

4 Final Section 4(f) and Section 6(f) Evaluations

4.1 Introduction

Chapter 4, Final Section 4(f) and Section 6(f) Evaluations, of the *Merced to Fresno Section: Central Valley Wye Final Supplemental Environmental Impact Report (EIR)/Environmental Impact Statement (EIS)* (Final Supplemental EIR/EIS) updates the *Merced to Fresno Section California High-Speed Train Final Project Environmental Impact Report/Environmental Impact Statement* (Merced to Fresno Final EIR/EIS) (California High-Speed Rail Authority [Authority] and Federal Railroad Administration [FRA] 2012a) with new and revised information relevant to the Section 4(f) and Section 6(f) evaluations. This chapter provides the analysis to support determinations necessary to comply with the provisions of Title 49 United States Code (U.S.C.) Section 303 (hereinafter referred to as Section 4(f)) and the Land and Water Conservation Fund (LWCF) Act of 1965 (hereinafter referred to as Section 6(f)). This chapter also describes the statutory requirements associated with Section 4(f); identifies the properties protected by Section 4(f) in the resource study area (RSA); and determines whether the Central Valley Wye alternatives would result in the use of those properties. If a use is found, this chapter determines whether the use results in a *de minimis* impact; and if the use is not a *de minimis* impact, determines whether there are any feasible and prudent alternatives that would avoid the use, identifies measures to minimize harm, and completes a least-harm analysis for the Central Valley Wye alternatives.

There are no Section 6(f) properties in the RSA that could be affected by the Central Valley Wye alternatives. A description of the process used to identify Section 6(f) properties in the RSA is provided in Section 4.10, Section 6(f). Additionally, no wildlife or waterfowl refuges were identified in the RSA, following map review and the agency coordination described in Section 4.2, Coordination.

The analysis is consistent with the analysis conducted in the Merced to Fresno Final EIR/EIS. Both analyses use the same methodology for identifying Section 4(f) and Section 6(f) properties and making an assessment of impacts on resources protected under Section 4(f) and Section 6(f).

Two other resource sections in this Final Supplemental EIR/EIS provide additional information related to Section 4(f) and Section 6(f) evaluations:

- **Section 3.15, Parks, Recreation, and Open Space**—Impacts of constructing the Central Valley Wye alternatives on community recreational facilities
- **Section 3.17, Cultural Resources**—Impacts of constructing the Central Valley Wye alternatives on historic properties

Since publication of the Draft Supplemental EIR/EIS, in addition to the global issues described in Section S.1.2, Global Changes in the Final Supplemental EIR/EIS, of the Summary, the following substantive changes have been made to this chapter.

- Identification of the alternative with the least overall harm and finalization of the Authority's Section 4(f) determinations concerning the use of Section 4(f)-protected properties.

4.1.1 Section 4(f) and Section 6(f)

Projects undertaken by an operating administration of the U.S. Department of Transportation or that may receive federal funding or discretionary approvals from an operating administration of U.S. Department of Transportation must demonstrate compliance with Section 4(f).

This Section 4(f) evaluation was prepared by the Authority pursuant to 23 U.S.C. Section 327 and the terms of the National Environmental Policy Act (NEPA) Assignment Memorandum of Understanding (FRA and State of California 2019) assigning to the Authority responsibility for

compliance with NEPA and other federal environmental laws, including Section 4(f) (49 U.S.C. § 303) and related U.S. Department of Transportation orders and guidance.¹

Section 4(f) protects publicly owned land of parks, recreational areas, and wildlife refuges. Section 4(f) also protects historic sites of national, state, or local significance located on public or private land. The FRA's Procedures for Considering Environmental Impacts (64 *Fed. Reg.* 25445) contains FRA processes and protocols for analyzing the potential use of Section 4(f) resources, used by the Authority for preparing Section 4(f) documentation. In addition, the Authority considers the Federal Highway Administration and Federal Transit Administration's Section 4(f) regulations as guidance when applying the requirements established in Section 4(f); those regulations are in Title 23 U.S.C. Part 774.

