

APPENDIX 3.1-C: COMPARISON OF MITIGATION MEASURES AND IMPACTS: CENTRAL VALLEY WYE AND MERCED TO FRESNO FINAL EIR/EIS

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This appendix correlates the mitigation measures from the *Merced to Fresno Section: Central Valley Wye Supplemental Environmental Impact Report (EIR)/Supplemental Environmental Impact Statement (EIS)* (Draft Supplemental EIR/EIS) with the project design features and mitigation measures in the *Merced to Fresno Section Final EIR/EIS* (Merced to Fresno Final EIR/EIS) (Authority and FRA 2012). This information is intended to help the reader understand the origin and relationship of the Central Valley Wye alternatives mitigation commitments included in the Draft Supplemental EIR/EIS to the mitigation measures included in the Merced to Fresno Final EIR/EIS from 2012.

Table 1 is organized as the information is presented in the Draft Supplemental EIR/EIS, allowing the reader to see the relationship of the mitigation measures for each resource topic to mitigation measures presented in the Merced to Fresno Final EIR/EIS.

In some cases, the titles of mitigation measures have been renamed or renumbered. Though not presented in Table 1, for some measures that occur in both documents the mitigation text has been modified to make it applicable to the Central Valley Wye alternatives. Additionally, some of the mitigation measures from the Merced to Fresno Final EIR/EIS are now included in the statewide project design as impact avoidance and minimization features (IAMFs)—standard practices, actions, and design features the Authority would incorporate into the Central Valley Wye alternatives design. For more information on the IAMFs, please refer to Chapter 2 Alternatives, and Appendix 2-B: California High-Speed Rail: Impact Avoidance and Minimization Features.

Since publication of the Draft Supplemental EIR/EIS, Table 1 has been expanded to include a column indicating the extent to which any of the referenced mitigation measures were changed between the Draft Supplemental EIR/EIS and the Final Supplemental EIR/EIS. (Table 1 does not include all mitigation measures in the Final Supplemental EIR/EIS, only those that correlate directly to mitigation measures from the Merced to Fresno Final EIR/EIS. The Final Supplemental EIR/EIS reflects additional mitigation measures across several resource topics).

Also, following Table 1, text has been added demonstrating the relationship between environmental impacts identified in the Merced to Fresno Final EIR/EIS and those identified in the Central Valley Wye Final Supplemental EIR/EIS.

Table 1 Comparison of the Merced to Fresno Final EIR/EIS Mitigation Measures to the Central Valley Wye Draft Supplemental EIR/EIS Mitigation Measures and Central Valley Wye Final EIR/EIS Mitigation Measures

Merced to Fresno Final EIR/EIS Mitigation Measures	Central Valley Wye Draft Supplemental EIR/EIS Mitigation Measures	Central Valley Wye Final Supplemental EIR/EIS Mitigation Measures
Air Quality and Global Climate Change		
AQ-MM#1 Reduce Criteria Exhaust Emissions from Construction Equipment	Same	Changed only to reflect the Authority's designation as NEPA Lead Agency pursuant to the NEPA Assignment MOU
AQ-MM#2 Reduce Criteria Exhaust Emissions from On-Road Construction Vehicles	Same	Changed only to reflect the Authority's designation as NEPA Lead Agency pursuant to the NEPA Assignment MOU

Merced to Fresno Final EIR/EIS Mitigation Measures	Central Valley Wye Draft Supplemental EIR/EIS Mitigation Measures	Central Valley Wye Final Supplemental EIR/EIS Mitigation Measures
AQ-MM#3 Reduce the Potential Impact of Concrete Batch Plants	Same	No change from Draft to Final
AQ-MM#4 Offset Construction Emissions through a SJVAPCD VERA	Renamed: AQ-MM#4 Offset Project Construction Emissions through an SJVAPCD Voluntary Emission Reduction Agreement (VERA)	Updated to better reflect the terms of an MOU between the Authority and the SJVAPCD, and to clarify all applicable Air Quality Management Districts
AQ-MM#5 Purchase Offsets and Off-Site Emission Mitigation for Emissions Associated with Hauling Ballast Material in the BAAQMD and SCAQMD Air Districts	Renamed: AQ-MM#5 Purchase Offsets and Off-Site Emission Mitigation for Emissions Associated with Hauling Ballast Material in Certain Air Districts	Updated to clarify all applicable Air Quality Management Districts
Noise and Vibration		
NV-MM#1 Construction Noise Mitigation Measures	Same	Updated to better refine the noise monitoring program and noise compliance thresholds
NV-MM#6 Additional Noise Analysis During Final Design	Renumbered: NV-MM#2 Additional Noise Analysis During Final Design	No change from Draft to Final
NV-MM#3 Implement Proposed California High-Speed Train Project Noise and Vibration Mitigation Guidelines	Same	Updated to clarify distance requirements and community coordination requirements
NV-MM#4 Vehicle Noise Specification	Same	No change from Draft to Final
Biological Resources and Wetlands		
BIO-MM#18 Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species	Renumbered: BIO-MM#2 Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species	Renumbered: BIO-MM#2b Prepare and Implement Plan for Salvage, Relocation, and/or Propagation of Special-Status Plant Species
BIO-MM#60 Off-Site Habitat Restoration, Enhancement, and Preservation	Renumbered: BIO-MM#4 Off-Site Habitat Restoration, Enhancement, and Preservation	Renamed: BIO-MM#4 Implement Measures to Minimize Impacts During Off-Site Habitat Restoration, Enhancement, or Creation on Mitigation Sites
BIO-MM#19: Conduct Pre-Construction Sampling and Assessment for Vernal Pool Fauna.	Renumbered: BIO-MM#5 Conduct Pre-construction Sampling and Assessment for Vernal Pool Fauna	Renamed: BIO-MM#5 Conduct Pre-construction Surveys for Vernal Pool Wildlife Species
BIO-MM#20 Seasonal Vernal Pool Work Restriction	Renumbered: BIO-MM#6 Seasonal Vernal Pool Work Restriction	Renamed: BIO-MM#6 Implement Seasonal Vernal Pool Work Restriction
BIO-MM#21 Implement and Monitor Vernal Pool Protection	Renumbered: BIO-MM#7 Implement and Monitor Vernal Pool Protection	Renamed: BIO-MM#7 Implement and Monitor Vernal Pool Avoidance and Minimization Measures Within Temporary Impact Areas

