures AVR-MM #4, AVR-MM #5, and AVR-MM #6 are required under the Preferred Alternative and that implementation of these measures would reduce but not

completely avoid or substantially lessen the permanent impact on the views, visual character, and visual quality within the Fairmead Landscape Unit. 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 significant adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support approval of the Preferred Alternative.

4.10.4 Final EIR/EIS Impact VQ #11: Sound Barrier and Retaining Wall Would Block Views

The Final EIR/EIS identified that construction of sound barriers along guideways and overcrossing retaining walls in urbanized areas would block views, a significant impact. Mitigation measures VQ-MM #5 and VQ-MM #6 in the Final EIR/EIS reduced the impact through the use of landscape treatments and the use of transparent materials, but not to a level of less than significant (Final EIR/EIS, pp. 3.16-30 and 3.16-66).

The Final Supplemental EIR/EIS did not need to assess the impact of sound barriers, because no sound barriers were proposed either part of or as mitigation for the Preferred Alternative. However, Impacts AVR #4 and AVR #5 in the Final Supplemental EIR/EIS addressed visual impacts of the Preferred Alternative in the Robertson Boulevard and Fairmead Landscape Units. As articulated in the discussions of these impacts, structures associated with the Preferred Alternative would block views within these landscape units. While the Authority has incorporated mitigation measures (including increased landscaping) that would lessen these impacts, the Preferred Alternative with mitigation would still change views relative to existing conditions. Please refer to the discussions above regarding Impacts AVR #4 and AVR #5 regarding conclusions that these impacts of the Preferred Alternative will remain significant and unavoidable.

4.10.5 Final EIR/EIS Impact VQ #12: Traction Power Distribution Stations Would Alter Visual Character or Block Views

The Final EIR/EIS identified that construction of traction power substations would alter visual character or block views, a significant impact. Mitigation measure VQ-MM #7 in the Final EIR/EIS reduced the impact through the use of context-appropriate landscaping and walls/fences to a level of less than significant (Final EIR/EIS, pp. 3.16-64 and 3.16-66). The Final Supplemental EIR/EIS assessed this impact in Impact AVR #3, Decreased Visual Quality in the Rural Agricultural Landscape Unit, which explains that new equipment necessary to support the Preferred Alternative at the El Nido Substation would be consistent with the mass and form of the existing substation at this location and visual changes would be minor. The Authority finds that the impact would be less than significant (See Final Supplemental EIR/EIS p. 3.16-36).

4.11 Cultural Resources (Section 3.17 of the Final Supplemental EIR/EIS and Final 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 NEPA and Section 106 of the National Historic Preservation Act, which provides considerable protection for cultural resources. The development of the management documents and treatment plans pursuant to Section 106 regulations involves 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 Final Supplemental 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 Officer (SHPO), and consulting parties. The PA provides an overall regulatory framework for conducting the Section

106 process throughout the HSR system. The documentation process for the Central Valley Wye 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 (NRHP) (FRA, Authority, and SHPO 2012). The MOA stipulates the treatment measures that will be applied for cultural resources affected by the project and calls for the development of two treatment plans: an Archaeological Treatment Plan and a Built Environment Treatment Plan. The Archaeological Treatment Plan and Built Environment Treatment Plan will set forth a prescriptive process by which treatment measures will be applied to each known resource and 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 will provide specific performance standards, ensuring that each impact will be avoided, minimized, or mitigated to the extent possible, and provide enforceable performance standards to follow the guidelines regarding the NRHP and the Secretary of Interior's standards and guidelines when implementing the mitigation measures. The treatment plans will conform to the principles of the Advisory Council on Historic Preservation's treatment handbook as well as guidelines from the SHPO. These treatment plans dictate how the requirements of Section 106 will be met and include mitigation measure requirements.

4.11.1 Impact CUL #1: Permanent Disturbance of Unknown Archaeological Sites

Construction of the Preferred Alternative could affect unknown archaeological deposits from ground-disturbing activities. Unknown archaeological sites might represent the full range of prehistoric or historic activities conducted over time, including prehistoric lithic scatters and village sites, historic-era homestead remains, and human burials. Unknown or unrecorded archaeological resources that are not observable when conducting standard surface archaeological inspections, including subsurface buried archaeological deposits, may exist in areas surveyed, either within the urbanized or rural areas or areas where permission to enter has not been granted.

Although focused impact avoidance and minimization features would reduce the potential to affect such resources, the potential for impacts would remain significant. The discussion in CUL # 1 is consistent with the discussion in Impact Arch #1, Effect on Significant Prehistoric and Historic-Era Archaeological Resources in the Final EIR/EIS (See Final EIR/EIS, pp. 3.17-67 to 3.17-68, and 3.17-92).

The following measures would mitigate this impact to less-than-significant levels. (Because of length, the text of the mitigation measures is presented separately in Attachment A to these CEQA findings.)

CUL-MM #1: Amend Archaeological and Built-Environment Treatment Plans

CUL-MM #2: Mitigate Adverse Impacts on Archaeological and Built-Environment Resources Identified during Phased Identification. Comply with the Stipulations Regarding the Treatment of Archaeological and Historic Built Resources in the PA and MOA

CUL-MM #3: Halt Work in the Event of an Archaeological Discovery and Comply with the PA, MOA, Archaeological Treatment Plan, and all State and Federal Laws, as Applicable

Mitigation Measure CUL-MM #1 is anticipated to be effective because it provides guidance and the procedure necessary to reduce potential impacts on archaeological and historic architectural resources identified during survey or construction.

Mitigation Measure CUL-MM #2 is anticipated to be effective because it would reduce the potential for impacts on any newly discovered archaeological or historic architectural resources through protections and compliance requirements of the PA and MOA.

Mitigation Measure CUL-MM #3 is anticipated to be effective because it includes identification efforts as well as requirements for conducting archaeological training, monitoring during construction, stopping work if resources are encountered to allow for assessment of the find, and developing treatment plans, which would achieve the stewardship goals of Section 106 and NEPA and CEQA review.

The Authority finds that Mitigation Measures CUL-MM #1, CUL-MM #2 and CUL-MM #3 are required under the Preferred Alternative and that implementation of these measures would reduce construction impacts on archaeological resources to less than significant, even if data recovery is the only feasible mitigation.

4.11.2 Impact CUL #3: Permanent Demolition, Destruction, Relocation, or Alteration of Historic Architectural Resources or Setting

The Preferred Alternative would be constructed near the Chowchilla Canal and require modification of the canal. However, the result of construction would not cause an impact on this existing historic architectural resource or its setting under any of the alternatives because the modification of this historic property would not impair its ability to convey its historic significance. However, the Preferred Alternative would remove trees from the Robertson Boulevard Tree Row, a historic architectural resource. Although the Preferred Alternative would affect the fewest linear feet of the resource of all the considered alternatives, the substantial adverse change in the significance of the historical resource, pursuant to Section 15064.5, is considered a significant impact under CEQA. The discussion in Impact CUL #3 is consistent with and augments the discussion in Impact Hist #1, Effect on Historically Significant Built-Environment Resources during Construction in the Final EIR/EIS (See Final EIR/EIS, pp. 3.17-68 to 78, and 3.17-92 to 3.17-93).

The following measures reduce this impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

CUL-MM #1: Amend Archaeological and Built-Environment Treatment Plans

CUL-MM #4: Mitigation for Permanent Demolition, Destruction, Relocation, or Alteration of Historic Architectural Resources or Setting—Robertson Boulevard Tree Row

As set forth in Mitigation Measure CUL-MM #1, a Built-Environment Treatment Plan amendment would add a commitment for the Authority to require the contractor to refine the design in the vicinity of the Robertson Boulevard Tree Row to minimize the number of trees affected. Implementation would be coordinated with the construction schedule; the related timing requirements would be included in the Built-Environment Treatment Plan. This mitigation measure is anticipated to be effective because the identification of these steps provides guidance and the procedure necessary to reduce potential impacts on archaeological and historic architectural resources identified during survey or construction.

Mitigation Measure CUL-MM #4 offers additional mitigation, including specific measures concerning the Robertson Boulevard Tree Row, as included within the Merced Fresno MOA (Authority and FRA 2012b). These measures include conducting pre-construction conditions assessments of the trees, preparing plans for protection and stabilization, preparing response plans for unanticipated effect and inadvertent damage, preparing and submitting Historic American Landscape Survey documentation, and relocating selected trees. Consequently, no changes to the Merced Fresno MOA would be necessary.

The Authority finds that Mitigation Measures CUL-MM #1 and CUL-MM #4 are required under the Preferred Alternative and that implementation of these measures would reduce impacts on the Robertson Boulevard Tree Row. However, because the removal of trees in the Robertson Boulevard Tree Row cannot be fully avoided, the impact is still considered significant, even with

adherence to these mitigation measures. 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 significant adverse impact remains significant and unavoidable, the Authority finds that specific economic, social, and other considerations identified in the Statement of Overriding Considerations support approval of the Preferred Alternative.

4.11.3 Final EIR/EIS Impact Pale #2: Effect on Paleontological Resources during Construction

The Final EIR/EIS identified that excavations in sediments with moderate and high paleontological resources have the potential to destroy a paleontological resource, a significant impact. Mitigation measures Pale-MM #1, Pale-MM #2, and Pale-MM #3 in the Final EIR/EIS reduced the impact to a level of less than significant through construction monitoring, preparation and implementation of a paleontological resources mitigation and monitoring plan, and requirements to halt construction activities in the event of resource discovery. The Authority made a finding that the impact would be less than significant (Final EIR/EIS, pp. 3.17-78 to 3.17-80, and 3.17-92).

The Final Supplemental EIR/EIS assessed this impact in Impact PAL #1, Common Impacts on Paleontological Resources due to Construction, which explains that no destruction of unique paleontological resources is anticipated because no past discoveries of such resources have been identified in the study area. Furthermore, the Preferred Alternative incorporates standardized impact avoidance and minimization features that require paleontological resource construction monitoring, unanticipated discovery, treatment, and construction work stoppage protocols; therefore, the Authority finds the impact to be less than significant (See Final Supplemental EIR/EIS p. 3.9-72 to 3.9-74).

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5 CUMULATIVE IMPACTS (SECTION 3.19 OF THE FINAL SUPPLEMENTAL EIR/EIS AND FINAL EIR/EIS)

This section presents the Authority's findings regarding the cumulative impacts from implementing the Preferred Alternative in combination with other closely related past, present, and reasonably foreseeable future projects. CEQA defines cumulative impacts as two or more individual impacts that, when evaluated together, are considerable or capable of compounding or increasing other environmental impacts (CEQA Guidelines § 15355). Under CEQA, when a project would contribute to a cumulative impact, an EIR must discuss whether the project's incremental effect would be "cumulatively considerable." Cumulatively considerable means that the project's incremental effect would be 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 that provided for the effects attributable to the project alone (CEQA Guidelines, Section 15130, subdivision [b]).

Both the Final Supplemental EIR/EIS and Final EIR/EIS identified no contribution to a cumulative impact under CEQA in the following resource areas: Transportation, Electromagnetic Interference/Electromagnetic Fields, Public Utilities, Hydrology, Geology/Soils, Hazardous Materials, Safety & Security, and Land Use and Development. Accordingly, these topics are not discussed further in this discussion of cumulative impacts findings.

5.1 Air Quality and Global Climate Change

The SJVAPCD, which has jurisdiction over the SJVAB, has identified project-level thresholds to evaluate air quality impacts from projects in the SJVAB and, in developing these thresholds, identified levels at which project emissions would be cumulatively considerable. The project-level thresholds are based on models that consider planned future projects within the SJVAB. Construction of the Preferred Alternative would result in an exceedance of SJVAPCD's CEQA regional criteria pollutant thresholds for NO_x and PM₁₀ emissions and therefore would result in a cumulative impact under CEQA when taken into consideration with other construction activities in the SJVAB.

The Preferred Alternative would also contribute to cumulative impacts with respect to NO_x in the San Francisco Bay Area Air Basin because emissions during material hauling activities associated with the HSR alignment would exceed the BAAQMD threshold.

This analysis is consistent with the discussion and conclusions on page 3.19-8 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.19-8).

Implementation of the following measures would minimize or avoid the contribution of the Preferred Alternative to these cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment

AQ-MM #2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment

AQ-MM #3: Reduce the Potential Impact of Concrete Batch Plants

AQ-MM #4: Offset Project Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement

AQ-MM #5: Purchase Offsets and Off-Site Emission Mitigation for Emissions Associated with Hauling Ballast Material in Certain Air Districts

Mitigation Measures AQ-MM #1 through AQ-MM #5 would offset construction and off-site emissions; reduce criteria exhaust emissions from construction equipment, on-road vehicles, and concrete batch plants; and offset construction emissions through a voluntary emissions reduction

agreement. These mitigation measures would avoid impacts on regional air quality from criteria pollutants. Therefore, considering these mitigation measures, the contribution of the Preferred Alternative to cumulative air quality impacts from criteria pollutants during construction would not be considerable.

The Authority finds that Mitigation Measures AQ-MM #1, AQ-MM #2, AQ-MM #3, AQ-MM #4, and AQ-MM #5 are required under the Preferred Alternative and that implementation of the measures would reduce the Preferred Alternative's contribution of construction-period NO_x and PM₁₀ emissions to a level that would not be cumulatively considerable.

5.2 Final EIR/EIS Noise and Vibration Cumulative Impacts Analysis

The Final EIR/EIS identified that noise from operation of the HSR system would expose sensitive receptors to noise levels categorized as a severe impact as established by the FRA for high-speed ground transportation, a significant impact under CEQA, and that HSR operations in combination with noise generated by the Roeding Regional Park and Fresno Chaffee Zoo Facility would constitute a significant cumulative impact. The Authority made a finding that the contribution of the Hybrid Alternative to the cumulative noise impact would be cumulatively considerable (Final EIR/EIS, pp. 3.19-9 to 3.19-10).

The Final Supplemental EIR/EIS does not revise the Authority's determination, associated with the previously approved Hybrid Alternative, of a cumulatively considerable contribution to the cumulative impact on Roeding Park and Fresno Chaffee Zoo. Only to the extent required by CEQA, the Authority reaffirms its prior finding.

The Final Supplemental EIR/EIS assessed this impact with respect to the Preferred Alternative in Section 3.19.6.3, Noise and Vibration, pages 3.19-12 to 3.19-15, which explains that no cumulative noise impact would occur because the projects identified within the study area would not generate noise levels during operation above federal and state standards, or that such activities are far from such residential receptors. The Authority finds that there would be no cumulative noise impact related to construction of the Preferred Alternative.

5.3 Biological Resources and Wetlands

5.3.1 Special-Status Plants and Wildlife

Construction of the Preferred Alternative would result in the removal of vegetation for the placement of permanent infrastructure during construction. Vegetation removal in temporary impact areas would result from the use of construction vehicles and disturbances by personnel (i.e., trampling, covering, or crushing individual plants, plant populations, or suitable potential habitat for special-status species). Substantial adverse effects on special-status plant and wildlife species during construction are considered significant impacts under CEQA.

When taken into consideration with past, present, and reasonably foreseeable projects, the cumulative construction impact on special-status plants and wildlife would be significant.

This analysis is consistent with the discussion and conclusions on page 3.19-14 to 3.19-16 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section.

Implementation of the following measures would minimize, avoid, and/or compensate for the contribution of the Preferred Alternative to cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1c: Conduct Presence/Absence Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan

- BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species**
- BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources**
- BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat**
- BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, or Creation on Mitigation Sites**
- BIO-MM #5: Conduct Pre-Construction Surveys for Vernal Pool Wildlife Species**
- BIO-MM #6: Implement Seasonal Vernal Pool Work Restriction**
- BIO-MM #7: Implement and Monitor Vernal Pool Avoidance and Minimization Measures Within Temporary Impact Areas**
- BIO-MM #8a: Work Windows for Fish**
- BIO-MM #8b: Pile Driving Underwater Sound Pressure Measures**
- BIO-MM #8c: Water Diversion Measures for Fish**
- BIO-MM #8d: Fish Rescue Plan**
- BIO-MM #9a: Work Stoppage**
- BIO-MM #9b: Conduct Pre-Construction Surveys for Special-Status Reptile and Amphibian Species**
- BIO-MM #10: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species**
- BIO-MM #11: Conduct Pre-Construction Surveys for California Tiger Salamander**
- BIO-MM #12: Implement Avoidance and Minimization Measures for California Tiger Salamander**
- BIO-MM #13: Conduct Emergence and Larval Surveys for Western Spadefoot**
- BIO-MM #14: Conduct Protocol-Level Surveys for Blunt-Nosed Leopard Lizard**
- BIO-MM #15: Implement Avoidance Measures for Blunt-Nosed Leopard Lizard**
- BIO-MM #16: Conduct Western Pond Turtle Pre-Construction Surveys and Relocation**
- BIO-MM #17: Conduct Western Pond Turtle Monitoring**
- BIO-MM #18: Implement Western Pond Turtle Avoidance and Relocation**
- BIO-MM #19: Avoid Suitable Giant Garter Snake Habitat**
- BIO-MM #20: Conduct Work in Giant Garter Snake Habitat during the Active Season**
- BIO-MM #21: Conduct Pre-Construction Surveys and Implement Minimization Measures for Giant Garter Snakes**
- BIO-MM #22: Conduct Pre-Construction Surveys for Blainville's Horned Lizards, San Joaquin Coachwhip, and Silvery Legless Lizards**
- BIO-MM #23: Conduct Blainville's Horned Lizards, San Joaquin Coachwhip, and Silvery Legless Lizards Monitoring, Avoidance, and Relocation**
- BIO-MM #24a: Conduct Pre-Construction Surveys and Delineate Active Nest Buffers and Exclusion Areas for Breeding Birds**
- BIO-MM #24b: Conduct Pre-Construction Surveys and Monitoring for Raptors**
- BIO-MM #25a: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies**

BIO-MM #25b: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat

BIO-MM #25c: Bird Protection

BIO-MM #26: Conduct Surveys for Swainson's Hawk Nests

BIO-MM #27: Implement Avoidance and Minimization Measures for Swainson's Hawk Nests

BIO-MM #28: Monitor Removal of Nest Trees for Swainson's Hawks

BIO-MM #29: Conduct Protocol-Level Surveys for Burrowing Owls

BIO-MM #30: Implement Avoidance and Minimization Measures for Burrowing Owl

BIO-MM #31: Conduct Pre-Construction Surveys for Special-Status Bat Species

BIO-MM #32: Implement Bat Avoidance and Relocation Measures

BIO-MM #33: Implement Bat Exclusion and Deterrence Measures

BIO-MM #34: Conduct Pre-Construction Surveys for American Badger Den Sites and Implement Minimization Measures

BIO-MM #35: Conduct Pre-Construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures

BIO-MM #36: Conduct Pre-Construction Surveys for San Joaquin Kit Fox

BIO-MM #37: Minimize Impacts on San Joaquin Kit Fox

BIO-MM #38: Construction in Wildlife Movement Corridors

BIO-MM #39a: Establish Wildlife Crossings

BIO-MM #39b: Install Aprons or Barriers within Security Fencing

BIO-MM #40: Conduct Pre-Construction Surveys for Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat

BIO-MM #41: Monitoring, Avoidance and Relocation of Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat

BIO-MM #42: Measure Pile Driving Sound Pressure and Attenuate Underwater Sound

BIO-MM#43: Compensate for Impacts to Listed Plant Species

BIO-MM#44: Provide Compensatory Mitigation for Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat

BIO-MM#45: Provide Compensatory Mitigation for Impacts on Valley Elderberry Longhorn Beetle Habitat

BIO-MM#46: Provide Compensatory Mitigation for Impacts on California Tiger Salamander Habitat

BIO-MM #47 Compensate for Impacts on Blunt-Nosed Leopard Lizard and Nelson's Antelope Squirrel

BIO-MM #48: Provide Compensatory Mitigation for Loss of Swainson's Hawk Nesting Trees and Habitat

BIO-MM #49: Provide Compensatory Mitigation for Loss of Burrowing Owl Active Burrows and Habitat

BIO-MM #50: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat

BIO-MM #51: Provide Compensatory Mitigation for Impacts to Giant Garter Snake Habitat

BIO-MM #52: Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee

BIO-MM #53: Provide Compensatory Mitigation for Impacts on Crotch Bumble Bee Habitat

Mitigation measures would require protocol-level surveys to identify individual members of a species that could be avoided, relocated, or propagated. They would also involve the preparation and implementation of a habitat mitigation plan to offset impacts on habitat for special-status species by creating, restoring, enhancing, and/or preserving habitat that would provide the same functions and values as the habitat that would be permanently affected by construction. With implementation of this mitigation, the incremental contribution of the Preferred Alternative to this cumulative impact during construction would not be cumulatively considerable.

The Authority finds that the preceding mitigation measures are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact to a level that would not be cumulatively considerable.

5.3.2 Special-Status Plant Communities

Construction of the Preferred Alternative would result in direct and indirect impacts on special-status plant communities. Direct and indirect impacts to special-status plant communities are considered a significant impact under CEQA. When taken into consideration with past, present, and reasonably foreseeable projects, the cumulative construction impact on special-status plant communities would be significant. This analysis is consistent with the discussion and conclusions on page 3.19-14 to 3.19-16 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section.

Implementation of the following measures would minimize or avoid the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #1c: Conduct Presence/Absence Pre-Construction Surveys for Special-Status Plant Species and Special-Status Plant Communities

BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

The aforementioned mitigation measures would require protocol-level surveys to identify individual members of a species that could be avoided, relocated, or propagated. They would also involve the preparation and implementation of a habitat mitigation plan to offset impacts on habitat for special-status species by creating, restoring, enhancing, and/or preserving habitat that would provide the same functions and values as the habitat that would be permanently affected by construction.

The Authority finds that the preceding mitigation measures are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact to a level that would not be cumulatively considerable.

5.3.3 Jurisdictional Aquatic Resources

Construction of the Preferred Alternative would result in the discharge of fill into federal and state jurisdictional wetlands and other waters under Section 404 of the Clean Water Act and under Section 1600 et seq. of the California Fish and Game Code, including seasonal wetlands, vernal pools, canals, ditches, lacustrine wetlands, retention and detention basins, and riparian and seasonal riverine areas, which could lead to impacts on jurisdictional aquatic resources, including through the removal or modification of local hydrology and redirection of flow. Discharge of fill into federal and/or state jurisdictional wetlands and/or other waters is considered a significant impact under CEQA.