The Authority may not approve the use of a Section 4(f) property unless it determines that there is no feasible and prudent alternative to avoid the use of the property and the action includes all possible planning to minimize harm resulting from such use, or determines that the project has a *de minimis* impact consistent with the requirements of Title 49 U.S.C. Section 303(d).

An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. In determining whether an alternative is prudent, the Authority may consider if the alternative would result in any of the following:

- Compromise the project to a degree that is unreasonable for proceeding with the project in light of its stated Purpose and Need.
- Unacceptable safety or operational problems.
- After reasonable mitigation, the project results in severe social, economic, or environmental impacts; severe disruption to established communities; severe disproportionate impacts on minority or low-income populations; or severe impacts on environmental resources protected under other federal statutes.
- Additional construction, maintenance, or operational costs of an extraordinary magnitude.
- Other unique problems or unusual factors.
- Multiple factors that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

If the Authority determines there is both the use of a Section 4(f) property and that there is no prudent and feasible alternative to the use of a Section 4(f) property, then the project must include all possible planning to minimize harm to the property, which includes all reasonable measures to minimize harm or mitigate impacts (49 U.S.C. § 303(c)(2)).

After making a Section 4(f) determination and identifying measures to minimize harm, if there is more than one alternative that results in the use of a Section 4(f) property, the Authority must also compare the alternatives to determine which alternative has the potential to cause the least overall harm in light of the preservationist purpose of the statute. The least overall harm may be determined by balancing the following factors:

- The ability to mitigate adverse impacts on each Section 4(f) property (including any measures that result in benefits to the property).
- The relative severity of the remaining harm—after mitigation—to the protected activities, attributes, or features that qualify each Section 4(f) property for protection.
- The relative significance of each Section 4(f) property.
- The views of the official(s) with jurisdiction over each Section 4(f) property.

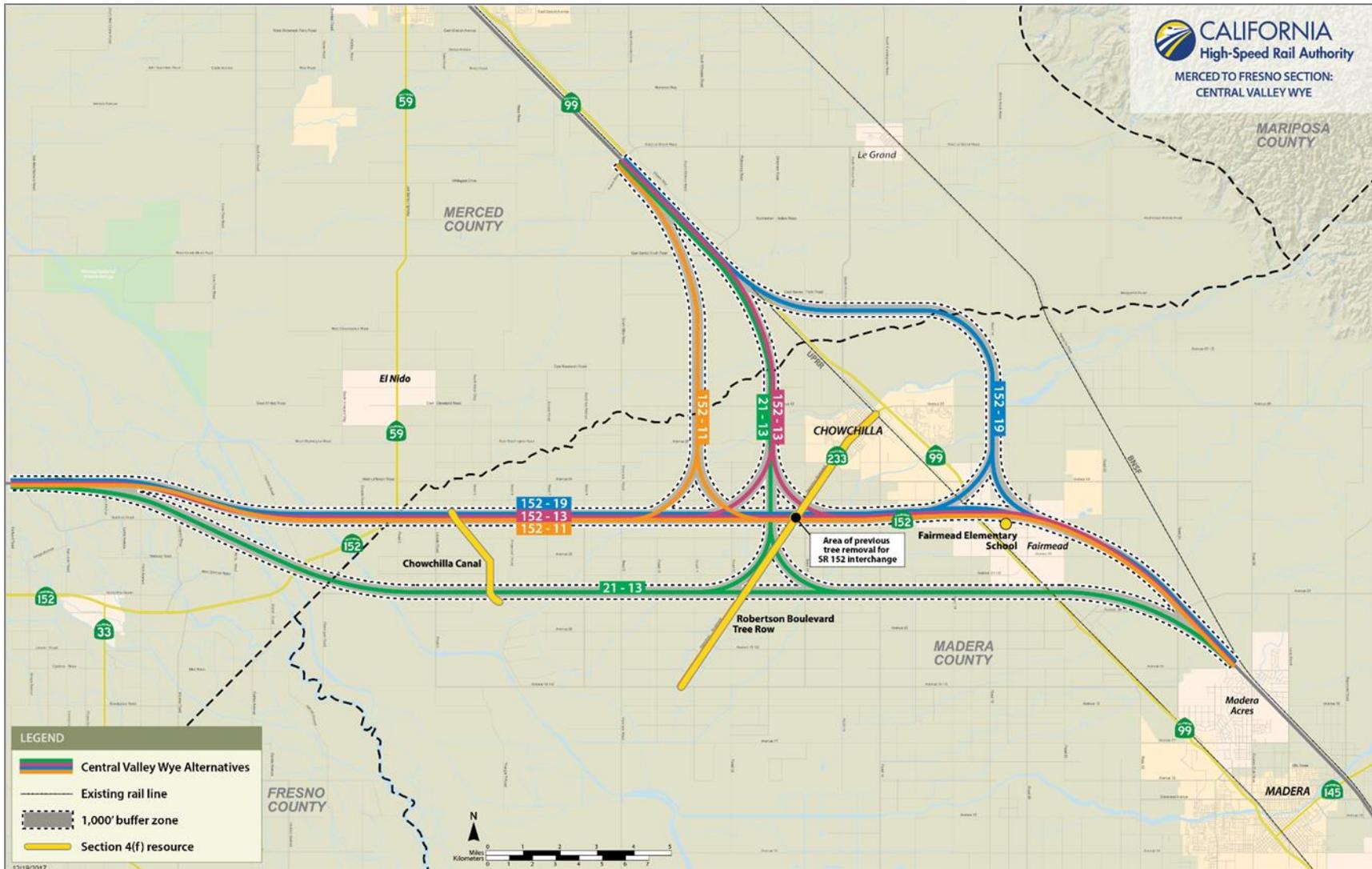
¹ Under the NEPA Assignment Memorandum of Understanding, the Authority is required to consult with FRA on any proposed constructive use determination. As detailed in this Final Section 4(f) evaluation, the Authority has not made any constructive use determinations for any of the Central Valley Wye alternatives.