Merced to Fresno Final EIR/EIS Mitigation Measures	Central Valley Wye Draft Supplemental EIR/EIS Mitigation Measures	Central Valley Wye Final Supplemental EIR/EIS Mitigation Measures
BIO-MM#25 Conduct Emergence and Larval Surveys for Western Spadefoot	Renumbered: BIO-MM#13 Conduct Emergence and Larval Surveys for Western Spadefoot	No change from Draft to Final
BIO-MM#26 Conduct Western Pond Turtle Pre-Construction Surveys and Relocation	Renumbered: BIO-MM#16 Conduct Western Pond Turtle Pre-construction Surveys and Relocation	No change from Draft to Final
BIO-MM#27 Conduct Western Pond Turtle Monitoring	Renumbered: BIO-MM#17 Conduct Western Pond Turtle Monitoring	No change from Draft to Final
BIO-MM#28 Implement Western Pond Turtle Avoidance and Relocation	Renumbered: BIO-MM#18 Implement Western Pond Turtle Avoidance and Relocation	No change from Draft to Final
BIO-MM#29 Conduct Pre-construction Surveys and Monitoring for Raptors	Renumbered: BIO-MM#24 Conduct Pre-construction Surveys and Monitoring for Raptors	Renumbered: BIO-MM#24b Conduct Pre-construction Surveys and Monitoring for Raptors
BIO-MM#32 Conduct Protocol and Pre-construction Surveys for Swainson's Hawks	Renumbered: BIO-MM#26 Conduct Protocol and Pre-construction Surveys for Swainson's Hawks	Renamed: BIO-MM#26 Conduct Surveys for Swainson's Hawk Nests
BIO-MM#33 Swainson's Hawk Nest Avoidance and Monitoring	Renumbered: BIO-MM#27 Swainson's Hawk Nest Avoidance and Monitoring	Renamed: BIO-MM#27 Implement Avoidance and Minimization Measures for Swainson's Hawk Nests
BIO-MM#34 Monitor Removal of Nest Trees for Swainson's Hawks	Renumbered: BIO-MM#28 Monitor Removal of Nest Trees for Swainson's Hawks	No change from Draft to Final
BIO-MM#35 Conduct Protocol-level Surveys for Burrowing Owls	Renumbered: BIO-MM#29 Conduct Protocol-level Surveys for Burrowing Owls	No change from Draft to Final
BIO-MM#36 Burrowing Owl Avoidance and Minimization	Renumbered: BIO-MM#30 Burrowing Owl Avoidance and Minimization	Renamed: BIO-MM#30 Implement Avoidance and Minimization Measures for Burrowing Owl
BIO-MM#37 Conduct Pre-construction Surveys for Special-Status Bat Species	Renumbered: BIO-MM#31 Conduct Pre-construction Surveys for Special-Status Bat Species	No change from Draft to Final
BIO-MM#38 Bat Avoidance and Relocation	Renumbered: BIO-MM#32 Bat Avoidance and Relocation	Renamed: BIO-MM#32 Implement Bat Avoidance and Relocation Measures
BIO-MM#39 Bat Exclusion and Deterrence	Renumbered: BIO-MM#33 Bat Exclusion and Deterrence	Renamed: BIO-MM#33 Implement Bat Exclusion and Deterrence Measures
BIO-MM#40 Conduct Pre-Construction Surveys for American Badger and Ringtail	Renumbered: BIO-MM#34 Conduct Pre-construction Surveys for American Badger and Ringtail	Renamed: BIO-MM#34 Conduct Pre-construction Surveys for American Badger Den Sites and Implement Minimization Measures

Merced to Fresno Final EIR/EIS Mitigation Measures	Central Valley Wye Draft Supplemental EIR/EIS Mitigation Measures	Central Valley Wye Final Supplemental EIR/EIS Mitigation Measures
BIO-MM#41 American Badger and Ringtail Avoidance	Renumbered: BIO-MM#35 American Badger and Ringtail Avoidance	Renamed: BIO-MM#35 Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures
BIO-MM#42 Conduct Protocol-level Pre-construction Surveys for San Joaquin Kit Fox	Renumbered: BIO-MM#36 Conduct Protocol-level Pre-construction Surveys for San Joaquin Kit Fox	Renamed: BIO-MM#36 Conduct Pre-construction Surveys for San Joaquin Kit Fox
BIO-MM#43 Minimize Impacts on San Joaquin Kit Fox	Renumbered: BIO-MM#37 Minimize Impacts on San Joaquin Kit Fox	No change from Draft to Final
BIO-MM#48 Construction in Wildlife Movement Corridors	Renumbered: BIO-MM#38 Construction in Wildlife Movement Corridors	No change from Draft to Final
BIO-MM#52 Compensate for Impacts on California Tiger Salamander	Renumbered: BIO-MM#48 Compensate for Impacts on California Tiger Salamander	Renumbered and Renamed: BIO-MM#46 Provide Compensatory Mitigation for Impacts on California Tiger Salamander Habitat
BIO-MM#55 Compensate for Loss of Burrowing Owl Active Burrows and Habitat	Renumbered: BIO-MM#51 Compensate for Loss of Burrowing Owl Active Burrows and Habitat	Renumbered and Renamed: BIO-MM#49 Provide Compensatory Mitigation for Loss of Burrowing Owl Active Burrows and Habitat
Hazardous Materials and Wastes		
HMW-MM#1 Limit Use of Extremely Hazardous Materials Near Schools	Same	Updated to provide more specific information regarding preparation of a memorandum and to affirm that the measure would be consistent with California Public Resources Code Section 21151.4
Socioeconomics and Communities		
SO-MM#1: Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods	Same	Minor text revisions
SOC-MM#3 Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods	Renumbered: SOC-MM#1 Implement Measures to Reduce Impacts Associated with the Division of Residential Neighborhoods	No change from Draft to Final
Agricultural Farmland		
AG-MM#1 Preserve the Total Amount of Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland	Renamed: AG-MM#1 Conserve Important Farmland (Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland)	Minor text revisions
Aesthetics and Visual Resources		

Merced to Fresno Final EIR/EIS Mitigation Measures	Central Valley Wye Draft Supplemental EIR/EIS Mitigation Measures	Central Valley Wye Final Supplemental EIR/EIS Mitigation Measures
AVR-MM#1 Minimize Visual Disruption During Construction and from Construction Activities	Renamed: AVR-MM#1 Minimize Visual Disruption from Construction Activities	Minor text revisions and clarification regarding minimum replacement tree sizes
AVR-MM#2 Minimize Light Disturbance During Construction	Same	No change from Draft to Final
AVR-MM#3 Incorporate Design Criteria for Elevated Guideways and Station Elements That Can Adapt to Local Context	Renamed: AVR-MM#3 Incorporate Design Criteria for Elevated Guideways and Station Elements That Can Adapt to Local Context	No change from Draft to Final
AVR-MM#4 Replant Unused Portions of Lands Acquired for the HST	Renumbered: AVR-MM#5 Replant Unused Portions of Lands Acquired for the HSR	Minor text revisions and clarification regarding minimum replacement tree sizes
AVR-MM#5: Replant Unused Portions of Lands Acquired for the HSR	Same	Minor text revisions and clarification regarding minimum replacement tree sizes
Cultural Resources		
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	Same	Minor text revisions and removal of FRA language
CUL-MM#3 Halt work in the Event of an Archaeological Discovery	Renamed; Renumbered: 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	Minor text revisions and removal of FRA language

Source: Authority and FRA, 2012; Authority 2019 and 2020.

Relationship of Impacts in Merced to Fresno Final EIR/EIS and the Central Valley Wye Final Supplemental EIR/EIS

As explained in Volume 1 Section 3.1, Introduction, the Final Supplemental EIR/EIS provides additional analysis of Central Valley Wye alternatives within a geographic area that is an integral part of the larger Merced to Fresno Project Section. The geography of the Central Valley Wye alternatives analyzed in the Final Supplemental EIR/EIS is larger than that presented for the Wye Design Options in the Merced to Fresno Final EIR/EIS. In addition, the approach to the analysis has changed in a number of ways since the publication of the Merced to Fresno Final EIR/EIS. The impacts analysis in this Final Supplemental EIR/EIS therefore does not mirror the analysis in the Final EIR/EIS, but it covers all necessary impact topics and thereby appropriately supplements the Final EIR/EIS.

The below text is intended to clarify the relationship between the impacts described in the Merced to Fresno Final EIR/EIS, and this Final Supplemental EIR/EIS.

I. Geographic Relationship Between Central Valley Wye Final Supplemental EIR/EIS and Merced to Fresno Final EIR/EIS

The Merced to Fresno Final EIR/EIS analyzed the high-speed rail (HSR) north-south alignment in terms of four geographic vicinities: Merced, Chowchilla, Madera, and Fresno. (Merced to Fresno Final EIR/EIS, p. 2-46.) The Merced to Fresno Final EIR/EIS analyzed the two Wye Design options (Avenue 24 and Avenue 21) in Madera County in the context of the Chowchilla and Madera geographic vicinities. (Merced to Fresno Final EIR/EIS, pp. 2-54 to 2-55.)