When taken into consideration with past, present, and reasonably foreseeable projects, the cumulative construction impact on jurisdictional aquatic resources would be significant. The Final EIR/EIS identified that the contribution of the Hybrid Alternative to cumulative impacts on wetlands would be cumulatively considerable because it would contribute to the net loss of wetland habitat within the Central Valley (See Final EIR/EIS, pp. 3.19-16). The Final Supplemental EIR/EIS revised this impact discussion to reflect that the contribution of the Preferred Alternative to the cumulative impact would not be cumulatively considerable because it would result in no net loss of jurisdictional aquatic resources (See Final Supplemental EIR/EIS, p. 3.19-23).

Implementation of the following measures would minimize or avoid the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones

BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

The aforementioned mitigation measures would compensate for cumulative impacts on jurisdictional waters by providing for on-site and off-site mitigation by creating, restoring, enhancing, and preserving “in kind” wetlands or other waters that provide the same functions and values as those permanently affected by construction and implementing a habitat management plan. The implementation of these measures would compensate for direct and indirect impacts on jurisdictional aquatic resources in compliance with the U.S. Army Corps of Engineers (USACE) “no net loss of wetlands” policy.

The Authority finds that the preceding mitigation measures are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact to a level that would not be cumulatively considerable.

5.3.4 Critical Habitat

Construction of the Preferred Alternative would result in direct impacts on critical habitat, including through the loss or degradation of critical habitat areas, such as vernal pools. Additionally, indirect impacts, such as the spread of invasive species, could compromise the habitat value of these critical habitat areas. Loss and/or degradation of critical habitat is considered a significant impact under CEQA.

When taken into consideration with past, present, and reasonably foreseeable projects, the cumulative construction impact on critical habitat would be significant. The Final EIR/EIS identified that the Hybrid Alternative would have no effect on critical habitat, and therefore would

not contribute to cumulative impacts on critical habitat (See Final EIR/EIS, pp. 3.19-14). The Final Supplemental EIR/EIS revises this impact discussion to reflect that the contribution of the Preferred Alternative to cumulative impacts on critical habitat for vernal pool associated species and Central Valley steelhead would be cumulatively considerable (See Final Supplemental EIR/EIS, p. 3.19-24).

Implementation of the following measures would minimize or avoid the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts on Aquatic Resources

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, or Creation on Mitigation Sites

Mitigation Measures BIO-MM #3a, BIO-MM #3b, and BIO-MM #4 would require on-site and off-site restoration and preservation of critical habitat by creating, restoring, enhancing, and preserving habitat that would provide the same functions and values as that permanently affected by construction. With these measures and the delineation of habitat features as part of environmental site assessments during preparation of final construction plans and in the field, the likelihood of direct removal or effects on the long-term viability of critical habitat would be minimized.

The Authority finds that the preceding mitigation measures are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact to a level that would not be cumulatively considerable.

5.3.5 Essential Fish Habitat

Construction of the Preferred Alternative over the San Joaquin River would increase turbidity and siltation and contribute to cumulative impacts on EFH. Loss and/or degradation of EFH is considered a significant impact under CEQA. When taken into consideration with past, present, and reasonably foreseeable projects, the cumulative construction impact on EFH would be significant. The Final EIR/EIS identified that the Hybrid Alternative would have no effect on EFH because it would be elevated where it crosses the San Joaquin River (See Final EIR/EIS, pp. 3.7-42). The Final Supplemental EIR/EIS revises this impact discussion to reflect that the Preferred Alternative would contribute to cumulative impacts on EFH as a result of construction-related increases in turbidity and siltation in the San Joaquin River (See Final Supplemental EIR/EIS, p. 3.19-25).

Implementation of the following measures would minimize or avoid the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources

BIO-MM #4: Implement Measures to Minimize Impacts during Off-Site Habitat Restoration, Enhancement, and Preservation, or Creation on Mitigation Sites

BIO-MM #8a: Work Windows for Fish

BIO-MM #8b: Pile Driving Underwater Sound Pressure Measures

BIO-MM #8c: Water Diversion Measures for Fish

BIO-MM #8d: Fish Rescue Plan

The aforementioned mitigation measures would require on-site and off-site restoration and preservation of fish habitat as well as a plan for fish rescue.

The Authority finds that the preceding mitigation measures are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact to a level that would not be cumulatively considerable.

5.3.6 Wildlife Movement Corridors

Construction of the Preferred Alternative would affect known and modeled wildlife corridors. Substantial disruption of wildlife corridors is considered a significant impact under CEQA. When taken into consideration with past, present, and reasonably foreseeable projects, the cumulative construction impact on wildlife movement corridors could disrupt seasonal migration as well as animal foraging and mating opportunities; therefore, the impact would be significant. This analysis is consistent with the discussion and conclusions on page 3.19-16 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.19-16).

Implementation of the following measures would minimize or avoid the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

BIO-MM #39a: Establish Wildlife Crossings

BIO-MM #39b: Install Aprons or Barriers within Security Fencing

AVR-MM #2: Minimize Light Disturbance during Construction

NV-MM #1: Construction Noise Mitigation

The aforementioned mitigation measures would maintain wildlife crossing opportunities by requiring the creation of wildlife crossing features at frequent intervals along sensitive areas to facilitate wildlife movement and minimize or avoid impacts on wildlife corridors.

The Authority finds that the preceding mitigation measures are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact to a level that would be less than cumulatively considerable.

5.4 Final EIR/EIS Socioeconomics and Communities Cumulative Impacts Analysis

The Final EIR/EIS identified that the Hybrid Alternative would contribute to cumulative impacts on community cohesion, neighborhoods and community facilities due to temporary increases in traffic, changes in traffic patterns, changes in access to community facilities, and construction noise and dust in downtown areas of Merced and Fresno, which in turn could physically divide an existing community or necessitate construction of replacement facilities elsewhere. The Authority made a finding that the contribution of the Hybrid Alternative to these cumulative impacts would be cumulatively considerable (Final EIR/EIS, pp. 3.19-25). The Final Supplemental EIR/EIS does not revise the Authority's determination, associated with the previously approved Hybrid Alternative, of a cumulatively considerable contribution to these cumulative impacts. Only to the extent required by CEQA, the Authority reaffirms its prior finding.

The Final Supplemental EIR/EIS assessed cumulative impacts on socioeconomics and communities with respect to the Preferred Alternative in Section 3.19.6.11, Socioeconomics and Communities, pages 3.19-38 to 3.19-40, which explains that no cumulative impact would occur because no known planned projects would displace residents, businesses, and community facilities to the extent that replacement facilities are not already planned for or available elsewhere in the study area, nor would such activities physically divide an existing community. The Authority finds that there would be no cumulative impact on socioeconomics and

communities related to construction of the Preferred Alternative (See Final Supplemental EIR/EIS p. 3.19-12 to 3.19-15).

5.5 Agricultural Land

Construction of the Preferred Alternative would result in the permanent conversion of Important Farmland through direct conversion to nonagricultural uses and, indirectly, through parcel severance. Such loss of farmland is considered a significant impact under CEQA. When taken into consideration with past, present, and reasonably foreseeable projects, this conversion of Important Farmland would be considered a cumulative impact on agricultural farmlands. This analysis is consistent with the discussion and conclusions on page 3.19-29 to 3.19-30 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section (See Final EIR/EIS, pp. 3.19-29 to 3.19-30).

Implementation of the following measure would reduce the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AG-MM #1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)

Although the Authority has entered into an agreement with the Department of Conservation and its California Farmland Conservancy Program to implement agricultural land mitigation for the HSR system and Mitigation Measure AG-MM #1 would fund the purchase of an additional acreage for agricultural conservation easements, no new agricultural land would be created to replace converted land.

The Authority finds that Mitigation Measure AG-MM #1 is required under the Preferred Alternative and that implementation of this mitigation measure would reduce the contribution of the Preferred Alternative to this cumulative impact. Nevertheless, the contribution of the Preferred Alternative to the cumulative impact would be cumulatively considerable.

5.6 Final EIR/EIS Parks, Recreation, and Open Space Cumulative Impacts Analysis

The Final EIR/EIS identified that temporary closure, noise, dust, and visual changes from construction of the Hybrid Alternative would present the use of an established park, which is a significant impact under CEQA. Construction of the Hybrid Alternative in combination with impacts from other projects would constitute a cumulative impact on Roeding Park in Fresno. The Authority made a finding that the contribution of the Hybrid Alternative to the cumulative impact on Roeding Park would be cumulatively considerable (Final EIR/EIS, pp. 3.19-31). The Final Supplemental EIR/EIS does not revise the Authority's determination, associated with the previously approved Hybrid Alternative, of a cumulatively considerable contribution to the cumulative impact on Roeding Park. Only to the extent required by CEQA, the Authority reaffirms its prior finding.

The Final Supplemental EIR/EIS assessed this impact with respect to the Preferred Alternative in Section 3.19.6.14, Parks, Recreation, and Open Space, pages 3.19-43 to 3.19-44, which explains that cumulative impacts on parks, recreation, and open space would not occur from construction of the Preferred Alternative. The Authority finds that there would be no cumulative impacts on parks, recreation, and open space related to construction of the Preferred Alternative.

5.7 Aesthetics and Visual Resources

Construction of the Preferred Alternative would contribute to the alteration of the historic tree row lining Robertson Boulevard, causing a disruption in the straight 6-mile procession of the historic palms that line the roadway. In the context of the sensitive viewers of the historic Robertson Boulevard Tree Row, removing blocks of consecutive trees for construction of HSR grade separations and a new SR 152 interchange would permanently diminish the visual strength of the

tree rows lining the roadway, which would be further diminished by future development under the City of Chowchilla 2040 General Plan (City of Chowchilla 2011).

The Final EIR/EIS identified that the Hybrid Alternative would contribute to significant cumulative impacts due to temporary visual impacts from construction over a large area for multiple years, which would substantially degrade the existing visual character or quality of the site and its surroundings, a significant impact under CEQA (See Final EIR/EIS, pp. 3.19-32).

The Final Supplemental EIR/EIS revises this impact discussion to reflect that no cumulative impacts from temporary construction activities would occur as a result of the conditions of individual project approvals. These measures would minimize temporary noise and dust impacts such that construction would not substantially degrade the visual quality of the site and its surroundings during construction (See Final Supplemental EIR/EIS, p. 3.19-46). The remainder of the analysis is consistent with the discussion and conclusions on page 3.19-32 to 3.19-33 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section.

Implementation of the following measures would reduce the cumulative impacts. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

AVR-MM #3: Incorporate Design Criteria for Elevated Guideways and Station Elements That Can Adapt to Local Context

AVR-MM #4: Provide Vegetation Screening along At-Grade and Elevated Guideways Adjacent to Residential Areas

AVR-MM #6: Landscape Treatments along the HSR Overcrossings and Retained Fill Elements

Mitigation Measures AVR-MM #3, AVR-MM #4, and AVR-MM #6 would enhance architectural and landscape design features by marking the SR 152/Robertson Boulevard interchange and creating a visual gateway to Robertson Boulevard and Chowchilla by incorporating new trees and landscaping.

The Authority finds that Mitigation Measures AVR-MM #3, AVR-MM #4, and AVR-MM #6 are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact. However, the removal of trees for an HSR crossing and the blockage of long views along Robertson Boulevard by the HSR grade separation cannot be mitigated, resulting in a cumulatively considerable contribution to the cumulative impact on visual quality.

5.8 Cultural Resources

Construction of the Preferred Alternative would require the removal of several trees along the Robertson Boulevard Tree Row to accommodate construction and operation of the rail corridor, which would affect this NRHP-eligible historic architectural resource. The Final EIR/EIS identified that the Hybrid Alternative would contribute to significant cumulative impacts on archaeological resources, historic structures, and paleontological resources, which would cause a substantial adverse change in the significance of historic and archaeological resources, a significant impact under CEQA (See Final EIR/EIS, pp. 3.19-34 to 3.19-35). With respect to archaeological resources, the Final Supplemental EIR/EIS revises this impact discussion to reflect that cumulative impacts on archaeological resources from construction activities would not occur because past projects within the archaeological area of potential effects have not yielded significant archaeological resources and planned projects do not directly overlap with the project footprint of the Preferred Alternative (See Final Supplemental EIR/EIS, p. 3.19-48). With respect to paleontological resources, the Final Supplemental EIR/EIS revises this impact discussion to reflect that, although significant cumulative impacts on paleontological resources would occur, the contribution of the Preferred Alternative to this impact would not be cumulatively considerable because regulatory standards, design features, and BMPs would minimize the impact (See Final

Supplemental EIR/EIS, p. 3.19-33 to 3.19-34). The remainder of the analysis is consistent with the discussion and conclusions on page 3.19-34 to 3.19-35 in the Final EIR/EIS, but is revised in the Final Supplemental EIR/EIS to provide updated information and analysis that is focused on construction of the Preferred Alternative only, and does not address previously approved portions of the Merced to Fresno Project Section.

Implementation of the following measures would reduce the contribution to this cumulative impact. (Because of length, mitigation measure text is presented separately in Attachment A to these CEQA findings.)

CUL-MM #1: Amend Archaeological and Built Environment Treatment Plans.

CUL-MM #4: Mitigation for Permanent Demolition, Destruction, Relocation, or Alteration of Historic Architectural Resources or Setting – Robertson Boulevard Tree Row.

Mitigation Measures CUL-MM #1 and CUL-MM #4 would require the construction contractor to refine the design in the vicinity of the tree row to minimize the number of trees affected, prepare plans for the protection and stabilization of trees and unanticipated damage, and relocate selected trees.

The Authority finds that Mitigation Measures CUL-MM #1 and CUL-MM #4 are required under the Preferred Alternative and that implementation of these mitigation measures would reduce the contribution of the Preferred Alternative to this cumulative impact. However, the removal of trees for an HSR crossing along Robertson Boulevard cannot be mitigated, resulting in a cumulatively considerable contribution to the cumulative impact on this NRHP-eligible historic architectural resource.

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6 FEASIBILITY OF POTENTIAL ALTERNATIVES

CEQA requires the lead agency, here, the Authority, to consider a reasonable range of potentially feasible alternatives to the proposed project (Public Resources Code Sections 21002 and 21081; see also CEQA Guidelines, Section 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, Section 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, Section 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, Section 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 CEQA (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 Authority’s statutory responsibilities, the purpose of the statewide HSR system, the purpose and objectives of the Merced to Fresno Project Section, the function of the Central Valley Wye connecting the San Jose to Merced Project Section with the Merced to Fresno Project Section, the ability of an alternative to comply with Clean Water Act Section 404, the complexity of construction, and the environmental tradeoffs inherent in seeking to add a transportation use to an existing/established transportation (i.e., freeway) corridor.

6.1 Alternatives Studied in the Final Supplemental EIR/EIS and Not Selected for Approval

Following the Authority’s 2012 decisions on the north/south alignment for the Merced to Fresno Project Section and station locations in Merced and Fresno, the Authority engaged in extensive additional planning as described in Chapter 2 of the Final Supplemental EIR/EIS, and determined to focus on the following range of alternatives to be studied in detail in the supplemental EIR/EIS:

- SR 152 (North) to Road 13 Wye Alternative
- SR 152 (North) to Road 19 Wye Alternative
- Avenue 21 to Road 13 Wye Alternative
- SR 152 (North) to Road 11 Wye Alternative

See Figure 3 depicting the range of alternatives. The Supplemental EIR/EIS also analyzed the No Project Alternative.

The alternatives analyzed in the Supplemental EIR/EIS are those that were considered potentially feasible by the Authority. In these findings, the High-Speed Rail Authority Board is making the final determination of feasibility for the No Project Alternative and each of the three Central Valley Wye alternatives that have been rejected. The determination of final feasibility is a necessary

preliminary step before the Authority's adoption of its statement of overriding considerations. (*City of Marina v. Board of Trustees of California State University* (2006) 39 Cal.4th 341.)

No Project Alternative: The No Project Alternative would result in no construction of the Central Valley Wye. The currently underway HSR construction between Madera and north of Bakersfield would not connect to the City of Merced, or provide a connection to the San Jose to Merced Project Section to the west.

The No Project Alternative would not meet any of the project objectives 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 Section 185032) and of Proposition 1A (Streets and Highways Code Section 2704, et seq.) to develop an HSR system. It is therefore rejected on that basis as not a feasible alternative.

SR 152 (North) to Road 19 Wye Alternative: The SR 152 (North) to Road 19 Wye Alternative is the longest of the three SR 152 alternative (55 miles) with the largest area of permanent disturbance and would result in the greatest impacts on the natural environment and community resources. The SR 152 (North) to Road 19 Wye Alternative would result in greater temporary and permanent adverse impacts on wetlands and other waters, special-status plant habitat, and wildlife movement corridors than the other alternatives. It would also result in greater impacts on community resources, including displacement of larger numbers of residential units and businesses and relocation of more residents than any of the other Central Valley Wye alternatives.

Because of its greater area of permanent disturbance within agricultural areas, the SR 152 (North) to Road 19 Wye Alternative would convert more acreage of Important Farmland to a nonagricultural use, resulting in greater impacts on the agricultural economy of the region. It would cross the Ash and Berenda Slough open-space corridors three times, the most of any of the Central Valley Wye alternatives, potentially limiting the development and use of future recreational trails along the sloughs. The SR 152 (North) to Road 19 Wye Alternative would also disturb approximately 4,428 linear feet of the historic Robertson Boulevard Tree Row, which is 340 more linear feet than would be disturbed under the Preferred Alternative.

Although the SR 152 (North) to Road 19 Wye Alternative would result in fewer noise impacts on sensitive receptors than the Preferred Alternative, this outcome occurs because this alternative displaces more residential units along the alignment than the Preferred Alternative. The SR 152 (North) to Road 19 Wye Alternative would bisect Fairmead, resulting in impacts on community cohesion, and would therefore not lessen that particular impact of the Preferred Alternative. Balancing policy considerations, the Authority finds that the SR 152 (North) to Road 19 Wye Alternative has greater environmental impacts than the Preferred Alternative, and would not offer a substantial environmental advantage over the Preferred Alternative as to impacts on the community of Fairmead, and on these grounds rejects the alternative as not feasible.

SR 152 (North) to Road 13 Wye Alternative: The SR 152 (North) to Road 13 Wye Alternative would be marginally longer than the Preferred Alternative (52 miles versus 51 miles) with a slightly larger area of permanent disturbance (2,615 acres versus 2,566 acres). Although the types of impacts are similar, the Preferred Alternative would perform better in almost all the key environmental factors identified under consideration. Because of its larger footprint, the SR 152 (North) to Road 13 Wye Alternative would result in greater temporary and permanent impacts on wetlands and other waters, would disturb more acres of special-status plant habitat, and would affect more wildlife movement corridors than the Preferred Alternative. Similar to the SR 152 (North) to Road 19 Wye Alternative, the SR 152 (North) to Road 13 Wye Alternative would also result in greater impacts on community resources than the Preferred Alternative. The SR 152 (North) to Road 13 Wye Alternative would displace 34 more residential units and 1 more business and relocate 91 more residents. The SR 152 (North) to Road 13 Wye Alternative would convert more acreage of Important Farmland to a nonagricultural use, displace more agricultural facilities, and would disturb approximately 428 more linear feet of the historic Robertson Boulevard Tree Row than the Preferred Alternative. It would cross Ash and Berenda Sloughs, the site of future recreational corridors, twice, the same number as the Preferred Alternative.

Of several key community resource factors compared in Table 8-1 of the Final Supplemental EIR/EIS, the only factors for which the SR 152 (North) to Road 13 Wye Alternative would result in fewer impacts than the Preferred Alternative is the exposure of sensitive receptors to severe noise from operations. Similar to the SR 152 (North) to Road 19 Wye Alternative, this is because the SR 152 (North) to Road 13 Wye Alternative would displace more homes (i.e., sensitive receptors) along the HSR alignment, which would therefore not be exposed to severe noise impacts from train operation. As with the other SR 152 alternatives, the SR 152 (North) to Road 19 Wye Alternative would bisect Fairmead, resulting in impacts on community cohesion.

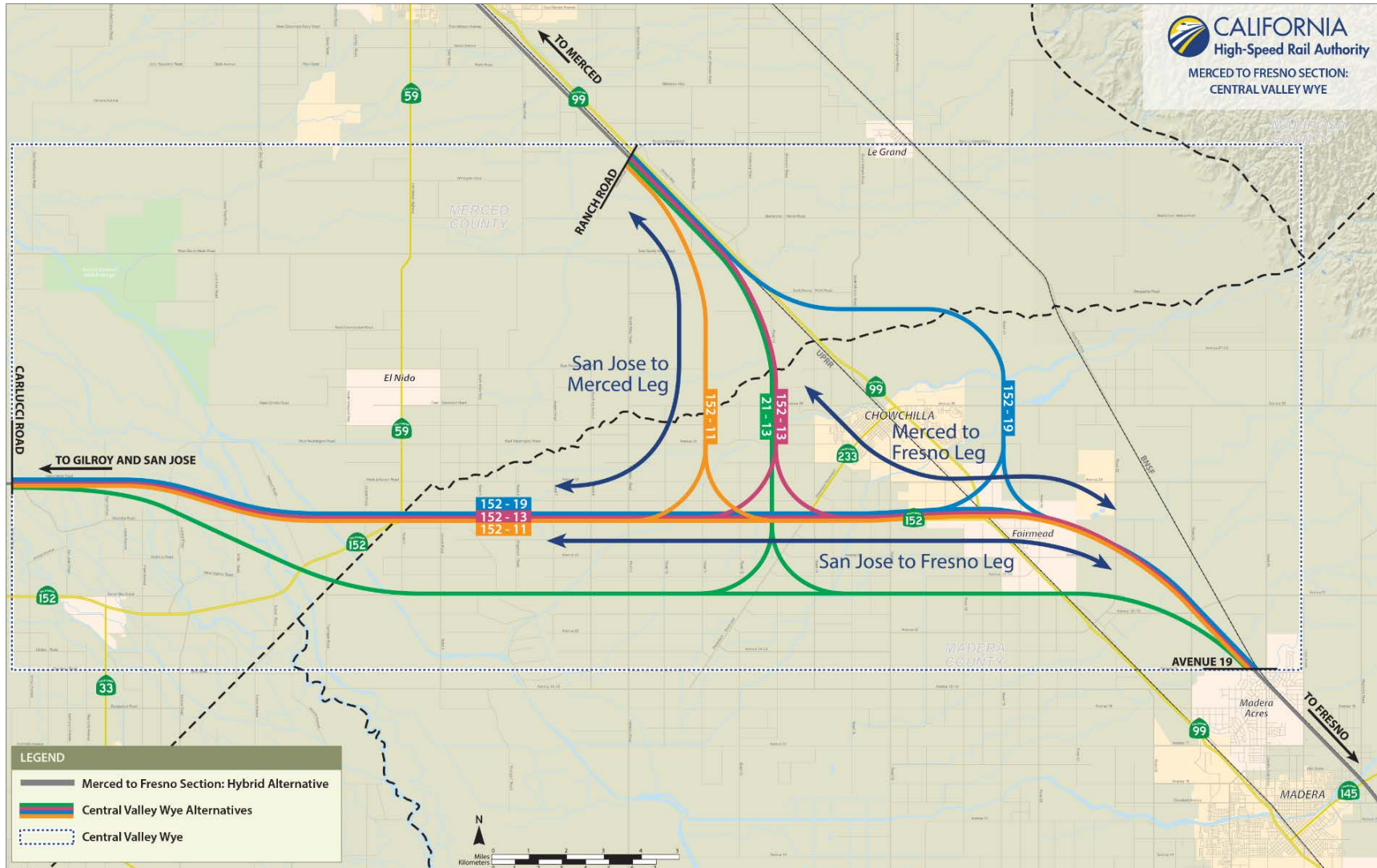
Balancing policy considerations, the Authority finds that the SR 152 (North) to Road 13 Wye Alternative has greater environmental impacts than the Preferred Alternative, and would not offer a substantial environmental advantage over the Preferred Alternative as to impacts on the community of Fairmead, and on these grounds rejects the alternative as not feasible.