- The degree to which each alternative meets the Purpose and Need for the project.
- After reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f).
- Substantial differences in costs among the alternatives.

Section 6(f) properties are recreation resources funded by the LWCF Act. Land purchased with these funds cannot be converted to non-recreation use without coordination with the National Park Service (NPS) and mitigation that includes replacement of the quality and quantity of land used. Section 4.10 addresses Section 6(f).

4.1.2 Resource Study Area

The RSA for impacts on Section 4(f) properties encompasses all eligible Section 4(f) and Section 6(f) properties. The RSA is defined differently for recreational lands and for historic properties. Figure 4-1 depicts the location of the Section 4(f) properties relative to the Central Valley Wye alternatives. All of the Section 4(f) properties identified within the RSA are located in Merced and Madera Counties. There are no Section 6(f) properties within the RSA (refer to Section 4.10 for additional information regarding the process used to identify Section 6(f) properties). Additionally, there were no wildlife or waterfowl refuges identified in the RSA (refer to Section 4.2).



DECEMBER 19, 2017

Figure 4-1 Locations of Section 4(f) Properties

4.1.2.1 Recreation and Open Space

The RSA for impacts on recreation lands and open-space Section 4(f) and Section 6(f) resources includes the project footprint for each of the Central Valley Wye alternatives, plus 1,000 feet from the edge of the project footprint, including tracks, stations, maintenance facilities, and new roads required for operation of the Central Valley Wye alternatives.² The 1,000-foot distance for the RSA was selected because parks, recreation, and open-space resources located within this distance from the Central Valley Wye alternatives would be reasonably expected to experience the physical changes and impact of operations.

4.1.2.2 Historic Properties

As described in Section 4.1.3, Section 4(f) Applicability, historic properties on or eligible for listing on the National Register of Historic Places (NRHP) may qualify for protections under Section 4(f). Because the Central Valley Wye alternatives is a federal undertaking, it must comply with the National Historic Preservation Act (NHPA). The NHPA implementing regulations at 36 Code of Federal Regulations (C.F.R.) § 800.4(a)(1) require the establishment of an area of potential effect (APE). Therefore, the historic properties RSA hereafter will be referred to as the historic architectural APE. The historic architectural APE is the geographic area or areas within which an undertaking may directly or indirectly alter the character or use of historic properties that are potentially eligible for listing, or are listed, on the NRHP, if any such properties exist. For archaeological resources, a separate APE was developed that consisted of the area anticipated to undergo ground disturbance. Since the archaeological APE is smaller than the historic architectural APE, and because there is one known prehistoric site assumed to be NRHP eligible that has been identified to date and would be avoided, the historic architectural APE has been used for identification of all Section 4(f) protected historic sites.