The Final Supplemental EIR/EIS focuses on Central Valley Wye alternatives within an area bounded by Ranch Road to the North, Carlucci Road to the West, and Avenue 19 to the South, which is larger than and encompasses the geographic area of the prior two Wye Design Options in the Merced to Fresno Final EIR/EIS, as shown in Figure 2-6 of this Final Supplemental EIR/EIS, and reproduced here. As explained in Section 2.2.1, the Central Valley Wye alternatives extend farther north and west than the prior Wye Design Options. The Final Supplemental EIR/EIS thus supersedes the prior impacts analysis of the Wye Design Options in the Merced to Fresno Final EIR/EIS, meaning the analysis related to HSR infrastructure within the orange shaded area on Figure 2-6.

The Final Supplemental EIR/EIS does not focus on impacts of the HSR alignment for the Merced to Fresno Project Section outside the Central Valley Wye area, meaning to the north or south of the dotted box on Figure 2-6. The Authority has already approved the Hybrid alternative to the north and south of the Central Valley Wye and is not proposing any changes at this time. Accordingly, the Merced to Fresno Final EIR/EIS impacts analysis that relates exclusively to impacts of the Merced to Fresno Project Section north of Ranch Road to Merced, and south of Avenue 19 to Fresno, is not repeated in the Final Supplemental EIR/EIS.

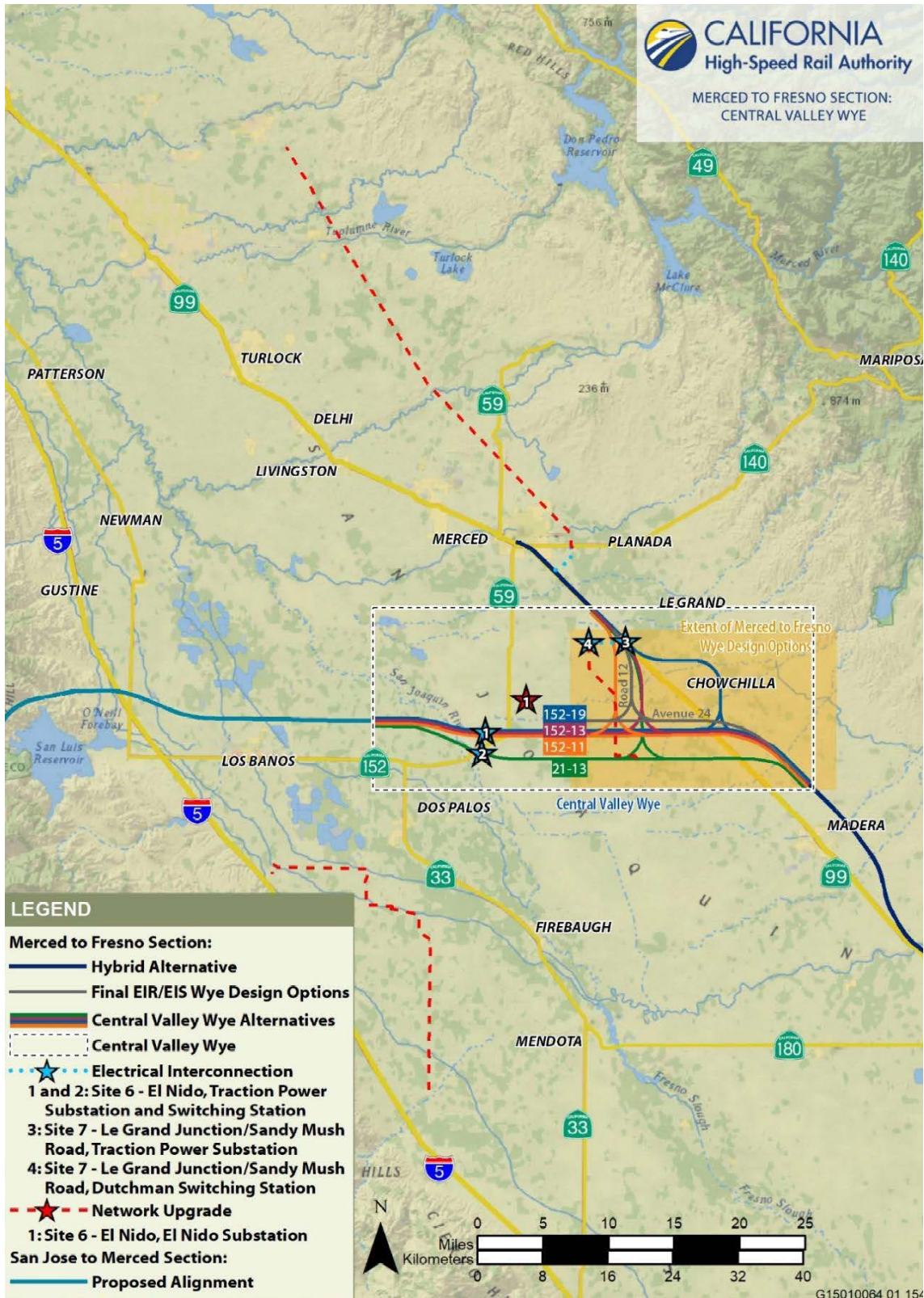


Figure 2-6 Relationship of Central Valley Wye to Extent of Merced to Fresno Wye Design Options

II. Impact Analysis Relationship

The impacts analysis in this Final Supplemental EIR/EIS differs from the 2012 Merced to Fresno Final EIR/EIS in a number of respects in addition to the geographic difference described above. As explained in Section 3.1.2, differences include:

- Order in which impacts are presented
- Inclusion of electrical interconnections and network upgrades
- Renaming of “project design features” as “impact avoidance and minimization features” or “IAMFs”
- Rewording and adjustments to mitigation measures, as explained in this Appendix.

In addition, there are several other differences between the two documents. The Merced to Fresno Final EIR/EIS included impact numbering only for impacts that were deemed significant under CEQA, but did not identify impact numbering for CEQA less than significant impacts or for NEPA impacts. The Final Supplemental EIR/EIS numbers all impacts for improved organization and clarity. The Merced to Fresno Final EIR/EIS described whether impacts under NEPA were significant, whereas the Final Supplemental EIR/EIS explains in section 3.1.3.4 that NEPA impacts are fully described, but not characterized in terms of significance in the same manner as for CEQA. Further, as explained in individual sections of Chapter 3 of the Final Supplemental EIR/EIS, some impact analysis methodologies differ between the two documents, but the analysis in each individual chapter is consistent with the analysis in the Merced to Fresno Final EIR/EIS.

This Final Supplemental EIR/EIS addresses all impacts of HSR construction and operation/maintenance of the Central Valley Wye alternatives, as illustrated in the following tables, except in a few instances when it refers back to analysis in the Merced to Fresno Final EIR/EIS as applying unchanged. This Final Supplemental EIR/EIS is more detailed in some respects than the prior Merced to Fresno Final EIR/EIS, based on the Authority’s ongoing efforts to provide thorough, yet reader-friendly environmental documents. The two documents considered together, provide analysis of the Merced to Fresno Project Section as a whole, with the Final Supplemental EIR/EIS superseding the prior analysis of Wye Design Options in the Merced to Fresno Final EIR/EIS.

In the following explanations of each impact analysis Section in the Merced to Fresno Final EIR/EIS and Final Supplemental EIR/EIS, tables identify the general impact topics covered in both documents. In the tables, “S” refers to a significant impact under CEQA and “LTS” refers to a less than significant impact under CEQA. In addition, “SUI” refers to an impact identified as significant and unavoidable (in other words, even with the application of any feasible mitigation, the impact cannot be reduced to a less-than-significant level. “NI” means no impact. While the tables are focused on the CEQA conclusions, the CEQA conclusions are representative of the NEPA analysis. The discussion of each impact topic is addressed for NEPA purposes under the particular impact number and the NEPA Summary for the Final Supplemental EIR/EIS, and under the general discussion of each impact topic and the NEPA Summary in the Merced to Fresno Final EIR/EIS.