Avenue 21 to Road 13 Wye Alternative: The Avenue 21 to Road 13 Wye Alternative presents some advantages with respect to environmental resource impacts relative to the Preferred Alternative. The Avenue 21 to Road 13 Wye Alternative would have the smallest area of permanent disturbance of any of the four Central Valley Wye alternatives (2,414 acres) and would result in the fewest impacts on most special-status wildlife species. However, it would also cross more waterbodies than all of the other Central Valley Wye alternatives and thus result in greater permanent impacts on wetlands and other waters. Along the Avenue 21 corridor more sensitive aquatic habitat could be disturbed by construction of the HSR alignment than along the SR 152 corridor. Compared to other terrestrial habitats, aquatic habitats have a relatively high resource value. Moreover, aquatic habitats face severe ongoing development pressures in the Central Valley.

In regard to key community resource impacts, one of the primary distinctions between the Avenue 21 to Road 13 Wye Alternative and the Preferred Alternative (as well as the other SR 152 alternatives) is the location of the alternatives with respect to the city of Chowchilla and the community of Fairmead. While the Preferred Alternative would pass just to the south of Chowchilla and bisect Fairmead, the Avenue 21 to Road 13 Wye Alternative would traverse a more southerly route that avoids most of the impacts on these communities. While the Avenue 21 to Road 13 Wye Alternative would result in slightly more displacements of residential units than the Preferred Alternative, it would also result in fewer relocations of residents and fewer displaced businesses. The Avenue 21 to Road 13 Wye Alternative would only cross Ash and Berenda Sloughs, the site of future recreational trails, once—one less crossing than the Preferred Alternative.

Conversely, because it would pass through a less-developed area, the Avenue 21 to Road 13 Wye Alternative would convert more acres of Important Farmland to a nonagricultural use and displace more agricultural facilities than the Preferred Alternative. It would also disturb approximately 1,502 more linear feet of the Historic Robertson Boulevard Tree Row than the Preferred Alternative because it would cross the boulevard in a location where few trees have been removed by previous development projects. The Avenue 21 to Road 13 Wye Alternative is the only alternative that would not traverse through Fairmead, a community with a relatively high percentage of low-income and minority individuals. By avoiding Fairmead, it would avoid impacts on community cohesion that could result under the Preferred Alternative.

The Authority finds that although the Avenue 21 to Road 13 Wye Alternative would avoid the community cohesion impacts on the community of Fairmead and have fewer impacts on special-status species than the Preferred Alternative, it would have greater environmental impacts than the Preferred Alternative in the area of aquatic resources and conversion of Important Farmland. The Authority further finds that while the Avenue 21 to Road 13 Wye Alternative would follow an east-west transportation corridor along Avenue 21, it would not provide the important public safety and community-stabilizing benefits associated with the Preferred Alternative, which involve implementing grade separation of SR 152 from cross traffic and implementation of water and sewer service. Balancing these policy considerations, the Authority rejects the Avenue 21 to Road 13 Wye Alternative as infeasible.



Sources: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015

JUNE 13, 2017

Figure 3 Central Valley Wye Alternatives Evaluated in the Draft Supplemental EIR/EIS

6.2 Alternatives Suggested in Comments on the Draft Supplemental EIR/EIS

One commenter suggested the Authority at this time should consider only the north/south portion of the Central Valley Wye, without the Wye itself and without the east-west connection out to Carlucci Road. The Authority rejects such an alternative as infeasible from an environmental, engineering, and legal/planning perspective. The Central Valley Wye portion of the Merced to Fresno Project Section is an essential component of the Project Section and the Phase 1 HSR system because it provides a connection between the Central Valley mainstem of the HSR system to the San Francisco Bay Area via the Pacheco Pass. The Authority finds that the Merced to Fresno Project Section's east/west alignment, and its functional connection to the north/south alignment via the Wye, is essential to planning for the Phase 1 HSR system, and is also essential to a full understanding of the environmental implications of this unique portion of the Merced to Fresno Project Section and the Phase 1 HSR system. The Authority therefore rejects the proposed alternative as infeasible on these grounds.

Another commenter proposed a Central Valley alignment within or adjacent to the Interstate 5 (I-5) corridor. Although this does not offer a specific realignment alternative in the Central Valley Wye area, the Authority concluded in its May 2012 findings on the Merced to Fresno Final EIR/EIS that such an alternative was infeasible and inconsistent with elements of the project purpose and need. The Authority in May 2012 duly rejected an I-15 corridor alignment alternative and reaffirms that rejection today.

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

As described in Chapter 2 of the Final Supplemental EIR/EIS, the Authority and FRA initially considered five potential options for the east-west connection with the San Jose to Merced Project Section to the west, and prepared three subsequent alternatives analysis reports (the 2010 *San Jose to Merced Section Preliminary Alternatives Analysis Report*, the 2011 *Merced to Fresno Section Supplemental Alternatives Analysis Report*, and the 2011 *San Jose to Merced Section Supplemental Alternatives Analysis Report*) in which these alternatives were evaluated. The Final EIR/EIS (Authority and FRA 2012) fully studied two wye design options: Avenue 21 and Avenue 24, however, the Authority and FRA elected not to approve either and instead pursued additional study of wye alternatives.

In 2013, the Authority and FRA considered this stakeholder and public input and used it to prepare the *Merced to Fresno Section: Central Valley Wye Alternatives Supplemental Alternatives Analysis Report* (Supplemental Alternatives Analysis Report), which evaluated 14 alternatives and selected four to carry forward for further evaluation. At the request of the USACE and U.S. Environmental Protection Agency (USEPA), the Authority and FRA developed a *Supplemental Checkpoint B Summary Report in Support of the Merced to Fresno Section: Wye Alternatives* (Checkpoint B Summary Report) in 2013 (Authority and FRA 2013), which included a total of 17 alternatives, the 14 alternatives that were evaluated in the 2013 Supplemental Alternatives Analysis Report and three variations of other alternatives that had been previously considered but withdrawn from further consideration prior to the Final EIR/EIS. The Authority and FRA published the first and second addendums to the Checkpoint B Summary Report in 2014 (Authority and FRA 2014a, 2014b), and published the third addendum to the report in 2016 (Authority and FRA 2016). Based on the analysis in the Checkpoint B Summary Report, the Authority and FRA determined that 13 of the 17 Central Valley Wye alternatives should be eliminated from further environmental review. This decision was supported by the evaluation of the alternatives in the context of the following factors: consistency with the HSR system and Merced to Fresno Project Section Purpose and Need, impacts on aquatic resources, impacts on the environment, relative construction costs, logistics of implementation/construction, incompatibility with land use, and public/agency input.

The Authority finds that each potential alternative considered in these alternatives screening documents and not carried forward into the Supplemental EIR/EIS 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 one or more of the alternatives studied in the 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.

6.4 Preferred Alternative

The Draft Supplemental EIR/EIS identified the SR 152 (North) to Road 11 Wye Alternative as the Preferred Alternative, which the Authority confirmed in the Final Supplemental EIR/EIS.

This identification was based on balancing the impacts of the Central Valley Wye alternatives on the natural environment and community resources presented in the Draft and Final Supplemental EIR/EIS in the context of CEQA, NEPA, stakeholder preferences, and capital construction costs. The Preferred Alternative achieves the HSR system's Purpose and Need while resulting in fewer impacts on both the natural environment and community resources than the other three alternatives. It also better meets other non-environmental criteria because of its proximity to existing transportation corridors. In correspondence received by the Authority in July 2018, pursuant to the NEPA integration process the Authority, USACE, and USEPA undertook pursuant to USEPA's Section 404(b)(1) guidelines, both USACE and USEPA concurred that the Authority's Preferred Alternative is the preliminary least environmentally damaging practicable alternative.

The Preferred Alternatives 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 SR 152 (North) to Road 11 Wye Alternative as the Preferred Alternative for the following reasons, as provided in the Final Supplemental EIR:

The SR 152 (North) to Road 11 Wye Alternative is the Preferred Alternative. It presents the best balance of natural environment and community resource impacts in comparison to the other Central Valley Wye alternatives in light of the Purpose and Need, as described in Section 8.4, Factors Influencing the Identification of the Preferred Alternative. The key considerations in making this determination are:

- The three SR 152 Central Valley Wye alternatives, including the Preferred Alternative, would result in local and regional transportation benefits from improvements to SR 152 that would not occur with the Avenue 21 to Road 13 Wye Alternative. Grade separating SR 152 would improve traffic flow and reduce the potential for accidents. The proposed roadway improvements are consistent with existing California Department of Transportation plans for SR 152.
- Overall, the Preferred Alternative would result in fewer impacts on key natural environmental factors than the other alternatives. Wetlands and other aquatic habitats provide a relatively high value for a diverse population of biological species and continue to be subject to severe development pressures. The Preferred Alternative would have the least impact on high-value aquatic habitats compared to the other Central Valley Wye alternatives.
- Overall, the Preferred Alternative would result in fewer impacts on community-based resources than the other Central Valley Wye alternatives. Compared to the other two SR 152 alternatives, the Preferred Alternative would result in substantially fewer business and residential displacements and it would convert less Important Farmland than all other Central Valley Wye alternatives.
- One of the primary factors under consideration is the location of the SR 152 alternatives through the community of Fairmead. In coordination with the local community, the Authority identified and developed mitigation aimed at offsetting impacts associated with the Preferred Alternative. This mitigation would provide an opportunity to enhance the quality of life in Fairmead and create local improvements that would not be realized without the HSR project.

- Extensive stakeholder outreach has not resulted in a clear community preference for a single alternative. Slightly more letters of support were received for the Preferred Alternative.
- The Preferred Alternative is estimated to cost the least to construct, based on preliminary engineering estimates, at least \$150 million less than the estimated costs to construct the other three Central Valley Wye alternatives.

The Preferred Alternative would pass through the rural low-income and minority populations within the community of Fairmead, introducing a large transportation feature that would displace residents, impede travel between parts of the community, and generate noise and visual effects. These impacts on community cohesion would add to longstanding challenges faced by the community, including the lack of a reliable and centralized water supply system and wastewater treatment system. Under the Preferred Alternative, the Authority has committed to implement mitigation measures (described in Section 5.6.3.1, Construction Impacts and Mitigation) aimed at offsetting the HSR contribution to stressors on the community by providing funding for a community center and funding improvements to some of the critical public infrastructure systems needed by the community. These mitigation measures would reduce the impacts of the Preferred Alternative on community cohesion, improve the quality of life of its residents, and remove a constraint to future growth opportunities in Fairmead. The improvements to Fairmead proposed by the Authority as part of these mitigation measures would provide tangible benefits to the community that would not otherwise be realized under the Avenue 21 to Road 13 Wye Alternative.

Based on consideration of the factors discussed in this chapter and in the Final Supplemental EIR/EIS, the Authority has determined the Preferred Alternative to be the best choice for the Central Valley Wye and overall HSR system. Of the four Central Valley Wye alternatives, it represents the best balance of adverse and beneficial impacts on the natural environment and community resources and maximizes the transportation and safety benefits of the HSR system.

The CEQA Guidelines, Section 15126.6(e)(2), state that if the environmentally superior alternative is the No Project Alternative, then the EIR must also identify an environmentally superior alternative among the other alternatives. For the reasons described in this Final Supplemental EIR/EIS, the environmentally superior alternative is not the No Project Alternative. The HSR alternatives would provide benefits, such as reducing vehicle trips on freeways and reducing regional air pollutants that would not be realized under the No Project Alternative. CEQA does not require a lead agency to select the environmentally superior alternative as its preferred alternative. Nevertheless, the Preferred Alternative is the environmentally superior alternative. Implementing the HSR system would have adverse environmental impacts regardless of which Central Valley Wye alternative is selected, but overall, the Preferred Alternative is identified as the environmentally superior alternative because it best meets environmental regulatory requirements and best minimizes impacts on the natural environment and community resources.

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

6.5 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 underlying purpose and objectives of the Merced to Fresno Project Section. Because adverse environmental impacts remain, the Authority will adopt a Statement of Overriding Considerations, as discussed in the Chapter 7 of these findings.

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7 STATEMENT OF OVERRIDING CONSIDERATIONS

The Final Supplemental EIR/EIS and the CEQA Findings of Fact conclude that implementing the Preferred Alternative as part of the Merced to Fresno Project Section of the HSR system will result in certain significant impacts on the environment that cannot be fully 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 CEQA Guidelines Section 15093. The significant and unavoidable impacts and the benefits related to the Preferred Alternative are described in the following subsections. 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 Final Supplemental EIR/EIS 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 on the environment:

Noise and Vibration

- Impact NV #4: Permanent Traffic-Generated Noise from Realigned State Highways and Local Roads
- Impact NV #5: Intermittent Permanent Exposure of Sensitive Receptors to Noise from HSR Operations

Socioeconomics and Communities

- Impact SO #2: Permanent Impacts on Communities—Community Cohesion
- Impact SO #8: Permanent Impacts on Children’s Health and Safety (changes to transportation facilities)
- Impact SO #18: Permanent Impacts on Children’s Health and Safety (HSR operations)

Agricultural Land

- Impact AG #2: Permanent Conversion of Agricultural Land to Nonagricultural Use
- Impact AG #3: Creation of Remnant Parcels of Important Farmland

Aesthetic and Visual Resources

- Impact AVR #4: Decreased Visual Quality in the Robertson Boulevard Landscape Unit
- Impact AVR #5: Decreased Visual Quality in the Fairmead Landscape Unit

Cultural Resources

- Impact CUL #3: Permanent Demolition, Destruction, Relocation, or Alteration of Historic Architectural Resources or Setting

Cumulative Impacts

- The Preferred Alternative would make a cumulatively considerable contribution to the cumulatively significant impact of conversion of Important Farmland to nonagricultural use, either directly or indirectly (though parcel severance).
- The Preferred Alternative would make a cumulatively considerable contribution to cumulatively significant aesthetics and visual resource impacts from removal of a portion of a local scenic element, the palm tree row along Robertson Boulevard

- The Preferred Alternative would make a cumulatively considerable contribution to significant cumulative impacts on one NRHP-eligible historic architectural resource because it would result in the removal of palm trees in the row along Robertson Boulevard.

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 entirety of the Central Valley Wye alignment to ensure that significant impacts are mitigated to a less-than-significant level to the extent feasible, and that the Preferred Alternative's contribution to cumulative impacts is minimized and mitigated to the extent feasible. As set forth in detail in Chapter 3, above, 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 Final 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 Preferred Alternative.

The Authority further finds that each is an overriding consideration independently warranting approval of the Preferred Alternative. The Authority finds that the significant and unavoidable impacts of the Preferred Alternative are overridden by each of these individual considerations, standing alone. The significant and 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 Preferred Alternative, when considered as part of the HSR System as a whole as well as when considered as an integral part of the Merced to Fresno Project Section. These benefits, viewed both individually and collectively, outweigh the significant and unavoidable adverse effects of implementing the Preferred Alternative. As set forth below, these benefits are in the areas of transportation, air quality, economics, and social considerations.

7.2.1 Environmental Benefits

The benefits of the HSR system 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 Final Supplemental EIR/EIS).

These benefits were originally derived in 2012 based on the assumption 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 Final Supplemental EIR/EIS updated these benefits, based on updated construction phasing and ridership assumptions that document used. The Final Supplemental EIR/EIS found that a roughly 520-mile Phase 1 system would serve between 42.8 million (medium ridership scenario) and 56.8 million (high ridership scenario) riders per year in 2040.

A. Benefits from a Reduction in Vehicle Miles Traveled

The Final EIR/EIS concluded that the HSR project as a whole would divert automobile trips to HSR trips, thus reducing statewide, regional, and local VMT (Authority and FRA 2012a). Statewide air travel would also be decreased with mode shifting from air to HSR travel assumed.

The reduction in both automobile and air travel VMT would provide benefits in the form of reduced congestion on the state's highway system as well as at airports.

The Final Supplemental EIR/EIS for the Central Valley Wye arrives at similar conclusions regarding VMT reduction at a regional level. (Refer to Section 3.2, Impact TR #2; Section 3.3, Table 3.3-20; and Section 3.6, Public Utilities and Energy, Table 3.6-11).

Because the Preferred Alternative does not include any stations or other public interfaces with the HSR system, VMT reduction was computed for the regional level, namely Merced and Madera Counties. Without the statewide HSR system, regional VMT in these counties is projected to range from 2.93 to 3.56 billion in 2040. With the statewide HSR system—the Central Valley Wye being an integral part of the statewide system—regional VMT would decrease by 300 to 400 million in 2040, a 11 to 12 percent reduction.

B. Benefits from a Reduction in Air Pollution and Greenhouse Gas Emissions

The Final EIR/EIS stated that operation of the statewide HSR project will benefit statewide and regional air quality in the form of a permanent net decrease in the emissions of mobile source air toxics, GHGs, VOCs, NO_x, sulfur dioxide, carbon monoxide, and particulate matter smaller than or equal to 10 microns and 2.5 microns in diameter (PM₁₀ and PM_{2.5}), all achieved by diverting trips from modes with higher emissions (commercial air flights and automobile trips) to HSR, which has lower emissions.

The transportation sector is responsible for about 40 percent of California's GHG emissions (LAO 2018). GHG emissions as well as emissions of criteria pollutants (carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide) from motor vehicles are directly related to the amount of fuel burned and affect air quality in the San Joaquin Valley.

The SJVAB 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 Final Supplemental EIR/EIS) in the San Joaquin Valley will result in an increase in traffic volumes (see Section 3.2, Transportation, of the Final Supplemental EIR/EIS) and, subsequently, an increase in 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 Final Supplemental EIR/EIS considered the air quality emissions associated with the Preferred Alternative as part of the Merced to Fresno Project Section, inclusive of the Central Valley Wye, as a whole. As described in the Section 3.3 of the Final Supplemental EIR/EIS, emission results indicate the Preferred Alternative would result in a net regional decrease in emissions of criteria pollutants. These decreases would be beneficial to the SJVAB and help the basin meet its attainment goals for ozone and particulates (PM₁₀ and PM_{2.5}).

As shown in the Final Supplemental EIR/EIS (refer to Section 3.3, Table 3.3-21) operation of the Preferred Alternative as part of the Merced to Fresno Project Section and the statewide HSR project would substantially reduce regional 2040 levels of these criteria pollutants. Additionally, the HSR project was included in the Assembly Bill (AB) 32 scoping plan to help the State meet GHG emission reduction targets. Operations of the statewide HSR project would reduce

statewide GHG emissions relative to the No Project Alternative. Specifically, by year 2040, statewide GHG emissions are expected to drop by up to 1.5 million metric tons per year of CO₂ relative to year 2040 project for the No Project Alternative. The Preferred Alternative would thus not only further the GHG emissions reductions associated with AB 32 but would also be consistent with and help achieve the policy goals of Executive Order S-3-05 and Senate Bill 375.

C. Benefits from a Reduction in Energy Use

The Final EIR/EIS acknowledged that the statewide HSR project would require electricity to operate, but it would nevertheless result in a permanent net reduction in energy use because it would divert trips from transportation modes with higher energy use (commercial air flights and automobiles) to HSR, which has lower energy use.

The Final Supplemental EIR/EIS reaches the same conclusion.

The net change in energy use associated with the Preferred Alternative, as part of the statewide HSR system, would be an energy savings of 995,428.20 million British thermal units per year in 2040 under the medium ridership scenario and 1,221,599.40 million British thermal units per year in 2040 under the high-ridership scenario.

D. Other Environmental Benefits

The statewide HSR system has minimized environmental impacts by following existing transportation corridors to the maximum extent feasible. The Preferred Alternative and the alignment and station locations for the system as a whole have been crafted to avoid and/or minimize the potential impacts on cultural, park, recreational resources and wildlife refuges to the greatest extent feasible in light of the project's objectives. In this way, the HSR system, including the Merced to Fresno Project Section, meets the Purpose and Need and project objectives for improving the state's transportation options and meeting growing transportation demand, while doing so in an environmentally sensitive way.

The USACE and the USEPA have both concurred (USACE, September 2018, and USEPA, July 2018) that the Preferred Alternative is the least environmentally damaging practicable alternative. For this reason, the Preferred Alternative is the alternative that will have the highest likelihood of being efficiently constructed and operated.