The historic architectural APE includes each parcel located within or crossed by the project footprints of all Central Valley Wye alternatives. The historic architectural APE is defined in more detail in Section 3.17 and includes:

- Properties within the proposed right-of-way.
- Properties where historic materials or associated landscape features would be demolished, moved, or altered by construction.
- Properties near the undertaking where railroad materials, features, and activities have not been part of their historic setting and where the introduction of visual or audible elements may affect the use or characteristics of those properties eligible for listing in the NRHP.
- For upgrades to existing linear infrastructure (i.e., existing power lines), the APE was set at the existing right-of-way line (or parcel line) because there would not be a potential to cause direct or indirect adverse effects on built resources (i.e., Robertson Tree Boulevard, Delta-Mendota Canal, and California Aqueduct).³

4.1.3 Section 4(f) Applicability

A park or recreation area qualifies for protection under Section 4(f) if (1) the property is publicly owned; (2) the property is open to the general public; (3) the property's primary purpose is as a park or recreation area; and (4) the property is considered significant by the authority with jurisdiction. A wildlife or waterfowl refuge qualifies for protection under Section 4(f) if it (1) is publicly owned at the time at which the "use" occurs, (2) is being used as a refuge, and (3) is

² Impacts on 4(f) resources resulting from electricity transmission network upgrades would be limited to temporary, construction-related impacts (e.g., noise, dust) that would occur near but not within these 4(f) resources. Following construction, continued operation of the network upgrades would be the same as existing conditions. Therefore, network upgrades would not result in a temporary occupancy nor a constructive use of these properties.

³ Network upgrades would not result in direct or indirect effects on the Robertson Tree Boulevard, Delta-Mendota Canal, and/or California Aqueduct, effects would be temporary during construction (e.g., noise, dust), and operation of the network upgrades would be the same as existing conditions.

considered significant by the authority with jurisdiction. Recreational areas associated with publicly owned schools may also qualify for 4(f) protection if they are open to the public during non-school hours for organized recreational purposes, or if they provide playgrounds, running tracks, ball fields, or similar facilities for the surrounding community.

For a cultural resource to be protected by Section 4(f), it must be on, or eligible for, NRHP listing. The NPS, which administers the NRHP, has issued regulations establishing the evaluation criteria to be used in determining NRHP eligibility of the site (36 C.F.R. 60.4). Under those regulations, the quality of *significance* in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet any of the following criteria:

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history.

The results of the Section 106 process determine whether Section 4(f) applies to historic properties and are critical in determining the applicability and outcome of the Section 4(f) evaluation. The most important difference between the two statutes is the way each measures impacts on cultural resources. Whereas Section 106 is concerned with adverse effects, Section 4(f) is concerned with use of protected properties.

For archaeological sites, in addition to the general requirements for cultural resources, Section 4(f) applies only to those sites that are on or eligible for the NRHP and that warrant preservation in place, including those sites discovered during construction. Section 4(f) does not apply if the Authority determines, after consultation with the State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO), federally recognized Indian tribes (as appropriate), and the Advisory Council on Historic Preservation (ACHP) (if participating), that the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place (23 C.F.R. 774.13[b]).

4.1.4 Section 4(f) Use Definition

After Section 4(f) properties have been identified in the RSA, it is then determined if any of them would be used by an alternative or alternatives of a project. *Use* may occur in one of the following four forms: permanent, temporary occupancy, constructive, and *de minimis* impact. These types of use are defined in the following sections.

4.1.4.1 Permanent Use

A permanent use of a Section 4(f) resource occurs when property is permanently incorporated into a proposed transportation facility. This might occur as a result of partial or full acquisition, permanent easements, or temporary easements that exceed limits for temporary occupancy.