TRANSPORTATION (SECTION 3.2)

The Merced to Fresno Final EIR/EIS analyzed traffic impacts from construction across the urban and rural areas of the project section. The following significant impacts were specific to Merced and Fresno: TR #2-TR # 5, Fresno Area; TR # 6 and TR # 7, Realignment of SR 99 in Fresno Area, and TR # 8 and TR # 9, Station Area Impacts in Merced and Fresno. (Merced to Fresno Final EIR/EIS, pp. 3.2-158 to 3.2-160.) In addition, the Section described less than significant construction-related and operations-related impacts that are geographically limited to Merced and Fresno. (Merced to Fresno Final EIR/EIS, p. 3.2-31 to 32, 38, 41.) These impacts, which are outside the geographic study area of the Central Valley Wye Alternatives, are not changed. Other transportation impacts that were addressed for the Merced to Fresno Project Section as a whole are identified below with the related discussion.

Impact	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/ Conclusion Before Mitigation	MF Final EIR/EIS Impact/ Conclusion After Mitigation
Impacts on Major Roads from Temp. Road Closures – Construction	TR # 1 (temp) – No Impact TR # 2 (perm) – LTS	N/A N/A	LTS (p. 3.2-26, p. 3.2-31 to 3.2-32)	N/A
Construction Material Hauling	TR # 3 – LTS	N/A	LTS (p. 3.2-35)	N/A
Impacts on Circulation and Emergency Access - Construction	TR # 4 (temp) – LTS TR # 5 (perm) - LTS	N/A N/A	LTS (p. 3.2-31, p. 3.2-35)	N/A
Impacts on Major Highway Operations – Construction	TR # 6 (temp) – LTS TR # 7 (perm) - LTS	N/A N/A	LTS (pp. 3.2-33-3.2-34)	N/A
Impacts on Rural Roadway Operations - Construction	TR # 8 (temp) – LTS TR # 9 (perm) – LTS	N/A N/A	LTS (p. 3.2-35)	N/A
Loss of Property Access – Construction	TR # 10 (temp) – LTS TR # 11 (perm) - LTS	N/A N/A	TR # 1 - <u>S</u> (p. 3.2-48, 49)	LTS (p. 3.2-158)
Bus Transit Operations – Construction	TR # 12 (temp) – LTS TR # 13 (perm) - LTS	N/A N/A		
Passenger Rail Operations – Construction	TR # 14 (temp) – LTS TR # 15 (perm) - LTS	N/A N/A	LTS (p. 3.2-36)	N/A
Impacts on School Bus Routes – Construction	TR # 16 (temp) – LTS TR # 17 (perm) – NI	N/A N/A		
Pedestrian and Bicycle Access - Construction	TR # 18 (temp) – LTS TR # 19 (perm) – NI	N/A N/A	LTS (p. 3.2-31, p. 3.2-36)	N/A
Roadway Operations	TR # 20 (temp) – LTS TR # 21 (perm) - LTS	N/A N/A	LTS (pp. 3.2-31 - 3.2-32)	N/A
Reduced Auto VMT	TR #2 (perm) – LTS (beneficial)	N/A	Beneficial (p. 3.2-35, 36)	N/A
Changes to Aviation System from Operations	No change from Merced to Fresno Final EIR/EIS	N/A	Beneficial (p. 3.2-36)	N/A
Changes to Freight Rail from Operations	No change from Merced to Fresno Final EIR/EIS	N/A	NI (p. 3.2-36)	N/A

The Final Supplemental EIR/EIS explains that pursuant to CEQA Guidelines section 15064.3, automobile delay is no longer considered a significant impact under CEQA. The topics involving analysis of automobile delay were determined to be less than significant under CEQA in the Draft Supplemental EIR/EIS. This conclusion is reinforced by CEQA Guideline section 15064.3. The Final Supplemental EIR/EIS duly includes VMT considerations in the analysis of several transportation related impacts.

AIR QUALITY (SECTION 3.3)

The Merced to Fresno Final EIR/EIS analyzed the impacts of constructing the Merced to Fresno Project Section within the San Joaquin Valley Air Basin (SJVAB) and from materials hauling outside the SJVAB. The Final Supplemental EIR/EIS analysis is similar, although methodologies differ as explained in Section 3.3.4.3.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
Construction Emissions in SJVAB	AQ # 1 (temp direct) - S AQ # 3 (temp indirect) - S	LTS	AQ # 1 - S for VOC and NOx (p. 3.3-78)	LTS
Materials Hauling Emissions Outside SJVAB	AQ # 3 - S	LTS	AQ # 2 - S for NOx in BAQMD and South Coast AQMD (p. 3.3-78)	LTS
Compliance with Air Quality Plans - Construction	AQ # 2 - S for NOx and PM10	LTS	AQ # 3 - S for Ozone precursors (VOC and NOx) (p. 3.3-78)	LTS
Greenhouse Gas Emissions from Construction	AQ # 4 - LTS	N/A	LTS - (p. 3.3-43 to 44)	N/A
Exposure to Asbestos and Lead-based Paint from Construction	AQ # 5 - LTS	N/A	LTS (p. 3.3-44)	N/A
Health Impacts from Construction	AQ # 6 - LTS	N/A	AQ # 4 - S (p. 3.3-78)	LTS
Pollutant Emissions During Operations	AG # 7 - LTS/beneficial	N/A	LTS/beneficial (p. 3.3-49 to 3.3-50)	N/A
Compliance with Air Quality Plans - Operations	AQ # 8 - LTS	N/A	No impact (p. 3.3-72)	N/A

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
Greenhouse Gas Emission/Operations	AQ # 9 - LTS	N/A	Beneficial (pp. 3.3-52 to 56)	N/A
Localized Mobile Source Air Toxics	AQ # 10 – LTS	N/A	LTS (p. 3.3-51)	N/A
CO Hot Spot Analysis	AQ # 11 – NI	N/A	LTS (p. 3.3-65)	N/A
PM 10 Hot Spot Analysis	AQ # 12 - LTS	N/A	LTS (p. 3.3-70)	N/A
Objectionable Odors	LTS - no change from Merced to Fresno Final EIR/EIS (SEIR/S, p. 3.3-2)	N/A	LTS (p.p. 3.3-71 to 72)	N/A

NOISE & VIBRATION (SECTION 3.4)

The Merced to Fresno Final EIR/EIS analyzed construction noise and vibration impacts for the Merced to Fresno Project Section as a whole, and analyzed construction noise and vibration by vicinity (Merced, Chowchilla, Madera, and Fresno). Operational noise impacts were mapped by project vicinity before and after mitigation (p. 3-4-34 – Chowchilla, p. 3.4-35-Madera).