7.2.2 Transportation Benefits

The capacity of California's intercity transportation system is insufficient to meet existing and future demand. 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 Chapter 1 of the Final 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 Merced to Los Angeles, San Francisco, or Sacramento, 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 Final EIR/EIS, the statewide HSR system will benefit the regional transportation system by diverting intercity trips from the regional roadway system and from commercial air flights to HSR. Diverting trips to HSR will reduce the overall number of vehicle trips on the regional roadway system, improve future levels of service, and reduce overall VMT. 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 Preferred Alternative, which would provide connectivity between sections of the HSR system in the Central Valley and the San Francisco Bay Area, would provide a new regional surface transportation system that complements and connects with existing transportation modes. At a regional level, HSR service would reduce VMT by providing motorists an alternative to relying on existing interregional and intercity freeways and highways. Within the Merced to Fresno Project Section, the HSR system would be fully 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 HSR in California. The same trends that motivated the State to investigate, support, and proceed to plan the HSR 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 statewide HSR system forward.

7.2.3 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.

It is estimated that approximately 4,800 new jobs could be created by 2040 in the San Joaquin Valley region. This total would include the direct jobs created to operate and maintain the HSR project (approximately 1,000 to 1,200 jobs); and the indirect and induced jobs created to support these new workers. An additional 35,400 jobs would be created in the three-county region (Merced, Madera, and Fresno Counties) as a result of additional jobs created as a result of the improved connectivity of the region to the rest of the state, leading to competitiveness of the region's industries and growth in the overall regional economy. The direct, indirect and induced operations-related employment, which would be the same for all Central Valley Wye alternatives, would be based out of stations, maintenance-of-infrastructure facilities, and the heavy maintenance facility, none of which are included in the Central Valley Wye alternatives and together, a maximum of up to 40,200 employees associated with the Central Valley Wye alternatives would be located in the resource study area. The total operations-related

employment increase of an estimated 40,200 would comprise slightly more than 6 percent of the 2040 employment forecast of 652,500.

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 3.12 of the Final 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.

7.2.4 Benefits May Be Lower Initially, But Will Build Over Time

The Authority's 2018 and Draft 2020 Business Plans (Authority 2018, 2020b) describe a phased implementation strategy for construction of the HSR system that acknowledges funding constraints. Because the system may be constructed and implemented more slowly over time than assumed in the Merced to Fresno Section Final EIR/EIS (assumed 800-mile statewide system with mature operations by 2035) or the Final Supplemental EIR/EIS (assumed 520-mile Phase 1 system with mature operations by 2040), based on funding availability, benefits of the system may also accrue more slowly over time than calculated in these environmental documents. However, the EIR/EIS documents assumed a time horizon for analysis (2035 or 2040). An operational HSR system, however, will continue to provide GHG reduction benefits long after those time horizons and will build over time as ridership on the system increases.

In addition, the Authority has previously committed to power the high-speed train with an energy portfolio of 100 percent renewable sources and confirmed the feasibility of this approach with industry (Authority 2008, 2014). This commitment was reaffirmed in the 2018 and Draft 2020 Business Plans (Authority 2018, 2020b). 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 increase the GHG reduction benefits from high-speed train operations over a non-renewable portfolio (CARB 2018).

In summary, although benefits of the HSR system in the areas of VMT reduction, GHG reduction, and reduced transportation energy use would initially be lower than described in the Final Supplemental EIR/EIS because of a phased implementation strategy, the benefits would still be significantly positive, the benefits would still continue to accrue and grow over time, and they would eventually achieve the level of benefit the Merced to Fresno Section Final EIR/EIS and the Final Supplemental EIR/EIS describe. These benefits therefore still outweigh the significant and unavoidable adverse environmental impacts described in the Final Supplemental EIR/EIS and CEQA Findings of Fact.

7.2.5 Benefits of the Preferred Alternative in Connection With the previously approved Merced to Fresno North/South Alignment

The Preferred Alternative, when considered with the previously approved north/south alignment for the Merced to Fresno Project Section (the Hybrid Alternative), has numerous benefits that

outweigh its unavoidable adverse impacts, even without considering other portions of the HSR system that are anticipated to be approved and constructed in the future.

7.2.5.1 Provides an Essential Building Block to Establish Very High-Speed Passenger Rail Service

A benefit of the Preferred Alternative, when considered as part of the previously approved Merced to Fresno north/south alignment, is that this piece of the HSR system is part of the essential backbone 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 on approved portions of the Merced to Fresno and Fresno to Bakersfield sections, because the Central Valley forms the foundation of the HSR system (Authority's 2012 and 2014 Business Plan). As identified in the Authority's Draft 2020 Business Plan, recent studies support extending the 119 miles of HSR construction currently underway between Madera and north of Bakersfield to 171 miles of HSR connecting Merced, Fresno, and Bakersfield as part of an early interim HSR service in the Central Valley. While further planning is needed, the studies indicate an initial HSR service in the Central Valley is a viable interim step toward the Phase 1 HSR system. As a very large linear infrastructure project, the roughly 800-mile statewide system, or even the over 500-mile Phase 1 of the system between San Francisco and Los Angeles/Anaheim, cannot feasibly be planned, environmentally reviewed, constructed, and be ready for operation all at once. The Merced to Fresno Project Section, including the Preferred Alternative for the Central Valley Wye, 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.

7.2.5.2 Provides Economic and Employment Benefits from Construction

Construction of the Preferred Alternative would generate sales tax revenue gains for the region that have been estimated at about \$4.61 million over the duration of the 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. Construction of the Preferred Alternative is anticipated to result in a total of 8,120 direct and indirect jobs in the region over the construction period. The provision of new construction and non-construction job opportunities over the construction period in the San Joaquin Valley, which continues to suffer from very high unemployment, particularly in the construction sector, is an important benefit of the Preferred Alternative, even viewed independently from the remainder of the HSR system.

7.2.5.3 Provides a New Expedited and Consistent Travel Option

As discussed in the Authority's Business Plans, the Central Valley ranks as one of California's most underserved regions when it comes to transportation. With the Merced to Fresno Project Section as part of an early interim HSR service, travel time within the Central Valley will be greatly reduced, allowing for expanded service and enhanced connectivity to conventional passenger rail services that will expand and greatly improve transportation options. Even before HSR between Merced and Bakersfield is connected to the Bay Area and the Los Angeles Basin, an early interim HSR service in the Central Valley would provide a new, faster, and reliable mobility option for travelers.

7.2.5.4 Summary of Benefits of Preferred Alternative

In summary, the Authority finds that there are benefits associated with the Preferred Alternative that will occur in conjunction with the already approved portion of the Merced to Fresno Project Section, as well as when considered as a part of the HSR system as a whole. 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.

8 CONCLUSION

Implementing the Central Valley Wye portion of the Merced to Fresno Project Section will result in significant adverse impacts regardless of which alternative is selected. The decision to select the Preferred Alternative involves a balancing of different types and degrees of environmental impacts in different locations. The Preferred Alternative will contribute to achieving the distinct benefits of the HSR system as a whole, including improved transportation and reduced congestion, improved air quality, energy savings, and greater opportunities for smart-growth land use planning. Though the benefits of the HSR system may take longer to accrue if funding constraints delay implementation, benefits would still occur with the early implementation of the Preferred Alternative as part of an early interim HSR service, and would continue to accrue over time. The Authority therefore finds that each of the transportation, environmental, land use, economic, and social benefits of the Preferred Alternative separately and independently outweigh the adverse environmental impacts that will remain after adoption and application of all mitigation measures listed in this document.

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ATTACHMENT A: MITIGATION MEASURES

The following presents the full text of each mitigation measure listed and discussed above.

Referenced Mitigation Measures for Air Quality and Global Climate Change

AQ-MM #1: Reduce Criteria Exhaust Emissions from Construction Equipment. Prior to issuance of construction contracts, the Authority will incorporate the following construction equipment exhaust emissions requirements into the contract specifications: All heavy-duty off-road construction diesel equipment used during the construction phase will use the cleanest reasonably available equipment (including newer equipment or tailpipe retrofits), but in no case less clean than the average fleet mix for the current calendar year, as set forth in CARB's OFFROAD 2011 database, and no less than a 40 percent reduction compared to a Tier 2 engine standard for NO_x emissions. The contractor will document efforts undertaken to locate newer equipment (such as, in order of priority, Tier 4, Tier 3, or Tier 2 equipment) or tailpipe retrofit equivalents. The contractor will 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 CARB or air pollution control district operating permit will be made available by the Authority at the time of mobilization of each piece of equipment. The contractor will keep a written record (supported by equipment-hour meters where available) of equipment usage during Central Valley Wye alternatives construction for each piece of equipment. The contractor will provide the Authority with monthly reports of equipment operating hours (through the EMMA system) and annual reports documenting compliance.

AQ-MM #2: Reduce Criteria Exhaust Emissions from On-Road Construction Equipment. Prior to issuance of construction contracts, the Authority will incorporate the following material hauling truck fleet mix requirements into the contract specifications: All on-road trucks used to haul construction materials, including fill, ballast, rail ties, and steel, 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 EMFAC2014 database. The contractor will provide documentation to the Authority of efforts to secure such a fleet mix. The contractor will keep a written record of equipment usage during construction of the Central Valley Wye alternatives for each piece of equipment and provide the Authority with monthly reports of vehicle miles traveled (through the EMMA system) and annual reports documenting compliance.

AQ-MM #3: Reduce the Potential Impact of Concrete Batch Plants. Prior to construction of any concrete batch plant, the contractor will provide the Authority with a technical memorandum documenting consistency with the Authority's concrete batch plant siting criteria and utilization of typical control measures. Concrete batch plants will be sited at least 1,000 feet from sensitive receptors, including daycare centers, hospitals, senior care facilities, residences, parks, and other areas where people may congregate. 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. The contractor will provide to the Authority documentation that each batch plant meets this standard during operation.

AQ-MM #4: Offset Project Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement (VERA). On June 19, 2014, the SJVAPCD and the Authority entered an MOU that establishes the framework for fully mitigating to net-zero construction emissions of NO_x, VOC, PM₁₀, and PM_{2.5} from the entire HSR Project within the SJVAB. Emissions generated by construction of the portion of the project within the SJVAB are subject to this MOU and therefore must be offset to net zero. Pursuant to the MOU, the Authority shall enter into a VERA with the SJVAPCD to cover the portion of the project approved and funded for construction within the SJVAB. The project-level VERA must be executed prior to commencement of construction and the mitigation fees and offsets delivered and achieved according to the requirements of the VERA and MOU.

AQ-MM #5: Purchase Offsets and Off-Site Emission Mitigation for Emissions Associated with Hauling Ballast Material in Certain Air Districts. By January 31 of each calendar year, the Contractor will inform the Authority through the submittal of a technical memorandum of any planned hauling of ballast material from quarries outside the SJVAB and if the hauling activities result in the exceedance of the annual applicable general conformity threshold(s) or local air basin CEQA threshold(s) for NOx. To determine whether an exceedance will occur based on actual hauling activities, the Authority will at the beginning of each calendar year or as soon as practicable thereafter to obtain the most up-to-date information, based on actual or projected contractor-specific information about hauling in the Mojave AQMD, South Coast AQMD and Bay Area AQMD, and calculate for the next calendar year using the same methodology used in this EIR/EIS the expected NOx emissions from hauling activities in those districts. If, based on that calculation, exceedance of the applicable NOx 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 NOx offsets for that calendar year necessary to achieve conformity (in the case of exceedance of general conformity thresholds) and/or to result in net NOx generation below the applicable CEQA threshold(s). At a minimum, sufficient mitigation/offsets will be secured so they are generated in the year of impact or as otherwise permitted by 40 C.F.R. Part 93 Section 93.163.

Referenced Mitigation Measures for Noise and Vibration

NV-MM #1: Construction Noise Mitigation. Prior to construction (any ground-disturbing activities), the contractor will prepare a noise-monitoring program for Authority approval. The noise-monitoring program shall describe how during construction the contractor will monitor construction noise to verify compliance with the noise limits (an 8-hour Leq, dBA of 80 during the day and 70 at night for residential land use, 85 for both day and night for commercial land use, and 90 for both day and night for industrial land use) where a noise-sensitive receptor is present. The contractor will be given the flexibility to meet the FRA construction noise limits in the most efficient and cost-effective manner. This can be done by either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. In addition, the noise-monitoring program will describe the actions required of the contractor to meet required noise limits. These actions will include the following nighttime and daytime noise control mitigation measures, as necessary:

- Install a temporary construction site sound barrier near a noise source.
- Avoid nighttime construction in residential neighborhoods.
- Locate stationary construction equipment as far as possible from noise-sensitive sites.
- Re-route construction truck traffic along roadways that would cause the least disturbance to residents.
- During nighttime work, use smart back-up alarms, which automatically adjust the alarm level based on the background noise level, or switch off back-up alarms and replace with spotters.
- Use low-noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Monitor and maintain equipment to meet noise limits.
- Line or cover storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Use high-grade engine exhaust silencers and engine-casing sound insulation.
- Prohibit aboveground jackhammering and impact pile driving during nighttime hours.
- Minimize the use of generators to power equipment.
- Limit use of public address systems.
- Grade surface irregularities on construction sites.
- Use moveable sound barriers at the source of the construction activity.
- Limit or avoid certain noisy activities during nighttime hours.

- To mitigate noise related to pile driving, the use of an 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.
- The Authority will establish and maintain in operation until completion of construction a toll-free “hotline” regarding the Section construction activities. The Authority will arrange for all incoming messages to be logged (with summaries of the contents of each message) and for a designated representative of the Authority to respond to hotline messages within 24 hours (excluding weekends and holidays). The Authority will 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. The Authority will make a log of the incoming messages and the Authority’s responsive actions publicly available on its website.
- The contractor will provide the Authority with an annual report by January 31 of the following year documenting how it implemented the noise-monitoring program.

NV-MM #2: Additional Noise Analysis during Final Design. During final design and prior to construction, the Authority will review the Central Valley Wye Noise and Vibration Technical Report. If final design or final vehicle specifications result in changes to the assumptions underlying the analysis in that report, the Authority will prepare additional environmental analysis, as required by CEQA and NEPA, to reassess noise impacts and potential mitigation.

NV-MM #3: Implement Proposed California High-Speed Rail Project Noise and Vibration Mitigation Guidelines. Various options exist to address the potentially severe noise effects from high-speed trains. With input from local jurisdictions and balancing technological factors, such as structural and seismic safety, cost, number of affected receptors, and effectiveness, mitigation measures will be selected and implemented. The mitigation measure or suite of mitigation measures for severe noise impacts shall be designed to reduce the noise level from HSR operations from severe to moderate according to the provisions of the FRA noise and vibration manual (FRA 2012). The noise guidelines include the following mitigation measures:

Various options exist to address the potentially severe noise effects from high-speed trains. With input from local jurisdictions and balancing technological factors, such as structural and seismic safety, cost, number of affected receptors, and effectiveness, mitigation measures will be selected and implemented. The mitigation measure or suite of mitigation measures for severe noise impacts shall be designed to reduce the noise level from HSR operations from severe to moderate according to the provisions of the FRA noise and vibration manual (FRA 2012). The noise guidelines include the following mitigation measures:

Building Sound Insulation

If sound barriers 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 considered 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 noise conditions as factors for determining mitigation measures.

Noise Easements

If a substantial noise reduction cannot be completed through the installation of sound barriers or building sound insulation, the Authority can acquire easements on properties severely affected by noise. This entails the establishment of an agreement between the Authority and the property owner wherein the Authority compensates the property owner for an easement that would encompass the property boundaries to the right-of-way of the rail line. In return, the property owner would accept the future noise conditions and release their right to petition the Authority

regarding the noise level and subsequent disruptions. This approach would only be offered in isolated cases where other mitigation options are ineffective, infeasible, impractical, or too costly.

NV-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. 201.12/13) at the time of procurement for locomotives (currently a 90-dBA level standard) and rail cars (currently a 93-dBA level standard for cars operating at speeds of greater than 45 mph). Depending on the available technology, this could substantially reduce HSR noise levels during operation throughout the corridor.

Referenced Mitigation Measures for Biological Resources

BIO-MM #1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones. Prior to any ground-disturbing activity in a Work Area, the Project Biologist will use flagging to mark ESAs that support special-status species or aquatic resources and are subject to seasonal restrictions or other avoidance and minimization measures. The Project Biologist will also direct the installation of WEF to prevent special-status wildlife species from entering Work Areas. The WEF will have exit doors to allow animals that may be inside an enclosed area to leave the area. The Project Biologist will also direct the installation of construction exclusionary fencing (exclusionary fencing) at the boundary of the Work Area, as appropriate, to avoid and minimize impacts on special-status species or aquatic resources outside of the Work Area during the construction period. The ESAs, WEF, and exclusionary fencing will be delineated by the Project Biologist based on the results of habitat mapping or modeling and any pre-construction surveys, and in coordination with the Authority. The ESAs, WEF, and exclusionary fencing will be regularly inspected and maintained by the Project Biologist.

The ESAs, WEF, and exclusionary fencing locations will be identified and depicted on an exclusion fencing exhibit. The purpose of the ESAs and WEF will be explained at WEAP training, and the locations of the ESAs and WEF areas will be noted during worker tailgate sessions.

BIO-MM #1b: Establish and Implement a Compliance Reporting Program. The Project Biologist will prepare monthly and annual reports documenting compliance with all IAMFs, mitigation measures, and requirements set forth in regulatory agency authorizations. The Authority will review and approve all compliance reports prior to submittal to the regulatory agencies. Reports will be prepared in compliance with the content requirements outlined in the regulatory agency authorizations.

Pre-activity survey reports will be submitted within 15 days of completing the surveys and will include:

- Location(s) of where pre-activity surveys were completed, including latitude and longitude, Assessor Parcel Number, and HST parcel number.
- Written description of the surveyed area. A figure of each surveyed location will be provided that depicts the surveyed area and survey buffers over an aerial image.
- Date, time, and weather conditions observed at each location.
- Personnel who conducted the pre-activity surveys.
- Verification of the accuracy of the Authority's habitat mapping at each location, provided in writing and on a figure.
- Observations made during the survey, including the type and locations (written and GIS) of any sensitive resources detected.
- Identification of relevant measures from the BRMP to be implemented as a result of the survey observations.

Daily Compliance Reports will be submitted to the Authority via EMMA within 24 hours of each monitoring day. Noncompliance events will be reported to the Authority the day of the occurrence. Daily Compliance Reports will include:

- Date, time, and weather conditions observed at each location where monitoring occurred.
- Personnel who conducted compliance monitoring.

- Project activities monitored, including construction equipment in use.
- Compliance conditions implemented successfully.
- Noncompliance events observed.

Daily Compliance Reports will also be included in the Monthly Compliance Reports, which will be submitted to the Authority by the 10th of each month and will include:

- Summary of construction activities and locations during the reporting month, including any noncompliance events and their resolution, work stoppages, and take of threatened or endangered species.
- Summary of anticipated project activities and Work Areas for the upcoming month.
- Tracking of impacts to suitable habitats for each threatened and endangered species identified in USFWS and CDFW authorizations, including:
 - An accounting of the number of acres of habitats for which we provide compensatory mitigation that has been disturbed during the reporting month, and
 - An accounting of the cumulative total number of acres of threatened and endangered species habitat that has been disturbed during the project period.
- Up-to-date GIS layers, associated metadata, and photo documentation used to track acreages disturbed.
- Copies of all pre-activity survey reports, daily compliance reports, and noncompliance/work stoppage reports for the reporting month.

Annual Reports will be submitted to the Authority by January 20 and will include:

- Summary of all Monthly Compliance Reports for the reporting year.
- A general description of the status of the project, including projected completion dates.
- All available information about project-related incidental take of threatened and endangered species.
- Information about other project impacts on the threatened and endangered species.
- A summary of findings from pre-construction surveys (e.g., number of times a threatened or endangered species or a den, burrow, or nest was encountered, location, if avoidance was achieved, if not, what other measures were implemented).
- Written description of disturbances to threatened and endangered species habitat within Work Areas, both for the preceding 12 months and in total since issuance of regulatory authorizations by USFWS and CDFW, and updated maps of all land disturbances and updated maps of identified habitat features suitable for threatened and endangered species within the project area.

In addition to the compliance reporting requirements outlined above, the following items will be provided for compliance documentation purposes:

- If agency personnel visit the Construction Footprint in accordance with BIO-IAMF#2, the Project Biologist will prepare a memorandum within 1 day of the visit that memorializes the issues raised during the field meeting. This memorandum will be submitted to the Authority via EMMA. Any issues regarding regulatory compliance raised by agency personnel will be reported to the Authority and the Contractor.
- Compliance reporting will be submitted to the Authority via EMMA in accordance with the report schedule. The Project Biologist will prepare and submit compliance reports that document the following:
 - Compliance with BIO-MM#1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones.
 - Implementation and performance of the Restoration and Revegetation Plan described in BIO-MM#2a.
 - Summary of progress made regarding the implementation of the Weed Control Plan described in BIO-IAMF#7.

- Compliance with BIO-IAMF#8: Establish Monofilament Restrictions.
- Compliance with BIO-IAMF#9: Prevent Entrapment in Construction Materials and Excavations.
- Compliance with BIO-IAMF#10: Delineate Equipment Staging Areas and Traffic Route.
- Compliance with BIO-IAMF#11: Dispose of Construction Spoils and Waste.
- Compliance with BIO-IAMF#12: Clean Construction Equipment.
- BMP field manual implementation and any recommended changes to construction site housekeeping practices outlined in BIO-IAMF#13: Maintain Construction Sites.
- Compliance with BIO-IAMF#15: Vehicle Traffic and Construction Site Speed Limits
- Work stoppages and measures taken under BIO-MM9a: Work Stoppage will be documented in a memorandum prepared by the Project Biologist and submitted to the Authority within 2 business days of the work stoppage.

BIO-MM #1c: Conduct Presence/Absence Pre-construction Surveys for Special-Status Plant Species and Special-Status Plant Communities. Prior to any ground-disturbing activity, the Project Biologist will conduct presence/absence botanical field surveys for special-status plant species and special-status plant sensitive natural communities in all potentially suitable habitats within a Work Area. The surveys shall be consistent with CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* and USFWS's *Guidelines for Conducting and Report Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. The Project Biologist will flag and record in GIS the locations of any observed special-status plant species and special-status plant sensitive natural communities.

Portions of the project footprint that support special-status plant species that would be temporarily disturbed will be restored to pre-construction conditions as defined in the BRMP prepared under BIO-IAMF#6. 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 described in BIO-MM#2. The Project Biologist will provide verification of survey results and report findings to the Authority to document compliance with this measure.