4.1.4.2 Temporary Occupancy

A temporary occupancy results in a use of a Section 4(f) resource when a temporary action on the property is considered adverse in terms of the preservationist purpose of the Section 4(f) statute. However, a temporary occupancy of a property does not constitute a use of a Section 4(f) resource when the following conditions are satisfied:

- The occupancy must be of temporary duration (e.g., shorter than the period of construction) and must not involve a change in ownership of the property.
- The scope of work must be minor, with only minimal changes to the protected resource.

- There must be no permanent adverse physical impacts on the protected resource or temporary or permanent interference with activities or purpose of the resource.
- The property being used must be fully restored to a condition that is at least as good as existed before project construction.
- There must be documented agreement from the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

4.1.4.3 Constructive Use

A *constructive use* of a Section 4(f) resource occurs when a transportation project does not permanently incorporate the property of a protected resource, but the proximity of the project results in impacts (e.g., noise, vibration, visual, access, ecological) that are so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished. This determination is made after taking the following steps:

- Identifying the current activities, features, or attributes of the resource that may be sensitive to proximity impacts
- Analyzing the potential proximity impacts on the resource
- Consulting with the appropriate officials having jurisdiction over the resource

An indirect adverse impact on a historic property under Section 106 does not necessarily result in a constructive use unless the impact substantially impairs the attributes and features that qualify the resource for protection under Section 4(f).

4.1.4.4 *De minimis* Impact

Generally, a *de minimis* impact occurs when land from a Section 4(f) property is permanently incorporated into the project but the use of the land is minor and would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f). For this analysis, a determination of *de minimis* impact would be based on the following criteria and requirements:

- For recreation areas, a *de minimis* impact determination may be made if the Authority concludes that the transportation project will not adversely affect the activities, features, and attributes qualifying the property for protection under Section 4(f) after mitigation. In addition, to make a *de minimis* impact determination, there must be public notice and opportunity for public review and comment, as well as written concurrence from the officials with jurisdiction over the property.
- For an historic site, a *de minimis* impact determination may be made if, in accordance with the Section 106 process of the NHPA, the Authority determines that the transportation program or project will have no effect or no adverse effect on historic properties; the Authority has received written concurrence from the official(s) with jurisdiction over the property (e.g., the SHPO); and the Authority has taken into account the views of consulting parties to the Section 106 process as required by 36 C.F.R. Part 800.

4.2 Coordination

Consistent with Title 49 U.S.C. Section 303(b) and the FRA’s Environmental Procedures, as well as the NEPA Assignment Memorandum of Understanding, copies of the Draft Supplemental EIR/EIS, and this Final Supplemental EIR/EIS have been provided to the Secretary of the Interior, the Secretary of Housing and Urban Development, the Secretary of Agriculture, and key state and local jurisdictional agencies. The Authority and the FRA consulted, and the Authority continues to consult, with the SHPO and local jurisdictions to identify and assess impacts on Section 4(f) resources, as appropriate (Office of Historic Preservation [OHP] 2012; 2016; 2017). The Authority has consulted with the agencies that have jurisdiction over properties that may

constitute public parks, including the Chowchilla Elementary School District, Madera County, and the Cities of Madera and Chowchilla, regarding potential recreational resources in the RSA (Barnes pers. comm.). One park and recreational facility was identified through this process within the RSA: the Fairmead Elementary School play area. No additional resources within the RSA were identified as a result of this process as no responses to initial requests for information have been received. Additionally, the Authority consulted with the U.S. Fish and Wildlife Service and confirmed there are no wildlife or waterfowl refuges in the RSA. Related coordination activities with the SHPO regarding historic properties also occurred throughout the Section 106 of the NHPA and Tribal Consultation processes as part of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012a). Coordination with the SHPO has included obtaining concurrence on the eligibility findings for historic properties (OHP 2012, 2016, 2017). Coordination with the SHPO for the Central Valley Wye alternatives is summarized in Section 3.17.