The Final Supplemental EIR/EIS examines noise impacts similarly. The analysis essentially replaces the prior Merced to Fresno Final EIR/EIS analysis for the Chowchilla and Madera vicinities, due to the new Wye alternatives, the expanded study area, and the revised approach to impact categorization.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
Construction Noise	N&V # 1 – S N&V # 3 (const. traffic) – LTS N&V #4 (Roads) – S at two receptors	N&V # 1 - LTS N&V # 3 – N/A N&V # 4 - S	N&V # 1 – S (p. 3.4-62)	N&V #1 – LTS (p. 3.4-62)
Construction Vibration	N&V # 2 – LTS	N&V # 2 – N/A	N&V # 2 – S (p. 3.4-62)	N&V # 2 - LTS (p. 3.4-62)
Severe Operational Noise Impacts	N&V # 5 (HSR) - S	N&V # 5 – SUI at some receptors	N&V # 3 – S (p. 3.4-62)	N&V # 3 – SUI in some locations (p. 3.4-62)
Operation Vibration Impacts	No change to analysis in Final EIR/S, No Impact	N/A	N&V # 4 – No Impact for Hybrid Alternative (p. 3.4-43)	N&V # 4 – N/A for Hybrid Alternative (p. 3.4-43)
Annoyance from Onset of HST Passbys	N&V # 6 – LTS	N/A	LTS (p. 3.4-41)	N/A
Noise Effects on Wildlife and Domestic Animals	N&V # 7 – LTS	N/A	LTS (pp. 3.4-41 to 42)	N/A
Noise from New and Altered Electrical Infrastructure	N&V # 8 –LTS	N/A	N/A	N/A

EMI/EMF (SECTION 3.5)

The Merced to Fresno Final EIR/EIS analyzed EMI/EMF impacts by vicinity (Merced, Chowchilla, Madera, and Fresno). All impacts were identified as less than significant. The analysis in the Final Supplemental EIR/EIS is similar, but focused on the Central Valley Wye alternatives. It essentially replaces the prior Merced to Fresno Final EIR/EIS discussion as it relates to the Chowchilla and Madera vicinities.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
General Human Exposure to Electric and Magnetic Fields	EMI/EMF# 1 – LTS	N/A	LTS (pp. 3.5-13 to 15)	N/A
Exposure to Individuals with Implanted Medical Devices	EMI/EMF# 2 – LTS	N/A		
Exposure to Livestock and Poultry	EMI/EMF# 3 – NI	N/A	LTS (p. 3.5-15)	N/A
Interference with Sensitive Medical Equipment	EMI/EMF# 4 – NI	N/A	LTS (p. 3.5-15)	N/A
Corrosion of underground Pipelines, and Cables and Adjoining Rail	EMI/EMF# 6 – LTS	N/A	LTS (p. 3.5-15)	N/A
Nuisance Shocks	EMI/EMF# 1 – LTS	N/A	LTS (p. 3.5-16)	N/A
	EMI/EMF# 2 – LTS	N/A		
Effects on Adjacent Existing Rail Lines	EMI/EMF# 5 – LTS	N/A	LTS (pp. 3.5-16 to 17)	N/A

PUBLIC UTILITIES AND ENERGY (SECTION 3.6)

The Merced to Fresno Final EIR/EIS analyzed public utilities and energy impacts for the Merced to Fresno Project Section as a whole. The analysis in the Final Supplemental EIR/EIS is similar, but focused on the Central Valley Wye alternatives.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
Temporary Interruption of Utility Service	PUE # 1 – LTS	N/A	LTS (p. 3.6-30)	N/A
Accidents and Disruption of Service	PUE # 2 – LTS	N/A	LTS (p. 3.6-30)	N/A
Construction Water Demand	PUE # 3 – LTS	N/A	LTS (pp. 3.6-30 to 31)	N/A
Construction Waste Generation	PUE # 4 – LTS	N/A	LTS (p. 3.6-31)	N/A
Conflicts with Existing Utilities	PUE # 5 – LTS	N/A	LTS (p. 3.6-32)	N/A
Reduced Access to Existing Utilities in the HST Right of Way	PUE # 6 – LTS	N/A	LTS (p. 3.6-39)	N/A
Upgrade or Construction of Power Lines ¹			LTS (p. 3.6-39)	N/A
Operational Water Demand	PUE # 9 – LTS	N/A	LTS (p. 3.6-40)	N/A
Operational Demand for Wastewater Service	PUE # 9 – LTS	N/A	LTS (p. 3.6-42)	N/A
Operational Stormwater Generation	PUE # 9 – LTS	N/A	LTS (p. 3.6-43)	N/A
Operational Solid Waste Generation	PUE # 9 – LTS	N/A	LTS (p. 3.6-43)	N/A
Operational Hazardous Waste Generation	PUE # 9 – LTS	N/A	LTS (p. 3.6-44)	N/A
Construction Energy	PUE # 8 – LTS	N/A	LTS (p. 3.6-44)	N/A

¹ As described in both Chapter 2, Alternatives, Section 2.2.3 as well as Summary, Section S.14, both the Draft and Final Supplemental EIR/EIS incorporate electrical interconnections and network upgrades as part of the project description.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
Operational Energy	PUE # 10 – NI	N/A	LTS (p. 3.6-48)	N/A

BIOLOGICAL RESOURCES AND WETLANDS (SECTION 3.7)

The analysis in the Merced to Fresno Final EIR/EIS evaluated impacts to biological resources for the north-south alignments in combination with the two Wye Design Options (Merced to Fresno Final EIR/EIS, p. 3.7-55 to 56). Some Merced to Fresno Final EIR/EIS impact topics that are geographically specific to San Joaquin River north of Fresno (# 19, # 21, # 39, # 40), or the Great Valley Conservation Bank for the BNSF alternative (# 20, # 41), are not repeated in the Final Supplemental EIR/EIS. All impact topics are covered in the Final Supplemental EIR/EIS that are relevant to the geographic area of the Central Valley Wye alternatives.

Impact	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation ²	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Special Status Plants – Construction	BIO # 1 (D) – S BIO # 2 (I) – S	LTS LTS	BIO #3 – S for all alternatives (pp. 3.7-48 to 60)	LTS (p. 3.7-156)
Special-Status Wildlife- Construction	BIO # 3 (D) invertebrates– S BIO # 4 (I) invertebrates- LTS BIO # 5 (D) fish – S BIO # 6 (I) fish – LTS BIO # 7 (D) amphibians – S BIO # 8 (I) amphibians –LTS BIO # 9 (D) reptiles – S BIO # (I) 10 reptiles – LTS BIO # 11 (D) birds – S BIO # 12 (I) birds – LTS BIO # 13 (D) mammals – S BIO # 14 (I) mammals - S	LTS N/A LTS N/A LTS N/A LTS N/A LTS N/A LTS LTS	BIO # 4 vernal pool branchipods (invert) - S BIO # 5 valley elderberry beetle (invert) –S BIO # 6 amphibians (CA tiger salamander) - S BIO # 7 amphibians (western spadefoot) – S BIO # 8 reptiles (western pond turtle) –S BIO # 9 fish (general) - S BIO # 10-#12 birds (swainson's hawk, breeding birds including raptors, burrowing owls)– S BIO # 13-#15 mammals (bats, badger, kit fox) – S (pp. 3.7-62 to 65, 68 to 70; pp. 3.7-157 to 163)	All reduced to LTS (pp. 3.7-157 to 163)

² D = Direct Impacts, I = Indirect Impacts

Impact	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation ²	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Special Status Plant Communities - Construction	BIO # 15 (D) – S BIO # 16 (I) - S	LTS LTS	BIO # 1- S for all alternatives. (p. 3.7-49 to 60) BIO # 2 – S (p. 3.7-156)	LTS (p. 3.7-156) LTS (p. 3.7-156)
Jurisdictional Aquatic Resources – Construction	BIO # 17 (D) – S BIO # 18 (I) – LTS	LTS N/A	BIO # 1- S for Hybrid Alt. (p. 3.7-52, 54, 57, 58; p. 3.7-70 to 75) BIO # 17 – S (p. 3.7-164)	LTS (p. 3.7-164)
Critical Habitats - Construction	BIO # 19 (D) – S for SR 152 (north) to Rd 11 and SR 152 (north) to Rd 19 BIO # 20 (I) – LTS	LTS N/A	BIO # 16 – S (No Impact for Hybrid Alt) (pp. 3.7-70, 74-75) BIO # 18 – S (p. 3.7-164)	LTS (p. 3.7-164)
Essential Fish Habitats - Construction	BIO # 21 (D) – S for SR 152 (north) to Rd 11 and SR 152 (north) to Rd 19 BIO # 22 (I) – LTS	LTS N/A	BIO # 19 – S (p. 3.7-165)	LTS (p. 3.7-165)
Wildlife Movement Corridors - Construction	BIO # 23 (D) – S BIO # 24 (I) – S	LTS LTS	LTS (p. 3.7-76 to 77)	N/A
Special Status Plants – Operations	BIO # 25 (D) – LTS BIO # 26 (I) – LTS	N/A N/A	BIO # 23 - S (pp. 3.7-78 to 90, 167)	LTS (p. 3.7-167)