BIO-MM #2a: Prepare and Implement a Restoration and Revegetation Plan. Prior to any ground-disturbing activity, the Project Biologist will prepare an RRP to address temporary impacts resulting from ground-disturbing activities within areas that potentially support special-status species, wetlands and/or other aquatic resources. Restoration activities may include, but not be limited to: grading landform contours to approximate pre-disturbance conditions, revegetating disturbed areas with native plant species, and using certified weed-free straw and mulch. The Authority will implement the RRP in all temporarily disturbed areas outside of the permanent right-of-way that potentially support special-status species, wetlands and/or other aquatic resources.

Consistent with section 1415 of the Fixing America's Surface Transportation Act (FAST Act) restoration activities will provide habitat for native pollinators through plantings of native forbs and grasses. The Project Biologist will obtain a locally sourced native seed mix. The restoration success criteria will include limits on invasive species, as defined by the California Invasive Plant Council, to an increase no greater than 10 percent compared to the pre-disturbance condition, or to a level determined through a comparison with an appropriate reference site consisting of similar natural communities and management regimes. The RRP will outline at a minimum:

- a. Procedures for documenting pre-construction conditions for restoration purposes.
- b. Sources of plant materials and methods of propagation.
- c. Specification of parameters for maintenance and monitoring of re-established habitats, including weed control measures, frequency of field checks, and monitoring reports for temporary disturbance areas.

- d. Specification of success criteria for re-established plant communities.
- e. Specification of the remedial measures to be taken if success criteria are not met.
- f. Methods and requirements for monitoring restoration/replacement efforts, which may involve a combination of qualitative and/or quantitative data gathering.
- g. Maintenance, monitoring, and reporting schedules, including an annual report due to the Authority by January 31 of the following year.

The RRP will be submitted to the Authority and regulatory agencies, as defined in the conditions of regulatory authorizations, for review and approval.

BIO-MM #2b: Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species. Prior to construction (any ground-disturbing activity), the Project Biologist will collect seeds and plant materials and stockpile and segregate the top four inches of topsoil from locations within the Work Area where species listed as threatened or endangered under the FESA, threatened, endangered, or candidate for listing under CESA, state-designated “Rare” species, and California Rare Plant Rank 1B and 2 species were observed during surveys for use on off-site locations. Suitable sites to receive salvaged material include Authority mitigation sites, refuges, reserves, federal or state lands, and public/private mitigation banks.

If relocation or propagation is required by authorizations issued under the FESA and/or CESA, the Project Biologist will prepare a plant species salvage plan to address monitoring, salvage, relocation, and/or seed banking of federal or State-listed species.

The plan will include provisions that address the techniques, locations, and procedures required for the collection, storage, and relocation of seed or plant material; and collection, stockpiling, and redistribution of topsoil and associated seed. The plan will also include requirements related to outcomes such as percent absolute cover of highly invasive species, as defined by the California Invasive Plant Council (less than documented baseline conditions), maintenance, monitoring, implementation, and the annual reporting. The plan will reflect conditions required under regulatory authorizations issued for federal or state-listed species. The Project Biologist will submit the plan to the Authority for review and approval.

BIO-MM #3a: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources. The Authority will prepare and implement a CMP that identifies mitigation to address temporary and permanent loss, including functions and values, of aquatic resources defined as waters of the U.S. under the federal CWA and/or waters of the State under the Porter-Cologne Water Quality Control Act. The compensatory mitigation for state and federally protected aquatic resources will meet the federal and state policies for no net loss of functions and values. Compensatory mitigation may involve the restoration, establishment, enhancement, and/or preservation of aquatic resources through one or more of the following methods:

- Purchase of credits from an agency-approved mitigation bank.
- Preservation of aquatic resources through acquisition of property.
- Establishment, restoration, or enhancement of aquatic resources.
- In lieu fee contribution determined through consultation with the applicable regulatory agencies.

The following ratios will be used for compensatory mitigation for permanent impacts, unless a higher ratio is required pursuant to regulatory authorizations issued under Section 404 of the CWA and/or the Porter-Cologne Water Quality Control Act:

- Vernal pools: 2:1.
- Seasonal wetlands: between 1.1:1 and 1.5:1 based on impact type, function and values lost.
- All other wetland types: 1:1
- All non-wetland types: mitigated onsite at 1:1 or offsite 1:1 if onsite mitigation is not possible

For mitigation involving establishment, restoration, enhancement, or preservation of aquatic resources by the Authority, the CMP will contain the following information:

- Objectives. A description of the resource types and amounts that will be provided, the type of compensation (i.e., restoration, establishment, enhancement, and/or preservation), and the manner in which the resource functions of the compensatory mitigation project will address the needs of the watershed or ecoregion.
- Site selection. A description of the factors considered during the term sustainability of the resource.
- Adaptive management plan. A management strategy to address changes in site conditions or other components of the compensatory mitigation project.
- Financial assurances. A description of financial assurances that will be provided to ensure that the compensatory mitigation will be successful.

Additional information required in a CMP as outlined in 33 C.F.R. 332.4(c), as deemed appropriate and necessary by the USACE will also be required in the CMP. In circumstances where the Authority intends to fulfill compensatory mitigation obligations by securing credits from approved mitigation banks or in-lieu fee programs, the CMP need only include the name of the specific mitigation bank or in-lieu fee program to be used, the number of credits proposed to be purchased, and a rationale for why this number of credits was determined appropriate.

BIO-MM #3b: Prepare a Compensatory Mitigation Plan (CMP) for Species and Habitat. The Authority will prepare a CMP that sets out the compensatory mitigation that will be provided to offset permanent and temporary impacts on federal and State-listed species and their habitat, fish and wildlife resources regulated under Section 1600 et seq. of the Fish and Game Code, and certain other special-status species. The CMP will include the following:

- A description of the species and habitat types for which compensatory mitigation is being provided.
- A description of the methods used to identify and evaluate mitigation options. Mitigation options will include one or more of the following:
 - Purchase of mitigation credits from an agency-approved mitigation bank.
 - Protection of habitat through acquisition of fee-title or conservation easement and funding for long-term management of the habitat. Title to lands acquired in fee will be transferred to CDFW and conservation easements will be held by an entity approved in writing by the applicable regulatory agency. In circumstances where the Authority protects habitat through a conservation easement, the terms of the conservation easement will be subject to approval of the applicable regulatory agencies, and the conservation easement will identify applicable regulatory agencies as third-party beneficiaries with a right of access to the easement areas.
 - Payment to an existing in-lieu fee program.
- A summary of the estimated direct permanent and temporary impacts to species and species habitat.
- A description of the process that will be used to confirm impacts. Actual impacts to species and habitat could differ from estimates. Should this occur, adjustments will be made to the compensatory mitigation that will be provided. Adjustments to impact estimates and compensatory mitigation will occur in the following circumstances:
 - impacts to species (typically measured as habitat loss) are reduced or increased as a result of changes in project design,
 - pre-construction site assessments indicate that habitat features are absent (e.g., because of errors in land cover mapping or land cover conversion),
 - the habitat is determined to be unoccupied based on negative species surveys, or
 - impacts initially categorized as permanent qualify as temporary impacts.
- An overview of the strategy for mitigating effects on species. The overview will include the ratios to be applied to determine mitigation levels and the resulting mitigation totals.
- A description of habitat restoration or enhancement projects, if any, that will contribute to compensatory mitigation commitments.

- A description of the success criteria that will be used to evaluate the performance of habitat restoration or enhancement projects, and a description of the types of monitoring that will be used to verify that such criteria have been met.
- A description of the management actions that will be used to maintain the habitat on the mitigation sites, and the funding mechanisms for long-term management.
- A description of adaptive management approaches, if applicable, that will be used in the management of species habitat.
- A description of financial assurances that will be provided to demonstrate that the funding to implement mitigation is assured.

BIO-MM #4: Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, Enhancement, or Creation on Mitigation Sites. Prior to site preparation at the mitigation site(s), the Authority or its designee will consider the off-site habitat restoration, enhancement, or preservation program, and quantify short-term temporary and long-term permanent impacts associated with restoration/enhancement activities. A determination will be made on any impacts from the physical alteration of the site to on-site biological resources, including plant communities, land cover types, and the distribution of special-status plants and wildlife. Six potential mitigation/conservation banks and three potential PRM sites are under consideration for restoration, enhancement, or preservation of jurisdictional aquatic resources and special-status species habitat. Habitat restoration and enhancement activities on the six mitigation/conservation banks are already occurring and have been permitted by the bank operators. Therefore, any new impacts on resources present at off-site mitigation sites will be limited to the three PRM sites. All three PRM sites are located in the western foothills of the Sierra Nevada range and support the same types of jurisdictional aquatic resources and special-status species habitat that would be affected by the Central Valley Wye alternatives.

Site 1 is an approximately 2,016-acre property in south-central Madera County that contains vernal pools, mixed riparian, seasonal wetlands, freshwater emergent marsh, natural watercourses, constructed basins, constructed watercourses, and open water. Given the high level of ecological functions currently supported at Site 1, restoration and enhancement opportunities are relatively limited, and will consist of restoration (rehabilitation) and enhancement of up to 20 acres of vernal pools and vernal swales.

Site 2 is an approximately 3,300-acre property in northern Fresno County that contains vernal pools, mixed riparian, freshwater emergent marsh, natural watercourses, constructed watercourses, and open water. Restoration and enhancement opportunities at Site 2 include establishment or restoration (re-establishment) of up to 63 acres of vernal pools and enhancement of up to 62 acres of riparian habitat.

Site 3 is an approximately 7,350-acre property on the border of eastern Merced County and western Mariposa County that contains vernal pools, natural watercourses, mixed riparian, seasonal wetlands, and open water. Numerous restoration and enhancement opportunities are apparent on Site 3, attributable largely to dry farming practices conducted between the 1930s and 1950s. Specifically, approximately 326 acres of clay slope wetlands, seasonal wetlands, vernal pools, vegetated swales, and riparian (stream) areas may be suitable for re-establishment and rehabilitation, and approximately 874 acres of upland grasslands may be suitable for enhancement.

All three PRM sites provide habitat for special-status plants and wildlife. San Joaquin Valley Orcutt grass, succulent owl's-clover, and vernal pool fairy shrimp have been observed on all three sites. Other special-status wildlife species observed on PRM sites include Conservancy fairy shrimp (Site 2), vernal pool tadpole shrimp (Sites 2 and 3), California tiger salamander (Sites 1 and 2), western spadefoot (Sites 1 and 3), golden eagle (Site 2), Swainson's hawk (Sites 1 and 2), and San Joaquin kit fox (Sites 1 and 3). Aquatic features on the sites may support western pond turtle, and the extensive grassland on all three sites provides habitat for burrowing owl, grasshopper sparrow, northern harrier, short-eared owl, white-tailed kite, and American badger.

Future restoration or enhancement activities on PRM Sites 1, 2, and 3 may include the following:

- Grading

- Removal of nonnative invasive plants by hand (e.g., hand-pulling), mechanical (e.g., string trimming, mowing) or chemical (i.e., herbicides) methods
- Removal and disposal of existing agricultural infrastructure
- Excavation of existing channels or basins
- Stockpiling, disposal, and reuse of soils
- Collection and/or planting of native vegetation for wetland and upland habitat enhancement
- Installation and maintenance of erosion control and/or irrigation systems
- Installation of piezometers for groundwater monitoring
- Installation and maintenance of protective fencing and signage
- Periodic hydrological, botanical, and wildlife monitoring by field technicians

Some of these activities, especially those involving ground disturbance, could result in the same type of impacts described in Section 3.7.7, Environmental Consequences, of the Final Supplemental EIR/EIS. Specifically, direct and indirect impacts on special-status plant and wildlife species (Impacts BIO#1–BIO#4 and BIO#7–BIO#14), special-status plant communities (Impacts BIO#15 and BIO#16), jurisdictional waters (Impacts BIO#17 and BIO#18), and critical habitat (Impacts BIO#19 and BIO#20) could occur where such resources are present on the PRM sites. The following IAMFs and mitigation measures will be applied at PRM sites to reduce, lessen, or avoid impacts on these resources:

- BIO-IAMF#1: Designate Project Biologist, Designated Biologists, Species-Specific Biological Monitors and General Biological Monitors
- BIO-IAMF#2: Facilitate Agency Access
- BIO-IAMF#3: Prepare Worker Environmental Awareness Program (WEAP) Training Materials and Conduct Construction Period WEAP Training
- BIO-IAMF#7: Prepare and Implement a Weed Control Plan
- BIO-IAMF#8: Establish Monofilament Restrictions
- BIO-IAMF#9: Prevent Entrapment in Construction Materials and Excavations
- BIO-IAMF#10: Delineate Equipment Staging Areas and Traffic Routes
- BIO-IAMF#11: Dispose of Construction Spoils and Waste
- BIO-IAMF#12: Clean Construction Equipment
- BIO-IAMF#13: Maintain Construction Sites
- BIO-IAMF#14: Dewatering and Water Diversion
- BIO-IAMF#15: Vehicle Traffic and Construction Site Speed Limits
- BIO-MM#1a: Establish Environmentally Sensitive Areas, Wildlife Exclusion Fencing, and Non-Disturbance Zones
- BIO-MM#1c: Conduct Presence/Absence Pre-construction Surveys for Special-Status Plant Species and Special-Status Plant Communities
- BIO-MM#5: Conduct Pre-construction Surveys for Vernal Pool Wildlife Species
- BIO-MM#6: Implement Seasonal Vernal Pool Work Restriction
- BIO-MM#7: Implement and Monitor Vernal Pool Avoidance and Minimization Measures Within Temporary Impact Areas
- BIO-MM#9a: Work Stoppage
- BIO-MM#9b: Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species
- BIO-MM#11: Conduct Pre-construction Surveys for California Tiger Salamander
- BIO-MM#12: Implement Avoidance and Minimization Measures for California Tiger Salamander
- BIO-MM#13: Conduct Emergence and Larval Surveys for Western Spadefoot Toad
- BIO-MM#16: Conduct Western Pond Turtle Pre-construction Surveys and Relocation

- BIO-MM#17: Conduct Western Pond Turtle Monitoring
- BIO-MM#18: Implement Western Pond Turtle Avoidance and Relocation
- BIO-MM#24a: Conduct Pre-construction Surveys and Delineate Active Nest Buffers and Exclusion Areas for Breeding Birds
- BIO-MM#24b: Conduct Pre-construction Surveys and Monitoring for Raptors
- BIO-MM#25a: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies
- BIO-MM#26: Conduct Surveys for Swainson’s Hawk Nests
- BIO-MM#27: Implement Avoidance and Minimization Measures for Swainson’s Hawk Nests
- BIO-MM#29: Conduct Protocol-level Surveys for Burrowing Owls
- BIO-MM#30: Implement Avoidance and Minimization Measures for Burrowing Owl
- BIO-MM#34: Conduct Pre-construction Surveys for American Badger Den Sites and Implement Minimization Measures
- BIO-MM#35: Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures
- BIO-MM#36: Conduct Pre-construction Surveys for San Joaquin Kit Fox
- BIO-MM#37: Minimize Impacts on San Joaquin Kit Fox

BIO-MM #5: Conduct Pre-construction Surveys for Vernal Pool Wildlife Species. Prior to any ground-disturbing activities, the Project Biologist will conduct an aquatic habitat assessment and survey for vernal pool wildlife species in seasonal wetlands and vernal pools that occur within both the Work Area and the area extending 250 feet from the outer boundary of the Work Area where access is available, consistent with USFWS vernal pool survey protocols. The Project Biologist will visit these areas after the first rain event of the season to determine whether seasonal wetlands and vernal pools have been inundated. A seasonal wetland/vernal pool will be considered to be inundated when it holds greater than 3 centimeters of standing water 24 hours after a rain event. Approximately 2 weeks after the pools have been determined to be inundated, the Project Biologist will conduct surveys in appropriate seasonal wetland and vernal pool habitats. The Project Biologist will submit a report to the Authority within 30 days of completing the work. BIO-MM#5 would have temporary impacts on listed vernal pool branchiopods due to take of a few individuals; however, the surveys are minimally invasive and would not result in additional physical disturbance outside the project footprint.

BIO-MM #6: Implement Seasonal Vernal Pool Work Restriction. To the extent feasible, ground-disturbing activities will not occur within 250 feet of vernal pools or seasonal wetlands during the rainy season (October 15 to April 15). In the event ground-disturbing activities are to occur within the buffer area during the rainy season, such activities should, to the extent feasible, be undertaken when the aquatic features are not inundated. BIO-MM#6 would be beneficial to listed vernal pool branchiopods and special-status amphibians because it would minimize the chance of loss of vernal pool branchiopods and special-status amphibians. Implementing a seasonal work restriction would not result in additional physical disturbance outside the project footprint.

BIO-MM #7: Implement and Monitor Vernal Pool Avoidance and Minimization Measures Within Temporary Impact Areas. To the extent feasible, impacts on vernal pools in Work Areas outside of the permanent right-of-way will be avoided. The Project Biologist will install and maintain exclusionary fencing to prevent impacts to vernal pools from construction activities. When avoidance of impacts on vernal pools is not feasible, the construction activity will be scheduled to occur in the dry season, where feasible. Prior to the initiation of a ground-disturbing activity occurring during the dry season, the Project Biologist will collect a representative sampling of soils from the affected vernal pools to obtain viable plant seeds and vernal pool branchiopod cysts. After collecting soil, the Project Biologist may also put rinsed gravel in the vernal pools and cover with geotextile fabric to minimize damage to the soils and protect the pools’ contours, as provided by regulatory authorizations issued under the FESA.

The soils containing seeds and cysts may later be returned to the affected pool after work has been completed or incorporated into other vernal pools, as provided by regulatory authorizations issued under the FESA. BIO-MM#7 would have no impacts on vernal pool branchiopods because ground disturbance would not be required. Overall, implementation of this measure would be beneficial to listed vernal pool branchiopods because it would minimize the chance of loss of vernal pool branchiopods.

BIO-MM #8a: Work Windows for Fish. Near-water and in-water work will be conducted within specified work windows based on date, channel inundation, and water temperature. Work windows will include the general time periods when effects on migrating juvenile and adult California Central Valley steelhead and Central Valley spring-run Chinook salmon would be minimal. Additionally, in-water work will be allowed when salmonid use is temperature limited (defined as 1 week of average water temperature of 75°F or more); and work will be allowed in the channel and on the floodplain when channels are dry or ponded.

Near-water work is defined as construction activities other than impact pile driving occurring within the floodplain but not in the wetted channel (i.e., located between the wetted channel and the landside toe of the bordering levees). In-water work is defined as all in-water work within the wetted channel and impact pile driving within the floodplain.

For near-water work at the San Joaquin River and Eastside Bypass, the construction work window will be April 30 through December 1. For in-water work, the construction work window will be June 1 through December 1.

If channels are dry or ponded (i.e., lack continuous flow), or water temperatures average 75°F or more for 7 consecutive days, in-water and near-water work can proceed outside of the work windows stated above. NMFS will be consulted to verify work can proceed if these conditions are present during construction.

BIO-MM #8b: Pile Driving Underwater Sound Pressure Measures. If in-water pile driving occurs in the wetted channel during the in-water work window, one of the following means of attenuating underwater sound will be implemented:

- Cofferdam—a cofferdam will be established around the pile driving area to keep it dewatered during impact pile driving.
- Air barrier—a pipe with a larger diameter than the driven pile will be set to keep the area between the pile and the pipe completely dewatered with an air barrier.
- Contained bubble curtain—a bubble curtain will be maintained around the driven pile.

NMFS will be consulted regarding the measure(s) to install piles and notified of the selected measure(s).

During implementation of any of these measures and installation of driven piles, underwater sound monitoring will be conducted. If underwater sound monitoring indicates that underwater sound exceeds 206 peak strike decibels (estimated at 10 meters from the driven pile), or that the daily accumulated sound exposure level is calculated to have exceeded 187 decibels (estimated at 10 meters from the driven pile), NMFS will be notified (within 24 hours) and construction will cease until corrections are made to the attenuation apparatus/protocol so that the thresholds are not exceeded.

BIO-MM #8c: Water Diversion Measures for Fish. Construction within waterways may require temporary dewatering to minimize potential impacts on fisheries and minimize potential erosion, sediment loss, scour, or increases in turbidity. If deemed necessary by NMFS, the Contractor will construct cofferdams around the proposed Work Area or areas. Cofferdams will be kept to the minimum footprint necessary. The cofferdams will be constructed of sheet piles, gravel-filled sandbags, or comparable material. The temporary fill used to construct the cofferdam will be kept to the minimum footprint necessary. The cofferdams will be constructed over visqueen or similar material to facilitate clean-up and removal of materials. Upon completion of construction, all temporary fills associated with the dewatering including sandbags and/or rock will be removed and the area restored to pre-construction contours.

During implementation of any of these measures and installation of driven piles, underwater sound monitoring will be conducted. If underwater sound monitoring indicates that underwater sound exceeds 206 peak strike decibels (estimated at 10 meters from the driven pile), or that the daily accumulated sound exposure level is calculated to have exceeded 187 decibels (estimated at 10 meters from the driven pile), NMFS will be notified (within 24 hours) and construction will cease until corrections are made to the attenuation apparatus/protocol so that the thresholds are not exceeded.

BIO-MM #8d: Fish Rescue Plan. If construction requires the installation of cofferdams or dewatering, a fish rescue plan will be developed by the Authority in coordination with NMFS. The fish rescue plan will be approved by NMFS prior to starting work that may result in fish stranding. The plan will contain the following content:

- **Biologist Qualifications**—Fish rescue and relocation will be conducted by a qualified fisheries biologist with a current CDFW Scientific Collecting Permit.
- **Timing and Approach**—The fish rescue effort will be implemented during the dewatering of the areas behind the cofferdam(s) and will involve capture and return of those fish to suitable habitat within the adjacent waterways. The area will first be seined, followed by electrofishing to remove fish that are behind the cofferdam. A fisheries biologist will be on-site during initial pumping (dewatering) to confirm compliance with the fish rescue plan.
- **Minimization Measures**—Implementation of the fish rescue plan will include measures to minimize potential adverse effects on listed fish species (if present) associated with fish stranding during dewatering activities. The fish rescue plan will also contain methods for minimizing the risk of stress and mortality from capture and handling of fish removed from the construction sites and returned to adjacent waterways.
- **Monitoring and Reporting Requirements**—The progress of dewatering will be monitored and allow for the fish rescue to occur prior to completely closing the cofferdam and again when water depths reach approximately 2 feet. The NMFS will be notified at least 48 hours prior to the start of fish rescue efforts. Information on the species, number, and sizes of fish collected will be recorded during the fish rescue and provided in a letter report to be submitted to NMFS within 30 days of the fish rescue.