A preliminary Section 4(f) evaluation was included in the Draft Supplemental EIR/EIS and was made available for a 45-day public review period. No comments were received on the Section 4(f) analysis, with the exception of a letter from the Office of the Secretary of the Interior providing concurrence with the preliminary Section 4(f) determinations. The Secretary of the Interior's letter is included in Volume IV of this Final Supplemental EIR/EIS.

This is the final Section 4(f) evaluation, and the Authority's final Section 4(f) determinations will be included in the Record of Decision.

Table 4-1 lists the coordination efforts (through July 2018) with affected agencies for the Central Valley Wye alternatives to determine potential 4(f) resources.

Table 4-1 Central Valley Wye Alternatives Section 4(f) Evaluation Consultation Summary

Date of Response	Form	Participants (Official with Jurisdiction)	General Topic(s)
March 2012	Letter	Office of Historic Preservation (State Historic Preservation Officer)	Section 106 consultation for the Merced to Fresno Section High-Speed Train Project
January 2015	Telephone	Fairmead Elementary School (Chowchilla Elementary School District)	Information on public use of the school play areas
February 2015	Letter	City of Chowchilla Department of Public Works (City of Chowchilla)	Planned recreational resources and general information on the City's park resources
February 2015	Letter	Chowchilla Elementary School District (Chowchilla Elementary School District)	General information on the Fairmead Elementary School play areas and joint use agreement with Madera County
February 2015	Letter	Madera County Resource Management Agency (Madera County)	General information on Madera County recreation lands
February 2015	Letter	U.S. Fish and Wildlife Service (U.S. Fish and Wildlife Service)	Establishing that there are no wildlife or waterfowl refuges in the RSA
August 2016	Telephone	Bert Crane Ranches	Establishing that there are no public resources located on the property

Date of Response	Form	Participants (Official with Jurisdiction)	General Topic(s)
November 2016	Letter	Office of Historic Preservation (State Historic Preservation Officer)	Concurrence on the ASR and HASR for the Central Valley Wye alternatives, and the ASR Addendum No. 1 and HASR Addendum No. 1 for the Central Valley Wye-Electrical Interconnections and Upgrades
January 2017	Letter	Office of Historic Preservation (State Historic Preservation Officer)	Concurrence on additional documentation regarding SR 152 and roads proposed for possible closure for the Central Valley Wye HASR
March 2018	Email	FRA	Concurrence on the Central Valley Wye FOE
April 2018	Letter	Office of Historic Preservation (State Historic Preservation Officer)	Concurrence on the Central Valley Wye FOE and agreement that amending the BETP and ATP in accordance with Stipulation V.D of the MOA is sufficient to address the adverse effects
July 2018	Letter	Office of Historic Preservation (State Historic Preservation Officer)	Agreement with sufficiency of the proposed measures to minimize adverse effects to the Robertson Tree Row in the draft BETP No. 3 for Central Valley Wye

Source: Authority, 2019

Note: Consultation regarding Section 4(f) use to date has only been conducted through the Section 106 process. The State Historic Preservation Officer has concurred with the findings on resources under their jurisdiction.

ASR = Archaeological Survey Report FOE = Finding of Effect
 HASR = Historic Architectural Survey Report BETP = Built Environment Treatment Plan
 RSA = resource study area ATP = Archaeological Treatment Plan
 FRA = Federal Railroad Administration MOA = Memorandum of Agreement
 SR = State Route

4.3 Purpose and Need

The purpose of the statewide HSR system is to provide a reliable high-speed electric-powered train system that links the major metropolitan areas of the state and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California’s unique natural resources (Authority and FRA 2005).

The purpose of the Merced to Fresno Section is to provide the public with electric-powered HSR service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit systems, and the highway network in the south San Joaquin Valley, and to connect the northern and southern portions of the system.

The need for an HSR system exists statewide, with regional areas contributing to this need. The Merced to Fresno Section is an essential component of the statewide HSR system.