Impact	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation ²	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Special-Status Wildlife- Operations	BIO # 27 (D) invertebrates – LTS BIO # 28 (I) invertebrates – LTS BIO # 29 (D) fish – LTS BIO # 30 (I) fish – LTS BIO # 31 (D) amphibians & reptiles – LTS BIO # 32 (I) amphibians & reptiles – LTS BIO # 33 (D) birds – LTS BIO # 34 (I) birds – LTS BIO # 35 (D) mammals – LTS BIO # 36 (I) mammals – LTS	N/A	BIO # 24 to # 35 – S for all (direct/indirect operational impacts on inverts, fish, amphibians, reptiles, birds, mammals) (pp. 3.7-93 to 100, 167-171)	LTS (p. 3.7-167 to 171)
Special-Status Plant Communities - Operations	BIO # 37 (D) – LTS BIO # 38 (I) – LTS	N/A N/A	BIO – # 22 - S (pp. 3.7-101 to 105, 166) BIO # 36 – S (p. 3.7-171)	LTS (p. 3.7-171)
Jurisdictional Aquatic Resources – Construction	BIO # 39 (D) – LTS BIO # 40 (I) – LTS	N/A N/A	BIO # 37 – S (p. 3.7-101 to 105, 171, 172) BIO # 38 – S (p. 3.7-172)	LTS (p. 3.7-172) LTS (p. 3.7-172)
Critical Habitats – Operations	BIO # 41 (D) – LTS BIO # 42 (I) – LTS	N/A N/A	BIO #38 – S (but No Impact for Hybrid Alt) (pp. 3.7-101 to 105)	LTS
Essential Fish Habitats – Operations	BIO # 43 (D) – LTS BIO # 44 (I) – LTS	N/A N/A	LTS (p. 3.7-101 to 105, 172)	N/A
Wildlife Movement Corridors - Operations	BIO # 45 (I) – LTS	N/A	LTS (pp. 3.7-106 to 113)	N/A

HYDROLOGY AND WATER RESOURCES (SECTION 3.8)

The analysis in the Merced to Fresno Final EIR/EIS and Final Supplemental EIR/EIS covers the same topics, but the organization of the discussion differs as explained in Section 3.1, Introduction, and as illustrated below.

TOPIC	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Changes in Drainage Patterns, Stormwater – construction	HYD # 1 (temp) - LTS HYD # 2 (perm) - LTS	N/A N/A	LTS (p. 3.8-28)	N/A
Surface Water Quality Impacts – construction	HYD # 3 (temp) - LTS HYD # 4 (perm) - LTS	N/A N/A	LTS (p. 3.8-30, 31)	N/A
Groundwater Quality Impacts – construction	HYD # 5 (temp) - LTS HYD # 6 (perm) - LTS	N/A N/A	LTS (p. 3.8-32)	N/A
Floodplain Impacts - construction	HYD # 7 (temp) – LTS HYD # 8 (perm) - LTS	N/A N/A	LTS (p. 3.8-32)	N/A
Changes in Surface Water Hydraulic Capacity & Connectivity - Operations	HYD # 9 - LTS	N/A	LTS (p. 3.8-33)	N/A
Surface Water Quality Impacts – Operations	HYD # 10 - LTS HYD # 11 - LTS	N/A N/A	LTS (p. 3.8-34)	N/A
Groundwater Quality Impacts – Operations	HYD # 12 - LTS	N/A	LTS (p. 3.8-35)	N/A
Floodplain Impacts - construction	HYD # 13 (temp) – LTS HYD # 14 (perm) - LTS	N/A N/A	LTS (p. 3.8-36)	N/A

GEOLOGY, SOILS, SEISMICITY, PALEONTOLOGICAL RESOURCES (Section 3.9)

The Merced to Fresno Final EIR/EIS and Final Supplemental EIR/EIS cover the same topics, but in the Merced to Fresno Final EIR/EIS paleontological resources were addressed in Section 3.17, Cultural Resources rather than in Section 3.9. The organization of other impact topics differs slightly, as illustrated below.

TOPIC	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Soil Erosion - Construction	GEO # 1 - LTS	N/A	LTS (p. 3.9-25)	N/A
Shrink-Swell Potential - Construction	GEO # 2 - LTS	N/A	LTS (p. 3.9-28)	N/A
Corrosive Soils - Construction	GEO # 3 - LTS	N/A	LTS (p. 3.9-28)	N/A
Unstable Soils - Construction	GEO # 4 - LTS	N/A	LTS (p. 3.9-34)	N/A
Soil Settlement	GEO # 5 - LTS	N/A	LTS (p. 3.9-24)	N/A
Slope Failure - Construction	GEO # 6 - LTS	N/A	LTS (p. 3.9-24)	N/A
Seismic Ground Shaking/Hazards - Construction	GEO # 7 - LTS	N/A	LTS (p. 3.8-35)	N/A
Difficult Excavation - Construction	GEO # 8 - LTS	N/A	LTS (p. 3.9-26)	N/A
Loss of Access to Mineral Res. - Construction	GEO # 9 - LTS	N/A		
Soils Impacts - Operations	No Change		LTS (pp. 3.9-27 to 29)	N/A
Seismic Ground Shaking/Hazards - Operations	GEO # 10 - LTS	N/A	LTS (p. 3.9-30)	N/A
Paleontological Resource Impacts - Construction	PAL # 1 - LTS	N/A	PAL #2 - S (p. 3.17-78-80)	LTS
Paleontological Resource Impacts - Operations	PAL # 2 - NI	N/A	NI (p. 3.17-80-81)	N/A

HAZARDOUS MATERIALS AND WASTES (SECTION 3.10)

The Merced to Fresno Final EIR/EIS and Final Supplemental EIR/EIS cover the same topics, but the organization of the discussion differs slightly, as shown illustrated below.

TOPIC	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Transport, Use, Storage, Disposal of Hazardous Materials/Wastes - Construction	HMW # 1 - LTS	N/A	LTS with compliance with laws (p. 3.10-20-21)	N/A
Inadvertent Disturbance of Hazardous Materials/Wastes – Construction	HMW # 2 – LTS	N/A	LTS with compliance with laws (p. 3.10-21)	N/A
Asbestos/lead Exposure – Construction	HMW # 3 – LTS	N/A	LTS (p. 3.10-21) LTS (p. 3.3-44)	N/A
Construction near PEC Sites	HMW # 4 – LTS	N/A	LTS (p. 3.10-22)	N/A
Hazardous Materials/Wastes Near Schools – Construction	HMW # 5 - S	LTS	S (p. 3.10-25)	LTS
Construction Near Landfill, Oil & Gas Wells	HMW # 6 - LTS	N/A	LTS (p. 3.10-24)	N/A
Transport, Use, Storage, Disposal of Hazardous Materials/Wastes - Operations	HMW # 7 - LTS	N/A	LTS (p. 3.10-26)	N/A
Hazardous Materials/Wastes Near Schools – Operations	HMW # 8 – No Impact	N/A	LTS (p. 3.10-27)	N/A

SAFETY AND SECURITY (SECTION 3.11)

The Merced to Fresno Final EIR/EIS and Final Supplemental EIR/EIS cover mostly the same topics. The Final Supplemental EIR/EIS added consideration of Valley Fever and Wildlife risks. The Merced to Fresno Final EIR/EIS discussed risks from train-to-train collisions, collisions from intrusion into the HSR right-of-way, and potential for derailments.