BIO-MM #9a: Work Stoppage. In the event that any special-status wildlife species is found in a Work Area, the Project Biologist will have the authority to halt work to prevent the death of or injury to the species. Any such work stoppage will be limited to the area necessary to protect the species and work may be resumed once the Project Biologist determines that the individuals of the species have moved out of harm's way or the Project Biologist has relocated them out of the Work Area.

Any such work stoppages and the measures taken to facilitate the removal of the species, if any, will be documented in a memorandum prepared by the Project Biologist and submitted to the Authority within 2 business days of the work stoppage.

BIO-MM #9b: Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species. Prior to any ground-disturbing activities, the Project Biologist will conduct pre-construction surveys in suitable habitat to determine the presence or absence of special-status reptiles and amphibian species within the Work Area. Surveys will be conducted no more than 30 days before the start of ground-disturbing activities in a Work Area. The results of the pre-construction survey will be used to guide the placement of Environmentally Sensitive Areas (ESA) or conduct species relocation.

BIO-MM #10: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species. The Project Biologist will monitor all initial ground-disturbing activities that occur within suitable habitat for special-status reptiles and amphibians and will conduct clearance surveys of suitable habitat in the Work Area on a daily basis. If a special-status reptile or amphibian is observed, the Project Biologist will identify actions, to the extent feasible, sufficient to avoid impacts on the species and to allow it to leave the area on its own volition. Such actions may include establishing a temporary ESA in the area where a special-status reptile or amphibian has been observed and delineating a 50-foot no-work buffer around the ESA. In

circumstances where a no-work buffer is not feasible, the Project Biologist will relocate any of the species observed from the Work Area. For federal or state-listed species, relocations will be undertaken in accordance with regulatory authorizations issued under the FESA and/or CESA.

BIO-MM #11: Conduct Pre-construction Surveys for California Tiger Salamander. Prior to any ground-disturbing activity scheduled to occur during the dry season (June 1–October 15), the Project Biologist will conduct a pre-construction survey of modeled suitable upland habitat within the Work Area and extending out 100 feet from the boundary of the Work Area, where access is available, to determine whether Central California tiger salamander are present. Such surveys will be conducted no earlier than 30 days prior to ground-disturbing activities in the Work Area. The Project Biologist may employ the use of conservation dogs (scent dogs) to augment focused species surveys. The Project Biologist will coordinate with USFWS and CDFW before using conservation dogs.

In the event that ground-disturbing activities are scheduled to occur during the rainy season (October 15–June 1), in addition to upland surveys, the Project Biologist will survey potential breeding habitat in the Work Area for the presence of California tiger salamander using methods from the *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* or other more recent guidelines, if available.

BIO-MM #12: Implement Avoidance and Minimization Measures for California Tiger Salamander. Prior to any ground-disturbing activity, the Project Biologist will install WEF along the boundary of the Work Area containing California tiger salamander modeled suitable habitat or will implement similar measures as otherwise required pursuant to regulatory authorizations issued under the FESA and/or CESA. WEF must be trenched into the soil at least 4 inches in depth, with the soil compacted against both sides of the fence for its entire length to prevent California tiger salamander from passing under the fence, and must have intermittent exit points. During the dry season (June 1–October 15), the Project Biologist will inspect the WEF at least twice weekly on nonconsecutive days and on a daily basis between October 15 and June 1. WEF will be installed with turn-arounds at access points to direct California tiger salamander away from gaps in the fencing.

To the extent feasible, construction activities will not be conducted within 250 feet of areas identified as occupied California tiger salamander breeding habitat during the rainy season (October 15–June 1). However, construction activities may begin within such areas after April 15 if the breeding habitat is no longer inundated.

BIO-MM #13: Conduct Emergence and Larval Surveys for Western Spadefoot. The Project Biologist or designee (qualified herpetologist) will conduct pre-construction emergence and larval surveys for western spadefoot during the fall and winter rainy season. Emergence surveys will be conducted within the appropriate period(s) after precipitation events as evaluated by a qualified herpetologist and would be conducted partially in tandem with California tiger salamander surveys. Potential breeding depressions, including vernal pools, will be surveyed for western spadefoot larvae concurrently with special-status vernal pool branchiopod and California tiger salamander pre-construction surveys. Adults found within the project footprint during emergence surveys will be relocated to an appropriate area adjacent to another pool suitable for breeding. The Project Biologist will document compliance after surveys are complete.

BIO-MM #14: Conduct Protocol-level Surveys for Blunt-Nosed Leopard Lizard. No more than 12 months before the start of any ground-disturbing activity, in accordance with authorizations under the FESA, a habitat assessment of the project footprint will be conducted by the Project Biologist to identify all habitat suitable for blunt-nosed leopard lizard within the project footprint. Within 12 months prior to any ground-disturbing activity, the Project Biologist will conduct surveys for blunt nosed leopard lizard in suitable habitats (e.g., areas containing burrows) within the Work Area. These surveys will be conducted in accordance with the CDFW's *Approved Survey Methodology for the Blunt-Nosed Leopard Lizard*, or other more recent guidelines, if available.

In instances where blunt-nosed leopard lizards are observed at any time during presence/absence surveys, pre-construction surveys, or construction monitoring, USFWS and CDFW will be notified of the occurrence within 2 business days.

BIO-MM #15: Implement Avoidance Measures for Blunt-Nosed Leopard Lizard. For Work Areas where surveys confirm that blunt-nosed leopard lizards are absent, the Project Biologist may install WEF along the perimeter of the Work Area. The WEF will be monitored daily and maintained.

During the non-active season for blunt-nosed leopard lizards (October 16–April 14), to the extent feasible, ground-disturbing activities will not occur in areas where blunt-nosed leopard lizards or signs of the species have been observed and that contain burrows suitable for blunt-nosed leopard lizards. If ground-disturbing activities are scheduled during the non-active season, suitable burrows identified during the surveys will be avoided through establishment of 50-foot no-work buffers. The Project Biologist may reduce the size of the no-work buffers if information indicates that the extent of the underground portion of burrows is less than 50 feet.

During the active season when blunt-nosed leopard lizards are moving above ground (April 15–October 15), the following measures will be implemented in areas where blunt-nosed leopard lizards or signs of blunt-nosed leopard lizards have been observed:

- Establishment of No-Work Buffers. The Project Biologist will establish, monitor, and maintain 50-foot no-work buffers around burrows and egg clutch sites identified during surveys. The 50-foot no-work buffers will be established around burrows in a manner that allows for a connection between the burrow site and the suitable natural habitat adjacent to the project footprint so that blunt-nosed leopard lizards and/or hatchlings may leave the area after eggs have hatched. Construction activities will not occur within the 50-foot no-work buffers until such time as the eggs have hatched and blunt-nosed leopard lizards have left the area.
- Fencing of Work Areas. Prior to installing WEF, the Project Biologist will confirm that no blunt-nosed leopard lizards are present within a Work Area by conducting focused blunt-nosed leopard lizard observational surveys for 12 days over the course of a 30- to 60-day period. At least one survey session will occur over 4 consecutive days. These observational surveys may be paired with scent detection dog surveys for blunt-nosed leopard lizard scat.

Within 3 days of completing these surveys with negative results, WEF will be installed in a configuration that accounts for burrow locations and enables blunt-nosed leopard lizards to leave the Work Area. The following day, the Project Biologist will conduct an observational survey. If no blunt-nosed leopard lizards are observed, the Project Biologist will install additional WEF to further enclose the Work Area. This Work Area will be monitored daily while the WEF is in place.

If blunt-nosed leopard lizards are observed prior to installing the last of the WEF, the Project Biologist will continue observational surveys until the lizard is observed leaving the Work Area or until 30 days elapse with no blunt-nosed leopard lizard observations within the Work Area.

BIO-MM #16: Conduct Western Pond Turtle Pre-construction Surveys and Relocation.

Prior to ground-disturbing activities, conduct pre-construction surveys for western pond turtles to determine the presence or absence of western pond turtles within the project footprint. If western pond turtles are found within the project footprint, conduct daily clearance surveys prior to the initiation of any construction activities.

If a western pond turtle nest would be affected by ground-disturbing activities, relocate the eggs according to relocation protocol coordinated with CDFW for all life stages of western pond turtles. Relocate hatchling and adult turtles outside of the project footprint in suitable habitat. The Project Biologist will submit a report to the Authority documenting compliance.

BIO-MM #17: Conduct Western Pond Turtle Monitoring. During ground-disturbing activities, the Project Biologist will observe all construction activities within habitat that supports populations of western pond turtles identified during the pre-construction surveys described under BIO-MM#16. If environmentally sensitive areas are deemed necessary, the Project Biologist will conduct a clearance survey for western pond turtles prior to the time the fence is installed. If

necessary, conduct daily clearance surveys prior to construction. The Project Biologist will submit a report to the Authority documenting compliance.

BIO-MM #18: Implement Western Pond Turtle Avoidance and Relocation. Prior to ground-disturbing activities, if a western pond turtle nesting area is present and would be affected by ground-disturbing activities as determined by the Project Biologist during the pre-construction surveys described under BIO-MM#16, the Contractor will avoid western pond turtle nesting areas by at least 50 feet. If avoidance is not feasible, as determined by the Authority or its designee, the Project Biologist will coordinate with CDFW to identify where to relocate western pond turtles. The Project Biologist will coordinate specific trapping and relocation protocols with CDFW for adults, hatchlings, and eggs prior to ground-disturbing activities. The Contractor will not move eggs or hatchlings without prior coordination with the Project Biologist and concurrence from CDFW. The Project Biologist will document compliance on a weekly basis or as determined appropriate pending construction progress.

BIO-MM #19: Avoid Suitable Giant Garter Snake Habitat. The Contractor will avoid impacts on giant garter snake aquatic habitat (i.e., freshwater marsh, natural watercourses, open water, and rice field within mapped range of species) in the project footprint, but outside of permanent or temporary impact areas, by installing environmentally sensitive area fencing as directed by the Project Biologist or Biological Monitor(s) (consistent with BIO MM#1a). Protective fencing will be installed along the upper bank of aquatic habitat features within the project footprint (including temporary and permanent access roads). In addition, all construction equipment service and refueling procedures will be conducted at least 100 feet away from giant garter snake aquatic habitat.

BIO-MM #20: Conduct Work in Giant Garter Snake Habitat during the Active Season. All construction activities affecting giant garter snake habitat will be conducted between May 1 and October 1, which is the active period for this species. Conducting construction activities during this period reduces the likelihood of mortality since snakes are expected to actively move and avoid danger. If construction activities in giant garter snake habitat are necessary between October 2 and April 30, the USFWS Sacramento Office will be contacted to determine whether additional take avoidance and minimization measures are necessary. Recommended measures will be implemented. After April 15, any dewatered habitat will remain dry for at least 15 consecutive days before workers excavate or fill the dewatered habitat.

BIO-MM #21: Conduct Pre-construction Surveys and Implement Minimization Measures for Giant Garter Snakes. Prior to any ground-disturbing activity that occurs within 200 feet of suitable giant garter snake aquatic habitat, the Project Biologist will conduct a pre-construction survey for giant garter snake no earlier than 24 hours before the commencement of the activity. The Project Biologist will remain on-site for the duration of the ground-disturbing activity. To the extent feasible, WEF will be installed along the upper bank of suitable aquatic habitat located within 200 feet of the boundary of the Work Area (provided access to such areas is available) to prevent snakes from moving into upland areas within the Work Area. If a giant garter snake is encountered during construction, the Project Biologist will direct that work that has the potential to injure the snake be stopped until it is determined that work can continue without potential harm to the snake, or the snake moves out of the immediate Work Area on its own volition. Pre-construction surveys in Work Areas will be repeated whenever construction activity lapses for 2 weeks or more.

BIO-MM #22: Conduct Pre-construction Surveys for Blainville's Horned Lizards, San Joaquin Coachwhip, and Silvery Legless Lizards. Before the start of ground-disturbing activities, a Biological Monitor (designated by the Project Biologist) will conduct pre-construction surveys in suitable habitats within the species' range to determine the presence or absence of Blainville's horned lizards (California annual grassland, valley sink scrub, and ruderal), San Joaquin coachwhip, and silvery legless lizards (California annual grassland and valley sink scrub) within the project footprint. Surveys will be conducted no more than 30 days before the start of ground-disturbing activities and will be phased with build-out of the Central Valley Wye alternatives.

The results of the pre-construction survey will be used to guide the placement of the environmentally sensitive area and/or environmentally restricted area fencing.

BIO-MM #23: Conduct Blainville’s Horned Lizards, San Joaquin Coachwhip, and Silvery Legless Lizards Monitoring, Avoidance, and Relocation. During ground-disturbing activities, a Biological Monitor will observe all construction activities in habitat that supports Blainville’s horned lizards, San Joaquin coachwhip, and silvery legless lizards as identified during the pre-construction surveys described under BIO-MM#22. If suitable habitat is present and environmentally sensitive areas or environmentally restricted areas are deemed necessary, the Biological Monitor will conduct a clearance survey within the area for Blainville’s horned lizards, San Joaquin coachwhip, and silvery legless lizards and wildlife exclusion fencing will be installed. If a Blainville’s horned lizard is present during construction, the Contractor will avoid the horned lizard, where feasible. Otherwise, the biological monitor will relocate Blainville’s horned lizards, San Joaquin coachwhip, and silvery legless lizards found in the project footprint to an outside area approved by the CDFW. If necessary, clearance surveys will be conducted daily.

BIO-MM #24a: Conduct Pre-construction Surveys and Delineate Active Nest Buffers and Exclusion Areas for Breeding Birds. Prior to any ground-disturbing activity, including vegetation removal, scheduled to occur during the bird breeding season (February 1–September 1), the Project Biologist will conduct visual pre-construction surveys within the Work Area for nesting birds and active nests (nests with eggs or young) of non-raptor species listed under the Migratory Bird Treaty Act and/or the Fish and Game Code.

In the event that active bird nests are observed during the pre-construction survey, the Project Biologist will delineate no-work buffers. No-work buffers will be set at a distance of 75 feet, unless a larger buffer is required pursuant to regulatory authorizations issued under the FESA and/or CESA. No-work buffers will be maintained until nestlings have fledged and are no longer reliant on the nest or parental care for survival or the Project Biologist determines that the nest has been abandoned. In circumstances where it is not feasible to maintain the standard no-work buffer, the no-work buffer may be reduced, provided that the Project Biologist monitors the active nest during the construction activity to ensure that the nesting birds do not become agitated. Additional measures that may be used when no-work buffers are reduced include visual screens and sound barriers.

BIO-MM #24b: Conduct Pre-construction Surveys and Monitoring for Raptors. If construction or other vegetation removal activities are scheduled to occur during the breeding season for raptors (January 1–September 1), no more than 14 days before the start of the activities, the Project Biologist will conduct pre-construction surveys for nesting raptors in areas where suitable habitat is present. Specifically, such surveys will be conducted in habitat areas within the construction footprint, and additional buffer areas, with the buffer distance depending on the potential for fully protected raptors to occur. Surveys for all raptors will be conducted within 500 feet of the boundary of the construction footprint, or within 0.5 mile of the boundary of the construction footprint for fully protected raptors, where access is available. If breeding raptors with active nests are found, the Project Biologist will delineate a 500-foot buffer (or as modified by regulatory authorizations for species listed under the FESA and/or CESA) 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 until such time as the Project Biologist determines that the nest has been abandoned.

If fully protected raptors (e.g., white tailed-kite, golden eagle, American peregrine falcon, bald eagle) with active nests are found, the Project Biologist in conjunction with the 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). Nest buffers may be adjusted if the Project Biologist determines that smaller buffers would be sufficient to avoid impacts on nesting raptors.

BIO-MM #25a: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies. Prior to initiation of construction at any location within 300 feet of suitable nesting habitat, the Project Biologist with experience surveying for and observing tricolored blackbird will conduct pre-construction surveys to establish use of nesting habitat by

tricolored blackbird colonies. Surveys will be conducted in suitable habitat within 300 feet of proposed construction areas, where access allows, during the nesting season (March 15–July 31).

If construction is initiated near suitable habitat during the nesting season, three surveys will be conducted within 15 days prior to construction, with one of the surveys within 5 days prior to the start of construction. If active tricolored blackbird nesting colonies are identified, construction activities will avoid the nesting colonies during the breeding season (March 15–July 31) to the extent practicable within 300 feet of the colony, consistent with the CDFW's *Staff Guidance Regarding Avoidance of Impacts to Tricolored Blackbird Breeding Colonies on Agricultural Fields in 2015*. This minimum buffer may be reduced in areas with dense forest, buildings, or other habitat features between the construction activities and the active nest colony, or where there is sufficient topographic relief to protect the colony from excessive noise or visual disturbance as determined by a Project Biologist experienced with tricolored blackbird. If tricolored blackbirds colonize habitat adjacent to construction after construction has been initiated, the Authority will reduce disturbance through establishment of buffers or sound curtains, as determined by the Project Biologist.

BIO-MM #25b: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat. The Authority will provide compensatory mitigation to offset impacts on tricolored blackbird. Compensatory mitigation will replace permanent loss of habitat with habitat that is commensurate with the type (nesting, roosting, and foraging) and amount of habitat lost. Suitable tricolored blackbird nesting habitat will be permanently protected or restored and managed at a ratio of 3:1 (protected or restored: affected) at a location subject to CDFW approval, and in proximity to the nearest breeding colony observed within the past 15 years, if possible. Suitable breeding season foraging habitat will be protected and managed at a ratio of 1:1 (protected: affected) at a location subject to CDFW approval. Suitable roosting habitat will be protected or restored at a ratio of 1:1 (protected: affected) if not occupied, and a ratio of 2:1 (protected: affected) if occupied by tricolored blackbirds. Compensatory mitigation will be provided using one or more of the methods described in the Compensatory Mitigation Plan.

BIO-MM #25c: Bird Protection. Prior to final construction design, the Authority will ensure that the catenary system, masts, and other structures such as fencing, electric lines, communication towers and facilities 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* and *Reducing Avian Collisions with Power Lines: State of the Art in 2012*. Applicable APLIC recommendations include, but are not limited to:

- Ensuring sufficient spacing of phase conductors to prevent bird electrocution.
- Configuring lines to reduce vertical spread of lines and/or decreasing the span length if such options are feasible.
- Marking lines and fences (e.g., Bird Flight Diverter for fencing and lines) to increase the visibility of lines and reduce the potential for collision. Where fencing is necessary, using bird compatible design standards to increase visibility of fences to prevent collision and entanglement.
- Installing perch guards to discourage avian presence on and near project facilities.
- Minimizing the use of guywires. Where the use of guywires is unavoidable, demarcating guywires using the best available methods to minimize avian strikes (e.g. line markers).
- Reusing or co-locating new transmission facilities and other ancillary facilities with existing facilities and disturbed areas to minimize habitat impacts and avoid collision risks.
- Structures will be monopole or dual-pole design versus lattice tower design to minimize perching and nesting opportunities. Communication towers will conform to USFWS's *Recommended Best Practices for Communication Tower Design, Siting, Construction, Operation, Maintenance, and Decommissioning*.
- Use of facility lighting that does not attract birds or their prey to project sites. These include using nonsteady burning lights (red, dual red and white strobe, strobe-like flashing lights) to

meet Federal Aviation Administration requirements, using motion or heat sensors and switches to reduce the time when lights are illuminated, using appropriate shielding to reduce horizontal or skyward illumination, and avoiding the use of high-intensity lights (e.g., sodium vapor, quartz, and halogen). Lighting will not be installed under viaduct and bridge structures in riparian habitat areas.

BIO-MM #26: Conduct Surveys for Swainson’s Hawk Nests. Surveys must be performed no more than 1 year prior to the commencement of construction activities. The Project Biologist will conduct surveys for Swainson’s hawk during the nesting season (March through August) within both the Work Area and a 0.5-mile buffer surrounding the Work Area, provided access to such areas is available. No sooner than 30 days prior to any ground-disturbing activity, the Project Biologist will conduct pre-construction surveys of nests identified during the earlier surveys to determine if any are occupied. The initial nesting season surveys and subsequent pre-construction nest surveys will follow the protocols set out in the Swainson’s Hawk Technical Advisory Committee’s *Recommended Timing and Methodology for Swainson’s Hawk Nesting Surveys in California’s Central Valley*.

BIO-MM #27: Implement Avoidance and Minimization Measures for Swainson’s Hawk Nests. Any active Swainson’s hawk nests (defined as a nest used one or more times in the last 5 years) found within 0.5 mile of the boundary of the Work Area during the nesting season (February 1–September 1) will be monitored daily by the Project Biologist to assess whether the nest is occupied. If the nest is occupied, the Project Biologist will establish no-work buffers following CDFW’s *Staff Report Regarding Mitigation for Impacts to Swainson’s Hawks (Buteo swainsoni) in the Central Valley of California*, and the status of the nest will be monitored until the young fledge or for the length of construction activities, whichever occurs first. Adjustments to the buffer(s) may be made in consultation with CDFW.

If an occupied Swainson’s hawk nest tree is to be removed, an incidental take permit under CESA will be obtained and impacts will be minimized and fully mitigated.

BIO-MM #28: Monitor Removal of Nest Trees for Swainson’s Hawks. Prior to construction (any ground-disturbing activity), the biological monitor will monitor nest trees for Swainson’s hawks in the project footprint following the Swainson’s Hawk Technical Advisory Committee Survey Recommendations. 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 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 Biological Monitor(s) will be conducted to determine if the nest was 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 report to the Authority on a monthly basis during the nesting season to document compliance with this measure.

BIO-MM #29: Conduct Protocol-level Surveys for Burrowing Owls. Prior to any ground-disturbing activity, the Project Biologist will conduct protocol-level surveys for burrowing owl within suitable habitat located in the Work Area and/or extending 500 feet from the boundary of the Work Area, where access is available. Surveys will be conducted in accordance with guidelines in the CDFW *Staff Report on Burrowing Owl Mitigation*.