The capacity of California’s intercity transportation system, including the central part of the San Joaquin Valley region, is insufficient to meet existing and future travel demand. The current and projected future system congestion will continue to result in deteriorating air quality, reduced reliability, and increased travel times. The current transportation system has not kept pace with

the increase in population, economic activity, and tourism within the state, including in the central part of the San Joaquin Valley region. The interstate highway system, commercial airports, and conventional passenger rail system serving the intercity travel market are operating at or near capacity. These transportation systems will require large public investments for maintenance and expansion to meet existing demand and future growth over the next 25 years and beyond. Moreover, the feasibility of expanding many major highways and key airports is uncertain; some needed expansions might be impractical or are constrained by physical, political, and other factors. The need for improvements to intercity travel in California, including intercity travel between the central part of the San Joaquin Valley, the San Francisco Bay Area, Sacramento, and Southern California relates to the following issues:

- Future growth in demand for intercity travel, including the growth in demand within the central part of the San Joaquin Valley region.
- Capacity constraints that will result in increasing congestion and travel delays, including those in the central part of the San Joaquin Valley region.
- Unreliability of travel stemming from congestion and delays, weather conditions, accidents, and other factors that affect the quality of life and economic well-being of residents, businesses, and tourism in California, including the central part of the San Joaquin Valley region.
- Reduced mobility as a result of increasing demand on limited modal connections between major airports, transit systems, and passenger rail in the state, including the central part of the San Joaquin Valley region.
- Poor and deteriorating air quality and pressure on natural resources and agricultural lands as a result of expanded highways and airports and urban development pressures, including the development pressures within the central part of the San Joaquin Valley region.

4.4 Alternatives Descriptions

This section describes the No Project Alternative and the four Central Valley Wye alternatives—the SR 152 (North) to Road 13 Wye Alternative, the SR 152 (North) to Road 19 Wye Alternative, the Avenue 21 to Road 13 Wye Alternative, and the SR 152 (North) to Road 11 Wye Alternative. These four Central Valley Wye alternatives are located in Merced and Madera Counties and represent a range of geographic corridor combinations to the east or west of Chowchilla and to the north or south of SR 152. All alternatives also include electrical interconnection and network upgrades to existing Pacific Gas & Electric infrastructure in Stanislaus, Fresno, Merced, and Madera Counties required to meet the projected demands of the HSR system.

Each of the Central Valley Wye alternatives share common endpoints and have three legs, which would extend from west to east, then north and south. The San Jose to Merced leg of each alternative would begin at the common westerly endpoint of Henry Miller Road and Carlucci Road in Merced County, and then extend east and north, toward Merced, ending near the intersection of SR 99 and Ranch Road adjacent to the Union Pacific Railroad (UPRR). The San Jose to Fresno leg would extend to the east and south, along the BNSF Railway (BNSF), ending at Avenue 19 near Madera Acres. For each alternative, the Merced to Fresno leg is the short section of track that connects the two longer legs.

Wildlife crossing structures would be installed in at-grade embankments where the alignments extend through wildlife corridors. The Central Valley Wye alternatives are described in more detail in Chapter 2, Alternatives, and are briefly summarized in this section. Figure 4-1 shows the locations of the Central Valley Wye alternatives.

4.4.1 No Project Alternative

The No Project Alternative considers the impacts of current land use and transportation plans in Merced and Madera Counties, including planned improvements to the highway, aviation, conventional passenger rail, and freight rail systems through the 2040 planning horizon for the

environmental analysis. The No Project Alternative is included in this Final Supplemental EIR/EIS to allow a comparison to the impacts of the Central Valley Wye alternatives.

The network upgrades proposed in Merced, Madera, Fresno, and Stanislaus Counties are ancillary project features, specifically designed to accommodate the planned electrical load required for the HSR system. As such, if the HSR project is not approved, these upgrades would not be required. Therefore, the No Project Alternative is appropriately confined to only Merced and Madera Counties, where reasonably foreseeable consequences of not implementing the Central Valley Wye alternatives would occur.