TOPIC	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Interference with Emergency Response Times - Construction	SS # 1 (temp) – LTS SS # 2 (perm) – LTS	N/A N/A	LTS (p. 3.11-21 through 3.11-22)	N/A
Exposure to Construction Site Hazards – Construction	SS # 3 (temp) - LTS	N/A	LTS (p. 3.11-21) LTS (p. 3.11-23)	N/A
Exposure to Auto, Pedestrian, Bicycle Safety Risks – Construction	SS # 4 (temp) – LTS SS # 5 (perm) – No Impact	N/A N/A	LTS (p. 3.11-22) LTS (p. 3.11-26)	N/A
Exposure to Landfill Hazards – Construction	SS # 6 (temp) – LTS for SR 152 (North) to Road 19 Wye and Avenue 21 to Road 13 Wye Alternatives. No Impact for SR 152 (North) to Road 13 Wye and SR 152 (North) to Road 11 Wye Alternatives.	N/A	LTS (p. 3.11-21) LTS (p. 3.10-25)	N/A
Valley Fever Exposure - Construction	SS # 7 (temp) - LTS	N/A		
Interference with Emergency Response Times - Operations	SS # 8 - LTS	N/A	LTS (p. 3.11-27)	N/A
Wildfire Hazards – Operations	SS # 9 - LTS	N/A	Fire generally addressed and LTS (p. 3.11-27)	N/A
Airport Safety - Operations	SS # 10 – No Impact	N/A	LTS (p. 3.11-29), No Impact (p. 3.5-12 through 3.5-13)	N/A

TOPIC	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Exposure to High-Risk Facilities – Operations	SS # 11 – LTS	N/A	LTS (p. 3.11-30)	N/A
Risk of Criminal or Terrorist Activity – Operations	SS # 12 - LTS	N/A	LTS (p. 3.11-29)	N/A
Safety Hazard to Schools – Operations	Ss # 13 - LTS	N/A	LTS (p. 3.11-31)	N/A
Train Collisions, Derailment – Operations	No change		LTS (p. 3.11-24 to 3.11-26)	N/A
Hazards from Flooding	Not addressed in SS; see Hydro, Impacts HYD#7, HYD#8, HYD#13, and HYD#14 – all LTS	N/A	LTS (3.11-31)	N/A

SOCIOECONOMICS AND COMMUNITIES (SECTION 3.12)

The Merced to Fresno Final EIR/EIS included environmental justice with the discussion of socioeconomics and communities, whereas this Final Supplemental EIR/EIS includes environmental justice in a separate chapter. Economic and social effects are discussed in both the Merced to Fresno Final EIR/EIS and this Final Supplemental EIR/EIS, but not characterized as a significant physical effect on the environment. Merced to Fresno Final EIR/EIS impacts related to the guideway to Castle HMF (SO # 1 and SO # 2) are not repeated in the Final Supplemental EIR/EIS.

IMPACT	CVY Final Supplemental EIR/EIS Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Temporary Impacts on Community Cohesion	SO # 1 – LTS	N/A	LTS (p. 3.12-35 to 3.12-37)	N/A
Permanent Impacts on Community Cohesion	SO # 2 – S as to Fairmead for SR 152 Wye alignments, LTS for Avenue 21/Road 13	SUI for SR 152 Wye alignments	LTS (p. 3.12-42, 43)	N/A
Displacements and Relocations of Residences	SO # 3 - LTS	N/A	LTS (pp. 3.12-49 to 52)	N/A
Displacements and Relocations of Community Facilities	No Impact	N/A	LTS except SO # 3 – for Merced homeless shelter (p. 3.12-73)	LTS LTS
Children's Health – Temporary, Construction	SO # 7 – LTS except --S for construction noise for Avenue 21/Road 13 --S for haz materials	N/A LTS LTS	NI (p. 3.12-38)	N/A
Children's Health – Permanent, Construction	SO # 8 – LTS for traffic hazards S for traffic noise for SR 152 Wye alignments.	N/A SUI	NI (p. 3.12-38)	N/A
Children's Health - Permanent/Operations	SO # 18 – LTS except for HSR operations noise	SUI	NI (p. 3.12-49)	N/A
Temporary Construction Impacts on Employment	SO #9 – LTS	N.A	Slight (NEPA only) (p. 3.12-57 to 3.12-58)	N/A
Permanent Operational Impacts on Employment	SO #19 – NI	N/A	No Effect (NEPA only) (p. 3.12-57 to 3.12-58)	N/A

STATION PLANNING, LAND USE, AND DEVELOPMENT (SECTION 3.13)

The Merced to Fresno Final EIR/EIS analyzed a variety of land use effects from the Merced to Fresno Project Section as a whole, but also focused on effects in and around HSR stations. The Final Supplemental EIR/EIS does not address station-area effects in Merced and Fresno.

TOPIC	CVY Final Supplemental Impact/Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact/Conclusion After Mitigation	MF Final EIR/EIS Impact Conclusion Before Mitigation	MF Final EIR/EIS Impact Conclusion After Mitigation
Potential for Construction to Alter Land Use Patterns	LU # 1 (direct) – LTS LU # 2 (indirect) – LTS	N/A N/A	LTS (p. 3.13-17)	N/A
Permanent Conversion of Existing Land Uses to Transportation or EINU Use – Incompatible Uses	LU # 5 – LTS	N/A	LTS (p. 3.13-19)	N/A
Station Area Effects	N/A	N/A	LTS (p. 3.13-25)	N/A
Land Use Effects of Parking Demand at Stations	N/A	N/A	LTS (p. 3.13-25)	N/A
Impacts on Nearby Land Uses/Land Use Patterns from HSR	LU # 3 (perm, direct) – S for SR 152 alternatives LU # 4 (temp, indirect) – LTS for all alternatives	LTS N/A	LTS (p. 3.13-26)	N/A
Consistency with Land Use Plans	Discussed, section 3.13.3, but does not lead to an impact	N/A	Not an impact (p. 3.12-28)	N/A

AGRICULTURAL LAND (SECTION 3.14)

The Merced to Fresno Final EIR/EIS analyzed certain impacts to agricultural lands qualitatively, while others were analyzed quantitatively. The CEQA impacts conclusions are consistent across the two documents.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/ Conclusion Before Mitigation	MF Final EIR/EIS Impact/ Conclusion After Mitigation
Temporary Use of Important Farmland	AG # 1 – LTS	N/A	LTS (p. 3.14-27)	N/A
Permanent Conversion of Agricultural Land to Non-Agricultural Use for Project Footprint	AG # 2 - S	AG # 2 – SUI	AG# 1 – S (pp. 3.14-29 to 33)	AG # 1 - SUI
Permanent Conversion of Agricultural Land to Non-Agricultural Use from Parcel Splits	AG # 3 – S	AG # 3 –SUI	AG # 2 – LTS (pp. 3.14-32 to 34)	AG # 2 – SUI
Disruption of Agricultural Infrastructure	AG # 4 – LTS	N/A	LTS (pp. 3.14-27 to 28)	N/A
Effects on Aerial Spraying	AG # 5 – LTS	N/A	NI (p. 3.14-39)	N/A
Effects on Williamson Act or FSZ Contracts, Local Zoning, or Conservation Easement Lands	AG # 6 – LTS	N/A	NI (pp. 3.14-34 to 36)	N/A
Wind-Induced Effects	AG # 7 – NI	N/A	NI (p. 3.14-39)	N/A
Temporary Noise & Vibration Effects on Confined Animal Agriculture (construction)	Not addressed in Ag. See Impact NV #7 – LTS	N/A	NI (pp. 3.14-28 to 29)	N/A
Permanent Noise Effects on Confined Animal Agriculture (operations)	Not addressed in Ag. See Impact NV #7 – LTS	N/A	NI (pp. 3.14-37 to 39)	N/A

As noted in Section 3.1 of the Final Supplemental EIR/EIS, the footprints for the Central Valley Wye alternatives are larger than those for the Wye Design Options in the Merced to Fresno Final EIR/EIS. Accordingly, the acreage of Important Farmland converted to non-agricultural use by the Central Valley Wye Alternatives is not directly comparable to that of the prior Wye Design Options.