BIO-MM #30: Implement Avoidance and Minimization Measures for Burrowing Owl. Occupied burrowing owl burrows that will be directly affected by ground-disturbing activities will be relocated in accordance with CDFW’s *Staff Report on Burrowing Owl Mitigation*. To the extent feasible, the Project Biologist will establish 600-foot no-work buffers around occupied burrowing owl burrows in the Work Area during the nesting season (February 1–September 1). If the no-work buffer is not feasible and occupied burrows will be relocated during the nesting season, relocation will occur either before the birds have begun egg-laying and incubation or after the Project Biologist has determined that the juveniles from the occupied burrows are foraging independently and are capable of independent survival.

BIO-MM #31: Conduct Pre-construction Surveys for Special-Status Bat Species. No more than 1 year before the replacement or modification of any bridges or removal of other structures identified as bat habitat and where access is available, the Project Biologist will conduct a survey of the bridge looking for evidence of roosting bats. If bat sign is detected, biologists will conduct an evening visual emergence survey of the bridge or structure, from a half hour before sunset to 1 to 2 hours after sunset for a minimum of 2 nights within the season that construction would be taking place. If a potentially active bat roost is in the bridge or structure, passive monitoring with full-spectrum bat detectors will be used to assist in determining species present. To the extent possible, all monitoring will be conducted during favorable weather conditions (calm nights with temperatures conducive to bat activity and no precipitation predicted). The biologists will analyze the bat call data using appropriate software and will prepare a report that will be submitted to the Authority, including an assessment of the significance of the roost for local bat populations.

BIO-MM #32: Implement Bat Avoidance and Relocation Measures. Prior to any ground-disturbing activity, the Project Biologist will survey for active hibernacula or maternity roosts. If active hibernacula or maternity roosts are identified in the Work Area or 500 feet extending from the Work Area during pre-construction surveys, they will be avoided to the extent feasible. If avoidance of a hibernacula is not feasible, the Project Biologist will prepare a relocation plan to remove the hibernacula and provide for construction of an alternative bat roost outside of the Work Area with CDFW guidance. Compensation will include the installation of nearby suitable alternative roosting structures if displacements are long term or permanent. The alternative roosting structure, if required, will be constructed in accordance with CDFW guidance and will be designed to have comparable size and quality of the impacted habitat. The Project Biologist will implement the relocation plan before the commencement of any ground-disturbing activities that would occur within 500 feet of the hibernacula. Removal of roosts will be guided by accepted exclusion and deterrent techniques.

BIO-MM #33: Implement Bat Exclusion and Deterrence Measures. If non-breeding or non-hibernating individuals or groups of bats are found roosting within the Work Area, the Project Biologist will facilitate the eviction of the bats by either opening the roosting area to change the lighting and airflow conditions or installing one-way doors or other appropriate methods.

To the extent feasible, the Authority will leave the roost undisturbed by project activities for a minimum of 1 week after implementing exclusion and/or eviction activities. Steps will not be taken to evict bats from active maternity or hibernacula; instead such features may be relocated pursuant to a relocation plan.

BIO-MM #34: Conduct Pre-construction Surveys for American Badger Den Sites and Implement Minimization Measures. Prior to any ground-disturbing activity, the Project Biologist will conduct pre-construction surveys for American Badger den sites within suitable habitat located within the Work Area. These surveys will be conducted no less than 14 days and no more than 30 days prior to the start of ground-disturbing activities in a Work Area. The Project Biologist will establish a 100-foot no-work buffer around occupied maternity dens throughout the pup-rearing season (February 15–July 1) and a 50-foot no-work buffer around occupied dens during other times of the year. If nonmaternity dens are found and cannot be avoided during construction activities, they will be monitored for badger activity. If the Project Biologist determines that dens may be occupied, passive den exclusion measures will be implemented for 3 to 5 days to discourage the use of these dens prior to project disturbance activities.

BIO-MM #35: Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures. Prior to any ground-disturbing activity, the Project Biologist will conduct pre-construction surveys for ringtail and ringtail den sites within suitable habitat located within the Work Area. These surveys will be conducted no more than 30 days before the start of ground-disturbing activities in a Work Area. The Project Biologist will establish 100-foot no-work buffers around occupied maternity dens throughout the pup-rearing season (May 1–June 15) and a 50-foot no work buffer around occupied dens during other times of the year.

BIO-MM #36: Conduct Pre-construction Surveys for San Joaquin Kit Fox. Within 30 days prior to the start of any ground-disturbing activity, the Project Biologist will conduct pre-

construction surveys in modeled suitable habitat in the Work Area. The surveys will be conducted in accordance with USFWS' *San Joaquin Kit Fox Survey Protocol for the Northern Range* between May 1 and September 30 for the purpose of identifying potential San Joaquin kit fox dens. If any occupied or potential dens are found during pre-construction surveys, they will be flagged and a 50-foot no-work buffer will be established around the den until the den is cleared, if necessary to allow construction activities to proceed.

BIO-MM #37: Minimize Impacts on San Joaquin Kit Fox. The Authority will implement USFWS' *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance* to minimize impacts on this species, including:

- Disturbance to all kit fox dens will be avoided to the extent feasible.
- Construction activities that occur within 200 feet of any occupied dens will cease within one-half hour after sunset and will not begin earlier than one-half hour before sunrise, to the extent feasible.
- All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored within the construction footprint for one or more overnight periods will be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved.
- If a San Joaquin kit fox is detected within a Work Area during construction, the Project Biologist will request approval from the USFWS and CDFW to capture and relocate the kit fox if it does not safely leave the area by its own volition.
 - To minimize the temporary impacts of WEF and construction exclusion fencing on San Joaquin kit fox and their movement/migration corridors during construction, artificial dens will be installed along the outer perimeter of WEF and construction exclusion fencing. Artificial dens or similar escape structures will also be installed at dedicated wildlife crossing structures to provide escape cover and protection against predation. The artificial dens will be located on parcels owned by the Authority or at locations where access is available.

BIO-MM #38: Construction in Wildlife Movement Corridors. Prior to construction (any ground-disturbing activity), the Contractor's Project Biologist will submit a construction avoidance and minimization plan for wildlife movement linkages (as described in any permits or approvals) 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 in areas where viaducts (e.g., elevated platforms) or bridges are included in the final design. The Contractor will minimize ground-disturbing activities within the wildlife 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 report to the Authority on a monthly basis to document compliance with this measure.

BIO-MM #39a: Establish Wildlife Crossings. The Authority will create dedicated wildlife crossings to accommodate wildlife movement across permanently fenced infrastructure (consistent with any wildlife corridor assessment prepared), where wildlife movement would be significantly reduced. Prior to final construction design, the Project Biologist will confirm appropriate placement and dimensions of wildlife crossings.

For terrestrial wildlife, crossings will conform to the minimum design specifications below, unless different designs are specified in authorizations issued under the FESA or CESA.

To the extent feasible, all wildlife crossings created specifically for terrestrial species will include the following features and design considerations:

- Native earthen bottom
- Ledges or tunnels incorporated into the design to facilitate safe passage of small mammals
- Unobstructed entrances (e.g., no riprap, energy dissipaters, grates), although vegetative cover, adjacent to and near the entrances of crossings, is permissible
- Openness and clear line of sight from end to end
- Year-round absence of water for a portion of the width of the crossing (i.e., no flowing water)

- Slight grade at approaches to prevent flooding
- Limited open space between crossing and cover/habitat
- Separation from human use areas (e.g., trails, multiuse undercrossings)
- Avoidance of artificial light at approaches to wildlife crossings

In addition, the Authority will incorporate features to accommodate wildlife movement into the design of bridges and culverts that are replaced or modified as part of project construction, wherever feasible. Project Biologist review of final construction design for consistency with placement and dimensions of wildlife crossings will be verified in a memorandum provided to the Authority.

BIO-MM #39b: Install Aprons or Barriers within Security Fencing. Prior to final construction design the Project Biologist will review the fencing plans along any portion of the permanent right-of-way that is adjacent to natural habitats and confirm that the permanent security fencing will be enhanced with a barrier (e.g., fine mesh fencing) that extends at least 12 inches below ground and 12 inches above ground to prevent special-status reptiles, amphibians, and mammals from moving through or underneath the fencing and gaining access to areas within the right-of-way. At the 12-inch depth of the below-grade portion of the apron, it will extend or be bent at an approximately 90-degree angle, oriented outward from the right-of-way a minimum of 12 inches, to prevent fossorial mammals, reptiles, and amphibians from digging or tunneling below the security fence and gaining access to the right-of-way. A climber barrier (e.g., rigid curved or bent overhang) will be installed at the top of the apron to prevent reptiles, amphibians, and mammals from climbing over the apron.

The Project Biologist will ensure that the selected apron material and climber barrier does not cause harm, injury, entanglement, or entrapment to wildlife species. The Authority will provide for quarterly inspection and repair of the fencing.

The specific design and method for installation of an apron or barrier may vary as required by regulatory authorizations issued under the FESA and/or CESA. Prior to operation, the Project Biologist will field inspect the fencing along any portion of the permanent right-of-way that is adjacent to natural habitats and confirm that the fencing has been appropriately installed. Fencing plan review and field inspection will be documented in a memorandum from the Project Biologist and provided to the Authority.

BIO-MM #40: Conduct Pre-construction Surveys for Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat. Prior to construction (any ground-disturbing activity), the Project Biologist will conduct pre-construction surveys for giant kangaroo rat, Nelson's antelope ground squirrel, and Fresno kangaroo rat burrows within suitable habitats (California annual grassland and valley sink scrub) in the project footprint plus a 50-foot buffer. Pre-construction surveys for giant kangaroo rat, Nelson's antelope ground squirrel, and Fresno kangaroo rat will be conducted 14 days prior to any ground-disturbing activities within the range of each of the species to identify known or potential burrows. If potential burrows are identified, live trapping surveys to determine occupancy by giant kangaroo rat Nelson's ground squirrel, or Fresno kangaroo rat may be used in coordination with the USFWS and CDFW.

BIO-MM #41: Monitoring, Avoidance, and Relocation of Giant Kangaroo Rat, Nelson's Antelope Ground Squirrel, and Fresno Kangaroo Rat. At least 14 days prior to construction (any ground-disturbing activity), the Contractor, under the direction of the Project Biologist, will establish a 50-foot buffer around potential giant kangaroo rat, Nelson's antelope ground squirrel, and Fresno kangaroo rat burrows identified during the pre-construction surveys described under BIO-MM#40. The Contractor will cease construction activities within 50 feet of any potential burrow one-half hour before sunset and will not begin construction activities earlier than one-half hour after sunrise to avoid indirect impacts from artificial light to this nocturnal species. If any burrow cannot be avoided, and it is determined that the burrow is occupied by a giant kangaroo rat or Nelson's ground squirrel, the rodent will be allowed to leave the burrow and move to an area that will not be disturbed. A non-disturbance exclusion fence with one-way exit/escape points will be placed to exclude special-status rodents from the construction area. The wildlife exclusion fence will be established around burrows in a manner that allows special-status rodent

species to leave the project footprint. Additional measures such as vegetation trimming and live trapping within the exclusion fence may be implemented in coordination with CDFW and USFWS. Adjustments to the buffer(s) would require prior approval by CDFW and USFWS as coordinated by the Project Biologist, under the supervision of the Mitigation Manager. The Project Biologist will report to the Authority on a monthly basis to document compliance with this measure.

BIO-MM #42: Measure Pile Driving Sound Pressure and Attenuate Underwater Sound. If in-water pile driving occurs in the wetted channel during the in-water work window, one of the following means of attenuating underwater sound will be implemented:

- Cofferdam—a cofferdam will be established around the pile driving area to keep it dewatered during impact pile driving.
- Air barrier—a pipe with a larger diameter than the driven pile will be set to keep the area between the pile and the pipe completely dewatered with an air barrier.
- Contained bubble curtain—a bubble curtain will be maintained around the driven pile.

NMFS will be consulted regarding the measure(s) to install piles and notified of the selected measure(s).

During implementation of any of these measures and installation of driven piles, underwater sound monitoring will be conducted. If underwater sound monitoring indicates that underwater sound exceeds 206 peak strike decibels (estimated at 10 meters from the driven pile), or that the daily accumulated sound exposure level is calculated to have exceeded 187 decibels (estimated at 10 meters from the driven pile), NMFS will be notified (within 24 hours) and construction will cease until corrections are made to the attenuation apparatus/protocol so that the thresholds are not exceeded.

BIO-MM #43: Compensate for Impacts to Listed Plant Species. The Authority will provide compensatory mitigation for direct impacts on federal and State-listed plant species based on the number of acres of plant habitat directly affected. Such mitigation will include the following measures:

- Compensatory mitigation will be provided at a 1:1 ratio to offset direct impacts on federally listed plant species habitat, unless a higher ratio is required pursuant to regulatory authorizations issued under the FESA.
- Compensatory mitigation will be provided at a 1:1 ratio to offset direct impacts on State-listed plant species habitat, unless a higher ratio is required pursuant to regulatory authorizations issued under CESA.

Compensatory mitigation will be provided using one or more of the methods described in the Compensatory Mitigation Plan.

BIO-MM #44: Provide Compensatory Mitigation for Impacts on Vernal Pool Fairy Shrimp and Vernal Pool Tadpole Shrimp Habitat. The Authority will provide compensatory mitigation for direct and indirect impacts, including both temporary and permanent impacts, on vernal pool branchiopod habitat at a 1:1 ratio, unless a higher ratio is required by the FESA. Compensatory mitigation will be provided using one or more of the methods described in the Compensatory Mitigation Plan.

BIO-MM #45: Provide Compensatory Mitigation for Impacts on Valley Elderberry Longhorn Beetle Habitat. The Authority will provide compensatory mitigation for impacts on valley elderberry longhorn beetle habitat, including through transplantation and replacement of elderberry shrubs and maintenance of replacement shrubs, consistent with the USFWS' *Framework for Assessing Impacts to the Valley Elderberry Longhorn Beetle*, as follows:

- Suitable riparian habitat will be replaced at a 3:1 ratio (acres of mitigation to acres of impact).
- Suitable non-riparian habitat will be replaced at a ratio of 1:1.
- Individual valley elderberry shrubs in riparian areas will be replaced through a purchase of two credits at a USFWS-approved bank for each shrub that is trimmed or removed, regardless of the presence of beetle exit holes.

- Individual valley elderberry shrubs in non-riparian areas will be replaced through a purchase of one credit at a USFWS-approved bank for each shrub trimmed if beetle exit holes have been found in any shrub in or within 165 feet of the area to be disturbed.
- If an elderberry shrub is to be completely removed by the activity, the entire shrub will be transplanted to a USFWS-approved location in addition to the specified credit purchase, and the transplanted shrub will be monitored for 10 years.

For transplanted valley elderberry plants, a survival rate of at least 60 percent of the elderberry plants and 60 percent of the associated native plants must be maintained throughout the 10-year monitoring period. If survival rates drop below 60 percent during the monitoring period, failed plantings will be replaced and maintained until the 60 percent survival rate is achieved.

BIO-MM #46: Provide Compensatory Mitigation for Impacts on California Tiger Salamander Habitat. The Authority will provide compensatory mitigation to offset the loss of California tiger salamander habitat. Compensatory mitigation will be provided in the following ratios, unless higher ratios are required through regulatory authorizations issued under the FESA and/or CESA. Permanent and temporary impacts on California tiger salamander habitat will be mitigated at ratios of 1:1 (acres preserved, enhanced, or restored: acres affected) and 0.5:1, respectively. Compensatory mitigation will be provided using one or more of the methods described in the Compensatory Mitigation Plan.

BIO-MM #47: Compensate for Impacts on Blunt-nosed Leopard Lizard and Nelson's Antelope Squirrel. The Authority will provide compensatory mitigation to offset the permanent and temporary loss of suitable habitat for the blunt-nosed leopard lizard and Nelson's antelope squirrel. Mitigation will be provided at a ratio of 1:1, unless a higher ratio is required by authorizations issued under the FESA for blunt-nosed leopard lizard or under CESA for Nelson's antelope squirrel. Compensatory mitigation will be provided using one or more of the methods described in the Compensatory Mitigation Plan.

BIO-MM #48: Provide Compensatory Mitigation for Loss of Swainson's Hawk Nesting Trees and Habitat. To compensate for permanent impacts on active Swainson's hawk nest trees (i.e., trees in which Swainson's hawks were observed building nests during surveys described in BIO-MM#26) and foraging habitat, the Authority will provide project-specific compensatory mitigation that replaces affected nest trees and provides foraging habitat. Lands proposed as compensatory mitigation for Swainson's hawk will meet the following minimum criteria:

- Support at least three mature native riparian trees suitable for Swainson's hawk nesting (i.e., valley oak, Fremont cottonwood, or willow) for each Swainson's hawk nest tree removed by construction of the project extent.
- Support at least one Swainson's hawk nesting territory in the last 5 years.
- Contribute to the project extent's mitigation commitment for Swainson's hawk foraging habitat, which will be calculated based on the following ratios:
 - 1:1 for impacts on Active primary foraging habitat
 - 0.75:1 for impacts on active secondary foraging habitat
 - 0.5:1 for impacts on active tertiary foraging habitat

BIO-MM #49: Provide Compensatory Mitigation for Loss of Burrowing Owl Active Burrows and Habitat. To compensate for permanent impacts on occupied burrowing owl breeding habitat, the Authority will provide compensatory mitigation at a minimum 1:1 ratio for occupied breeding and foraging habitat. Lands proposed as compensatory mitigation will meet one of the following criteria:

- Support at least two breeding adult owls for every breeding adult owl displaced by construction of the project.
- Support at least 1 acre of burrowing owl breeding habitat for every acre of habitat affected (i.e., 1:1 mitigation ratio). For the purposes of this measure, burrowing owl breeding habitat is defined as any land cover type with all of the following attributes:
 - Open terrain with well-drained soils

- Short, sparse vegetation with few shrubs and no trees
- Underground burrows or burrow surrogates (e.g., debris piles, culverts, pipes) for nesting and shelter from predators or weather. Burrows in earthen levees, berms, or canal banks within or along the margins of agricultural fields can be counted as compensatory breeding habitat as long as adjacent fields or pastures are suitable for foraging.
- Abundant and accessible prey (arthropods, small rodents, amphibians, lizards)

BIO-MM #50: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat.

The Authority will provide compensatory mitigation for impacts on modeled San Joaquin kit fox habitat through the acquisition of suitable habitat that is acceptable to USFWS and CDFW. Habitat will be replaced at a minimum ratio of 1:1 for natural lands and at a ratio of 0.1:1 for suitable urban or agricultural lands, unless a higher ratio is required by regulatory authorizations issued under the FESA and/or CESA.

BIO-MM #51: Provide Compensatory Mitigation for Impacts to Giant Garter Snake Habitat.

The Authority will mitigate the destruction of giant garter snake habitat by the purchase of suitable, approved habitat (USFWS and CDFW). Habitat will be replaced at a minimum ratio of 1:1 for aquatic habitat and a ratio of 0.1:1 for suitable upland habitat 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 giant garter snake in accordance with the USFWS Biological Opinion and/or CDFW 2081(b) Incidental Take Permit. The Authority will submit a memorandum to the USFWS and CDFW to document compliance with this measure.

BIO-MM #52: Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee.

Surveys for Crotch bumble bee in suitable habitat (identified by species habitat suitability modeling) in the project footprint will be conducted by qualified biologists within 1 year prior to the start of construction. Surveys will be conducted during four evenly spaced sampling periods during the flight season (March–September). For each sampling event, the biologist(s) will survey suitable habitat within the project footprint and 100-foot buffer surrounding the project footprint using nonlethal netting methods for 1 person-hour per 3 acres of the highest quality habitat or until 150 bumble bees are sighted, whichever comes first. If initial sampling of a given habitat area indicates that the habitat is of low quality or nonexistent, no further sampling of that area would be required. General guidelines and best practices for bumble bee surveys will follow USFWS' *Survey Protocols for the Rusty Patched Bumble Bee (Bombus affinis)*, which are consistent with other bumble bee survey protocols used by The Xerces Society.

If the surveys conducted within 1 year prior to construction identify occupied Crotch bumble bee habitat within the project footprint or the 100-foot buffer, the Project Biologist will then conduct additional pre-construction surveys of such habitat for active bee nest colonies and associated floral resources (i.e., flowering vegetation on which bees from the colony are observed foraging) no more than 30 days prior to any ground disturbance from March through September. The purpose of this pre-construction survey would be to identify active nest colonies and associated floral resources outside of impact areas that could be avoided by construction personnel. The Project Biologist will establish, monitor, and maintain no-work buffers around nest colonies and floral resources identified during surveys. The size and configuration of the no-work buffer will be based on best professional judgment of the Project Biologist. At a minimum, the buffer will provide at least 50 feet of clearance around nest entrances and maintain disturbance-free airspace between the nest and nearby floral resources. Construction activities will not occur within the no-work buffers until the colony is no longer active (i.e., no bees are seen flying in or out of the nest for 3 consecutive days indicating the colony has completed its nesting season and the next season's queen has dispersed from the colony).

BIO-MM #53: Provide Compensatory Mitigation for Impacts on Crotch Bumble Bee Habitat.

The Authority will provide compensatory mitigation for impacts on occupied habitat for Crotch bumble bee. Impacts on occupied habitat (confirmed through surveys as described in BIO-MM#52) will be compensated for at a ratio of 3:1, unless a higher ratio is required pursuant to an authorization issued under CESA, through the purchase of CDFW-approved bank credits (if

available), or through preservation of habitat in perpetuity including suitable habitat currently preserved by the Authority.

Referenced Mitigation Measures for Hazardous Materials and Wastes

HMW-MM #1: Limit Use of Extremely Hazardous Materials near Schools during Construction. Prior to construction the Contractor will prepare a memorandum regarding hazardous materials BMPs related to construction activity for approval by the Authority. The memorandum will confirm that the Contractor will 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. The memorandum will acknowledge that 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 will 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 memorandum will be submitted to the Authority prior to any construction involving an extremely hazardous substance.

Referenced Mitigation Measures for Socioeconomics and Communities

SO-MM #1: Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods. Prior to construction (in residential areas), the Authority will minimize impacts associated with the Preferred Alternative in residential areas by conducting special outreach to affected homeowners and residents to understand their special relocation needs fully. The Authority will make efforts to locate suitable replacement properties that are comparable to those currently occupied by these residents, including constructing suitable replacement facilities if necessary.