PARKS, RECREATION, AND OPEN SPACE (SECTION 3.15)

The Merced to Fresno Merced to Fresno Final EIR/EIS analyzed impacts on parks, recreation, and open space with a focus on four “vicinities”: Merced, Chowchilla, Madera, and Fresno. Resources were identified in the Merced to Fresno Final EIR/EIS as impacted by the Hybrid Alternative as approved, and within the Merced and Fresno vicinities. The Fairmead Toddler Park was identified as an indirectly impacted resource within the Madera vicinity for the Hybrid Alternative with the Avenue 24 Wye Design Option, with the CEQA impact being less than significant (Final EIR, EIS, p. 3.15-12, 3.15-17, 3.15-20, 3.15-40, 3.15-44).

The Final Supplemental EIR/EIS examines the parks, recreation, and open space resources that may be impacted by the four new CV Wye Alternatives. The analysis essentially replaces the prior Merced to Fresno Final EIR/EIS analysis for the Chowchilla and Madera vicinities, due to the new Wye alternatives, the expanded study area, and the revised approach to impact categorization. The result is Impacts PK # 1 to PK # 7 in the Final Supplemental EIR/EIS. The Fairmead Toddler Park, previously described in the Merced to Fresno Final EIR/EIS as impacted, is not impacted by the current Central Valley Wye alternatives studied in the Final Supplemental EIR/EIS.

AESTHETICS AND VISUAL RESOURCES (SECTION 3.16)

The Merced to Fresno Final EIR/EIS analyzed the impacts of construction activities on aesthetics and visual resources and concluded these were significant (VQ # 1 and VQ #2), but could be mitigated to less than significant. (Merced to Fresno Final EIR/EIS, p. 3.16-64). The Final Supplemental EIR/EIS reaches the same conclusion for construction impacts (AVR # 1) (Final Supplemental EIR/EIS, p. 3.16-58, Table 3.16-5).

The Merced to Fresno Final EIR/EIS analyzed the impacts from permanent presence of HSR infrastructure on aesthetics and visual resources landscape unit and key viewpoint (KVP), within the Merced, Chowchilla, Madera, and Fresno vicinities (Merced to Fresno Final EIR/EIS, pp. 3.16-5 to 7, 3.16-10). For the Hybrid alternative, this included the Merced, Merced-Chowchilla, West of SR 99, Madera Acres, East of SR 99, and Fresno Landscape Units. (Merced to Fresno Final EIR/EIS, p. 3.16-10). The Merced to Fresno Final EIR/EIS summarized the permanent visual quality changes and impacts at key viewpoints in Table 3.16-4 (Merced to Fresno Final EIR/EIS, pp. 3.16-31 to 33).

Impacts within the Chowchilla-Madera Landscape Unit, at KVP 9 in Fairmead, were identified as significant under CEQA (VQ # 3), as were impacts within the Madera Landscape Unit at KVP 11 and 12 (VQ # 4). In the West of SR 99 Landscape Unit, impacts were significant at KVP 21 and 22 (VQ # 5 and VQ # 6) and in the East of SR 99 Landscape Unit, impacts were significant at KVP 30 (Merced to Fresno Final EIR/EIS, pp. 3.16-31 to 33). Impacts at other KVPs were less than significant. The analysis also concluded that sound barriers and retaining walls would block views, which would be a significant and unavoidable impact under CEQA (VQ # 11) (Merced to Fresno Final EIR/EIS, p. 3.16-66). Traction power distribution stations would alter visual character or block views, and significant impact that could be reduced to less than significant (VQ # 12) (Final EIR/ EIS, p. 3.16-66).

For the Hybrid Alternative, the landscape units and KVPs in the Merced Project vicinity and the Fresno Project vicinity were analyzed in the Merced to Fresno Final EIR/EIS. . For the Final Supplemental EIR/EIS, the landscape units and KVPs were refined from those used in the Merced to Fresno Final EIR/EIS (Refer to Final Supplemental EIR/EIS, pp. 3.16-1; compare 3.16-13 and p. 3.16-15). The new analysis essentially replaces the prior Merced to Fresno Final EIR/EIS analysis for the Chowchilla and Madera vicinities, due to the new Wye alternatives, the expanded study area, and the revised landscape units and key viewpoints. The result is impacts AVR # 2 to AVR # 6, which describe impacts on visual quality from permanent HSR infrastructure (Final Supplemental EIR/EIS, pp. 3.16-58 to 59).

CULTURAL RESOURCES (SECTION 3.17)

The Merced to Fresno Final EIR/EIS identified cultural resources by county. The majority of impacts described were in Merced and Fresno counties, as described in Table 3.17-10 in the Merced to Fresno Final EIR/EIS. The Final Supplemental EIR/EIS analysis of cultural resources within the Central Valley Wye area is consistent with that in the Merced to Fresno Final EIR/EIS, as depicted below. The Merced to Fresno Final EIR/EIS addressed paleontological resources in Section 3.17, whereas this Final Supplemental EIR/EIS addresses them in Section 3.9.

IMPACT	CVY Final Supplemental EIR/EIS Impact Conclusion Before Mitigation	CVY Final Supplemental EIR/EIS Impact Conclusion After Mitigation	MF Final EIR/EIS Impact/Conclusion Before Mitigation	MF Final EIR/EIS Impact/Conclusion After Mitigation
Disturbance of Unknown Archaeological Sites during Construction	CUL # 1 – S	LTS	Arch # 1 – S (p. 3.17-67)	LTS (p. 3.17-92)
Disturbance of Known Archaeological Sites during Construction	CUL # 2 – No Impact	N/A	Arch # 1 – S (p. 3.17-69)	LTS (p. 3.17-92)
Demolition, Destruction, Relocation, or Alteration of Historic Architectural Resources or Setting	CUL # 3 – S	SUI	Hist #1 – S (Robertson Tree Row) Hist # 2 – S (Roeding Park only) Hist # 3 – S (Roeding Park only)	SUI LTS if mitigation agreed to by Fresno (p. 3.17-92) LTS if mitigation agreed to by Fresno (p. 3.17-92)
Public Access and Disturbance of Archaeological Resources	CUL # 4 – No Impact	N/A	LTS (p. 3.17-80)	N/A
Common Impacts on Archaeological Resources	CUL # 5 – No Impact	N/A	LTS (p. 3.17-80)	N/A
Noise and Vibration Impairments on Historic Architectural Resources – Operations	CUL # 6 - LTS	N/A	S (Roeding Park only) (p. 3.17-81)	LTS if mitigation agreed to by Fresno (p. 3.17-92)

REGIONAL GROWTH (SECTION 3.18)

The Final Supplemental EIR/EIS provides an updated discussion of regional growth from construction and operation of the Central Valley Wye alternatives as part of the HSR system in Merced, Madera, and Fresno counties. The section explains multiple differences with the regional growth analysis in the Merced to Fresno Final EIR/EIS. The analysis thus augments the prior analysis.

CUMULATIVE IMPACTS (SECTION 3.19)

The Final Supplemental EIR/EIS provided a fresh look at the potential for the Central Valley Wye Alternatives to contribute considerably to any significant cumulative impacts. The analysis in the Final Supplemental EIR/EIS was conducted in a similar manner to that of the Merced to Fresno Final EIR/EIS, but was informed by updated information regarding past, present, and reasonably foreseeable future projects.

References

Authority	California High-Speed Rail Authority
CVY	Central Valley Wye
FRA	Federal Railroad Administration
MF	Merced to Fresno

California High-Speed Rail Authority and Federal Railroad Administration (Authority and FRA). 2012. *Merced to Fresno Section Final Environmental Impact Report/Environmental Impact Statement*.