In cases where residents wish to remain in the immediate vicinity, the Authority will take measures to purchase vacant land or buildings in the area, and consult with local authorities over matters such as zoning, permits, and moving of homes and replacement of services and utilities, as appropriate. Before land acquisition, the Authority will conduct community workshops to obtain input from those homeowners whose property would not be acquired, but whose community would be substantially altered by construction of HSR facilities, including the loss of many neighbors, to identify measures that could be taken to mitigate impacts on those who remain (including placement of sound barriers and landscaping, and potential uses for nonagricultural remnant parcels that could benefit the community in the long term). The Authority will document implementation of this measure through annual reporting.

SO-MM #2: Implement Measures to Reduce Impacts Associated with the Division of Communities. The Authority, in consultation with the community of Fairmead, will incorporate the following features into the final design of the Preferred Alternative to maintain a robust sense of community cohesion in Fairmead:

- Two vehicular crossings, one each at Road 18 3/4 and Road 20
- A multiuse trail along Road 19 1/2 between Avenue 24 and Avenue 22 3/4 to maintain pedestrian and bicycle access between the northern and southern portions of Fairmead (1.25 miles)
- Sidewalk installation at Avenue 23 (0.75 mile) and Arnott Drive (0.15 mile), and roadway repairs and sidewalk installations at Avenue 22 3/4 (0.5 mile), Moore Street (0.15 mile), Yates Avenue (0.33 mile), Road 19 1/2 (0.25 mile), Elm Street (0.33 mile), Fairmead Circle (0.12 mile), and Hickory Street (0.25 mile)
- Grading of Sycamore Street between Avenue 22 1/2 and Avenue 22 3/4 (0.25 mile)
- Roadway improvements, sidewalk installations, and landscaping at Fairmead Boulevard (1.65 miles), Sinclair Drive (0.2 mile), and Maple Street (0.4 mile)

- Street repair, sidewalk installation, and stormwater management at Avenue 22 1/2 (0.75 mile)
- Installation of streetlights at the Avenue 22 1/2 bus stop
- Landscaping along the HSR corridor (1.75 miles)

In addition, prior to construction, the Authority will minimize impacts associated with the Preferred Alternative in the existing established communities through a program of outreach to homeowners, residents, business owners, and community organizations in affected neighborhoods. The objective will be to maintain community cohesion and avoid physical deterioration. The Authority will also conduct community workshops about the future use of the area beneath the rail guideway, where these exist. These meetings shall provide residents and business owners with the opportunity to identify design and use options that could strengthen community cohesion and be compatible with the existing community character.

The Authority will present information at the workshops, giving the community options for areas along the right-of-way or beneath the rail guideway, and providing an opportunity for individuals to provide feedback. For example, if safety considerations prohibit such uses as bike paths or community gardens, alternatives, such as sculpture gardens or managed landscaping, could be considered. As part of the Central Valley Wye alternatives planning and development, the Authority has already initiated workshops in the community of Fairmead and received feedback from community members.

The Authority will be responsible for interpreting the results of the community workshops and incorporating appropriate features into the design of the Preferred Alternative and measures that address the long-term management of the areas along the right-of-way or beneath the elevated HSR guideway. This would involve documenting the desired design concepts, incorporating them into the final design, and facilitating ongoing maintenance. The Authority will identify potential uses that may be developed in the right-of-way of the HSR system. These uses shall be compatible with the character of the adjacent community and sensitive to their needs. The costs associated with the development of these corridor improvements and how these costs would be paid would be determined during consultations with the affected city, county, parks district, or other community organizations. Furthermore, the parties or entities (i.e., the Authority, local government, park or recreation district, or nonprofit organization) responsible for some ongoing maintenance of these community areas would be determined. The Authority will document compliance with this measure through annual reporting.

Referenced Mitigation Measures for Land Use

There are no Mitigation Measures specific to land use in the Final Supplemental EIR/EIS. Potential impacts to land use are mitigated through the use of Mitigation Measures SO-MM #1, SO-MM #2, and AVR-MM #3. The text of these measures is included in Section 7.5 and Section 7.8 of this attachment.

Referenced Mitigation Measures for Agricultural Lands

AG-MM #1: Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland). The Authority has entered into an agreement with the Department of Conservation California Farmland Conservancy Program to implement agricultural land mitigation for the HSR system. The Authority will fund the California Farmland Conservancy Program's work to identify suitable agricultural land for mitigation of impacts and to fund the purchase of agricultural conservation easements from willing sellers. The performance standards for this measure are to preserve Important Farmland in an amount commensurate with the quantity and quality of the converted farmlands, within the same agricultural regions as the impacts occur, at a replacement ratio of not less than 1:1 for lands that are permanently converted to nonagricultural use by the project.

In addition to mitigation for Important Farmlands that are permanently converted to nonagricultural use, the Authority will fund the purchase of an additional increment of acreage for agricultural conservation easements at a ratio of not less than 0.5:1 for Important Farmland within a 25-foot-wide area adjacent to HSR permanently fenced infrastructure. The Authority will

document implementation of this measure through issuance of a compliance memorandum annually.

Referenced Mitigation Measures for Aesthetics and Visual Resources

AVR-MM #1: Minimize Visual Disruption from Construction Activities. Prior to construction (any ground-disturbing activity) the Contractor will prepare a technical memorandum identifying how the project would 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.
- Preserve existing vegetation, when possible, 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 a 2:1 replacement ratio for mature trees. For example, if 10 mature trees in an area are removed, replant 20 younger trees that after 5 to 15 years (depending 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.
- The technical memorandum will be submitted to the Authority for review and approval.

AVR-MM #2: Minimize Light Disturbance during Construction. Prior to construction (any ground-disturbing activity requiring nighttime construction), the Contractor will prepare a technical memorandum verifying how the Contractor will shield nighttime construction lighting and direct it downward in such a manner to minimize the light that falls outside the construction site boundaries.

The technical memorandum will be submitted to the Authority for review and approval.

AVR-MM #3: Incorporate Design Criteria for Elevated Guideways and Station Elements That Can Adapt to Local Context. Prior to construction (any ground-disturbing activity), the Contractor will work with the Authority and local jurisdictions to incorporate the Authority-approved aesthetic preferences for non-station structures into final design and construction. Refer to *Aesthetic Options for Non-Stations Structures* (Authority 2017). A technical memorandum will be submitted to the Authority to document compliance.

AVR-MM #4: Provide Vegetation Screening along At-Grade and Elevated Guideways Adjacent to Residential Areas. Prior to operation and maintenance of the HSR system, the Contractor will plant trees (minimum 24-inch box and 8 feet in height) along the edges of the HSR rights-of-way in locations adjacent to residential areas to visually screen the elevated guideway and the residential area. The species of trees to be installed will be selected based on their mature size and shape, growth rate, hardiness, and drought tolerance. No species on the Invasive Species Council of California's list will be planted. Upon maturity, the crowns of trees used will be tall enough to partially, or fully, screen views of the elevated guideway from adjacent at-grade areas. Upon maturity, trees will allow ground-level views under the crowns (with pruning if necessary) and will not interfere with the 15-foot clearance requirement for the guideway. The trees will be maintained. Irrigation systems will be installed within the tree-planting areas.

The Contractor will prepare a technical memorandum within 90 days of completing any construction section or segment documenting the species of trees that were incorporated into the edges of the HSR right-of-way adjacent to residential uses. The technical memorandum will be submitted to the Authority to document compliance.

AVR-MM #5: Replant Unused Portions of Lands Acquired for the HSR. Prior to operation and maintenance, the Contractor will plant vegetation within lands acquired for the project (e.g., shifting roadways) that are not used for the HSR or related supporting infrastructure, or other higher or better use. Plantings will allow adequate space between the vegetation and the HSR alignment and catenary lines. All street trees and other visually important vegetation removed in these areas during construction will be replaced with similar vegetation that, upon maturity, will be similar in size and character to the removed vegetation. Replaced shrubs shall be minimum 5 gallon and trees shall be minimum 24-inch box and 8 feet in height. The Authority will provide for continuous maintenance with appropriate irrigation systems. The Contractor will install the irrigation system within the planting areas. No species listed on the Invasive Species Council of California’s list of invasive species will be planted.

AVR-MM #6: Landscape Treatments along the HSR Overcrossings and Retained Fill Elements. During final design, the Authority will consult with cities and counties regarding the landscaping program for planting the slopes of the overcrossings and retained fill. Within 90 days from the completion of construction, the Contractor will plant the surface of the ground below overpasses (slope-fill overpasses) and retained fill elements with plant species that are consistent with the surrounding landscape (in terms of vegetative type, color, texture, and form) and based on their mature size and shape, growth rate, and drought tolerance. No species on the Invasive Species Council of California’s list shall be planted. The landscaping will be continuously maintained, and appropriate irrigation systems will be installed if needed by the Authority.

Where wall structures supporting the overpass or retained fill are proposed, architectural details, low-maintenance trees, and other vegetation will be employed to screen the structure, minimize graffiti, and reduce the effects of large walls. Surface coatings shall 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 by the Authority within a reasonable time (approximately 10 business days) after notification.

The Contractor will prepare a technical memorandum documenting implementation and submit the memorandum to Authority to document compliance.

Referenced Mitigation Measures for Cultural Resources

CUL-MM #1: Amend Archaeological and Built Environment Treatment Plans. As required by the Merced Fresno MOA⁵, the ATP will be amended, as needed by the Authority, in consultation with the signatories to the Merced Fresno MOA, and shall be consistent with the requirements of the PA Stipulation VIII.B. The ATP amendment will identify specific steps and responsible parties for Merced Fresno MOA compliance (for example, the roles and qualifications of staff; a process consistent with Section 106 and the PA; summary of archaeological resources and anticipated archaeological types; expectations for survey design; excavation strategy; relevant research questions; a monitoring plan specifying protocols of monitoring; reporting requirements; curation planning).

The BETP amendment will add a commitment for the Authority to require the Contractor to refine the design in the vicinity of the Robertson Boulevard Tree Row to minimize the number of trees affected. Implementation will be coordinated with the construction schedule; the related timing requirements will be included in the BETP.

CUL-MM #2: Mitigate Adverse Impacts on Archaeological and Built Environment Resources Identified During Phased Identification. Comply with the Stipulations Regarding

⁵ *California High-Speed Train Merced to Fresno Section: Memorandum of Agreement for the Treatment of Adverse Effects on Historic Properties under Section 106 of the National Historic Preservation Act.*

the Treatment of Archaeological and Historic Built Resources in the PA and MOA. Once parcels are accessible and surveys have been completed, including consultation as stipulated in the MOA, additional archaeological and built environment resources may be identified. For newly identified eligible properties that will be adversely affected, the following process will be followed, which is presented in detail in the BETP and ATP:

- The Authority will consult with the MOA signatories and concurring parties to determine the preferred treatment of the properties/resources and appropriate mitigation measures.
- For CRHR-eligible archaeological resources, the Authority will determine if these resources can feasibly be preserved in place, or if data recovery is necessary. The methods of preservation in place shall be considered in the order of priority provided in CEQA Guidelines Section 15126.4(b)(3). If data recovery is the only feasible treatment the Authority will adopt a data recovery plan as required under CEQA Guidelines Section 15126.4(b)(3)(C).
- Should data recovery be necessary, the Contractor's Principal Investigator, in consultation with the MOA signatories and consulting parties, will prepare a data recovery plan for approval from the Authority and in consultation with the MOA signatories. Upon approval, the Contractor's Principal Investigator will implement the plan.
- For archaeological resources, the Authority will also determine if the resource is a unique archaeological site under CEQA. If the resource is not a historical resource but is an archaeological site, the resource will be treated as required in California Public Resources Code 21083.2 by following protection, data recovery, and/or other appropriate steps outlined in the ATP. The review and approval requirements for these documents are outlined in the ATP.

For historic built resources, the Contractor's Principal Investigator will amend the BETP to include the treatment and mitigation measures identified by the Authority/FRA in consultation with the MOA signatories and concurring parties. The Contractor's Principal Investigator will implement the treatment and mitigation measures accordingly.

CUL-MM #3: Halt Work in the Event of an Archaeological Discovery and Comply with the PA, MOA, ATP, and all State and Federal Laws, as Applicable. During construction (any ground-disturbing activities, including clearing and grubbing), should there be an unanticipated discovery, the Contractor will follow the procedures for unanticipated discoveries as stipulated in the PA, MOA, and associated ATP. The procedures must also be consistent with the following: the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 Fed. Reg. 44716-42), as amended (National Park Service); and Guidelines for the Implementation of CEQA, as amended (Title 14 California Code of Regulations Chapter 3, Article 9, Sections 15120-15132). Should the discovery include human remains, the Contractor and the Authority will comply with federal and state regulations and guidelines regarding the treatment of human remains, including relevant sections of Native American Graves Protection and Repatriation Act (Section 3(c)(d)); California Health and Safety Code, Section 8010 et seq.; and California Public Resources Code Section 5097.98; and consult with the Native American Heritage Commission, tribal groups, and the SHPO.

In the event of an unanticipated archaeological discovery, the Contractor will cease work in the immediate vicinity of the find, based on the direction of the archaeological monitor or the apparent location of cultural resources if no monitor is present. If no Qualified Archaeologist is present, no work can commence until it is approved by the Qualified Archaeologist in accordance with the MOA, ATP, and monitoring plan. The Contractor's Qualified Archaeologist will assess the potential significance of the find and make recommendations for further evaluation and treatment as necessary. These steps may include evaluation for the CRHR and NRHP and necessary treatment to resolve significant effects if the resource is a historical resource or historic property. If, after documentation is reviewed by the Authority and they determine it is a historic property, and the SHPO concurs that the resource is eligible for the NRHP, or the Authority determines it is eligible for the CRHR, preservation in place will be considered by the Authority in the order of priority provided in CEQA Guidelines Section 15126.4(b)(3) and in consultation with the signatories and consulting parties to the MOA. If data recovery is the only feasible mitigation the

Contractor's qualified Principal Investigator will prepare a data recovery plan as required under CEQA Guidelines Section 15126.4(b)(3)(C), the MOA, and ATP, for the Authority's approval.

The Contractor will notify the Authority, which will notify the California State Lands Commission, if the find is a cultural resource on or in the submerged lands of California and consequently under the jurisdiction of the California State Lands Commission. The Authority will comply with all applicable rules and regulations promulgated by California State Lands Commission with respect to cultural resources in submerged lands.

If human remains are discovered on state-owned or private lands, the Contractor will 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 will contact the Native American Heritage Commission to identify the MLD. The MLD will be empowered to reinter the remains with appropriate dignity. If the MLD fails to make a recommendation, the remains will be reinterred in a location not subject to further disturbance and the location will 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 will, in consultation with the MLD and other consulting parties, 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 Tribes, the Authority may conduct scientific analysis on the human remains if called for under a data recovery plan and amenable to all consulting parties. The Authority will work with the MLD 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 acceptance of the documentation by the SHPO and appropriate consulting parties.

CUL-MM #4: Mitigation for Permanent Demolition, Destruction, Relocation, or Alteration of Historic Architectural Resources or Setting—Robertson Boulevard Tree Row.

The Merced Fresno MOA outlines specific mitigation measures for the Robertson Boulevard Tree Row. Because the effect is similar, these same mitigation measures are appropriate for the Central Valley Wye alternatives impacts. These measures are detailed in the Merced Fresno MOA. Overall, these measures include conducting pre-construction conditions assessments of the trees, preparing plans for protection and stabilization, preparing response plans for unanticipated effect and inadvertent damage, preparing and submitting Historic American Landscape Survey documentation, and relocation of selected trees. Consequently, no changes to the Merced Fresno MOA would be necessary.

Referenced Mitigation Measures for Environmental Justice

EJ-MM#1: Provide a Community Center for the Community of Fairmead. The Authority will provide Madera County with funding for the County to construct a community center in Fairmead. The Authority will base its funding estimate on comparable facilities in the region. The County will be responsible for construction, operation, and maintenance of the facility.

For the purposes of the current environmental review, the Authority assumes that the construction of the community center will adhere to the following performance standards:

1. The project site does not contain any of the following:
 - Important Farmland
 - Any protected biological or wetland resources
 - Any eligible cultural resources (and no such resources on adjacent/nearby sites)
 - Any existing residence or business that would be displaced
 - Incompatible land use on or associated with the proposed community center site
2. Further performance standards related to construction will include at least the following:

- Construction will be completed before trains are operating on the HSR system. EJ-MM#2 would already have been implemented by the time of community center construction, so that no separate new infrastructure extension would be required.

3. Construction of the community center will adhere to all IAMFs and mitigation measures applied to the Preferred Alternative.

The Authority, through coordination with community leaders and Madera County, will provide guidance on the long-term sustainability of the center. This coordination will include identification of funding mechanisms for operation, maintenance, and insurance of the community center.

The community center will provide residents a permanent meeting place for community gatherings and events. In concert with EJ-MM#2, this will reduce the adverse impacts on community cohesion from construction of the Preferred Alternative.

EJ-MM#2: Provide Water and Sewer Service for the Community of Fairmead.

Water Service

The Authority will provide funding assistance and will work with Madera County to secure grant funds for the community of Fairmead to connect to the nearest safe and reliable municipal water supply system. The implementation of this connection will provide an improved water supply system for the community of Fairmead and Madera County. Ongoing operations and maintenance responsibility for the water supply system will remain with the community of Fairmead and Madera County.

Access to a safe and reliable municipal water supply would improve the community's opportunity for future stability and growth. Providing water service for the community of Fairmead would, in concert with EJ-MM#1, reduce the impacts on community cohesion from construction of the Preferred Alternative. In addition, it would eliminate inadequate water service, a major stress facing residents, encourage business development (not possible without a reliable water supply), and increase the incentive of residents to remain in the community.

Sewer Service

The City of Chowchilla has agreed to provide capacity for the community of Fairmead at the Chowchilla Wastewater Treatment Plant, but additional funding is needed to connect the community to the treatment plant. The Authority will provide funding assistance and will work with the City of Chowchilla to connect the community of Fairmead to the Chowchilla Wastewater Treatment Plant. In addition, the Authority will continue to work with the City of Chowchilla on grant applications to provide funding for the design and construction of a sewer distribution system from Fairmead to Chowchilla with a sewer collection system located in the community of Fairmead.

A centralized sewer system and access to a municipal wastewater treatment plant would provide a needed improvement to a critical community infrastructure system necessary for future stability and growth. Providing a centralized sewer service for the community of Fairmead would, in concert with EJ-MM#1, reduce impacts on community cohesion from the construction of the Preferred Alternative. In addition, it would eliminate decentralized sewer treatment and the potential for groundwater contamination that are major stresses facing residents, encourage business development (not possible without a centralized sewer system and wastewater treatment), and increase the incentive for residents to remain in the community.

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ATTACHMENT B: SIGNIFICANT IMPACTS FROM THE MERCED TO FRESNO SECTION FINAL EIR/EIS THAT ARE NOT REVISED BY THE CENTRAL VALLEY WYE FINAL SUPPLEMENTAL EIR/EIS

The Merced to Fresno Section Final EIR/EIS described the following significant impacts of the Merced to Fresno Project Section north/south alignment (Hybrid Alternative) and stations (Downtown Merced and Downtown Fresno Mariposa), which the Authority approved through Resolution #HSRA 12-20 on May 3, 2012.

These impacts are geographically limited to the north/south alignment and the stations.

These significant impacts are therefore not revised by the Final Supplemental EIR/EIS, which focused on the Central Valley Wye portion of the Merced to Fresno Project Section.

Impact #	Reason Not Revised By Final Supplemental EIR/EIS
TR IMPACT # 3. Permanent Road Closures	Geographic focus on road closures in Merced and Fresno not re-addressed here (road closures in Wye area are included as revised)
TR IMPACT #2. Fresno Area between Herndon Avenue and Shaw Avenue Intersection Impacts Existing Plus Project.	Geographic focus on Fresno
TR IMPACT #3. Fresno Area between Herndon Avenue and Shaw Avenue Roadway Impacts - Future (2035) Plus Project	Geographic focus on Fresno
TR IMPACT #4. Fresno Area between McKinley Avenue and SR 180 Roadway Impacts - Future (2035) Plus Project	Geographic focus on Fresno
TR IMPACT #5. Fresno Area between McKinley Avenue and SR 180 Intersection Impacts - Existing Plus Project.	Geographic focus on Fresno
TR IMPACT #6. SR 99 Relocation Freeway Impacts - Future (2035) Plus Project	Geographic focus on Fresno
TR IMPACT #7. SR 99 Relocation Intersection Impacts	Geographic focus on Fresno
TR IMPACT #8. HST Station Area Roadway Impacts	Geographic focus on Merced and Fresno Station Areas
TR IMPACT #9. HST Station Area Intersection Impacts	Geographic focus on Merced and Fresno Station Areas
BIO IMPACT #21. Construction of the HST would disturb Camp Pashayan (San Joaquin River Ecological Reserve)	Geographic focus on Camp Pashayan/Fresno
BIO IMPACT #40. The HST would affect Camp Pashayan (within the San Joaquin River Ecological Reserve).	Geographic focus on Camp Pashayan/Fresno
HMW IMPACT # 1. Handling Hazardous Materials and Wastes Within 0.25 mile of a School	Geographic focus on Merced and Fresno schools (schools in Wye area are included as revised)
SS#2. Increased Demand for Emergency Services at Stations	Geographic focus stations in Merced and Fresno
SO IMPACT #3. Displacement of Community Facility	Geographic focus on Merced homeless shelter

Impact #	Reason Not Revised By Final Supplemental EIR/EIS
PK IMPACT #4. Restricted Use at Camp Pashayan (City of Fresno)	Geographic focus on Camp Pashayan/Fresno
PK IMPACT #7. Acquisition of Camp Pashayan Park Property	Geographic focus on Camp Pashayan/Fresno
PK IMPACT #8. Noise Impacts at Roeding Park (City of Fresno)	Geographic focus on Fresno
Hist IMPACT #1. Effect on Historically Significant Built-Environment Resources during Construction	Geographic focus on resources in Merced and Fresno not re-addressed here (resources in Wye area are included as revised)
Hist IMPACT #2. Effect on Historically Significant Built-Environment Resources during Construction	Geographic focus on Roeding Park/Fresno
Hist IMPACT #3. Effect on Historically Significant Built-Environment Resources during Operation	Geographic focus on Roeding Park/Fresno