As noted in Section 2.1, Background, in 2012 the Authority approved a north-south alignment and stations in Merced and Fresno, but deferred a decision on the area known as the “wye connection”, that is, the east-west high-speed rail connection between the San Jose to Merced Section to the west and the north-south Merced to Fresno Section to the east, to allow for additional environmental analysis. FRA made a similar decision, also choosing to defer a decision on the Central Valley Wye connection pending further study. Construction is proceeding on the approved Merced to Fresno Section alignment south of the Central Valley Wye. Construction is also underway in the adjacent Fresno to Bakersfield Section. If a Central Valley Wye alternative is not approved, then under the No Project Alternative, construction of the Merced to Fresno Section alignment would continue south of the Central Valley Wye area and connect to the adjacent Fresno to Bakersfield Section. Construction would also proceed in the portion of the already approved Merced to Fresno Section alignment north of the Central Valley Wye. The No Project Alternative would also include construction of the adjacent San Jose to Merced Section west of the Central Valley Wye. Section 2.2.2, No Project Alternative, provides additional detail regarding this alternative.

4.4.2 SR 152 (North) to Road 13 Wye Alternative

The SR 152 (North) to Road 13 Wye Alternative would extend approximately 52 miles through Merced and Madera Counties. The alternative would follow the existing Henry Miller Road and SR 152 rights-of-way as closely as possible in the east-west direction and the Road 13, SR 99, and BNSF rights-of-way in the north-south direction.

The SR 152 (North) to Road 13 Wye Alternative would begin in Merced County at the intersection of Henry Miller Road and Carlucci Road and continue due east toward Elgin Avenue, where it would curve south toward and cross over the San Joaquin River and the Eastside Bypass. After crossing the two watercourses, the alignment would turn east, cross SR 59 just north of the existing SR 152/SR 59 interchange, and continue parallel to the north side of SR 152, entering Madera County. Approximately 7 miles east of the SR 152/SR 59 interchange, the alignment would cross and require reconstruction of approximately 400 linear feet of the Chowchilla Canal.

West of Chowchilla, at approximately Road 11, the San Jose to Merced leg would split from the mainline and curve north along the east side of Road 13. It would then curve to the northwest to connect to the Merced to Fresno Section: Hybrid Alternative along the west side of the UPRR/ SR 99 corridor, continuing to its termination at Ranch Road.

The San Jose to Fresno leg of this alternative would continue east from the split near Road 11 and along the north side of SR 152 toward Chowchilla. At this location, along the east side of the split, Robertson Boulevard would be reconfigured to maintain north-south circulation along the roadway. The alternative would travel south of Chowchilla and cross over the UPRR/SR 99 corridor and Fairmead Boulevard north of Avenue 23. It would then curve southeast to meet the Merced to Fresno Section: Hybrid Alternative along the west side of the BNSF corridor, ending at Avenue 19. Along this leg, the alignment would pass within 850 feet of Fairmead Elementary School.

The Merced to Fresno leg of the alternative would split from the San Jose to Fresno leg near Road 14 and curve northwest, connecting to the San Jose to Merced leg near Avenue 25.

The majority of the SR 152 (North) to Road 13 Wye Alternative would be at-grade; however, the alternative would include elevated structures spanning some waterways, roadways, or other

railroads and HSR tracks. Section 2.3.1, SR 152 (North) to Road 13 Wye Alternative, provides additional detail for this alternative.

4.4.3 SR 152 (North) to Road 19 Wye Alternative

The SR 152 (North) to Road 19 Wye Alternative would extend approximately 55 miles through Merced and Madera Counties. The alternative is designed to follow the existing Henry Miller Road and SR 152 rights-of-way as closely as practicable in the east-west direction, and the Road 19, SR 99, and BNSF rights-of-way in the north-south direction.

The SR 152 (North) to Road 19 Wye Alternative would begin at the intersection of Henry Miller Road and Carlucci Road and continue east toward Elgin Avenue, where it would curve southeast toward and cross over the San Joaquin River and the Eastside Bypass. It would then continue east, cross SR 59 just north of the SR 152/SR 59 interchange, and continue east parallel to the north side of SR 152 and would then curve north along the east side of Road 19. The SR 152 (North) to Road 19 Wye Alternative would cross the Chowchilla Canal at the same location as the SR 152 (North) to Road 13 Wye Alternative, and would require reconfiguration of the Robertson Boulevard Tree Row, resulting in the removal of palm trees at the same location as the SR 152 (North) to Road 13 Wye Alternative.

East of Road 17, the San Jose to Merced leg of this alternative would curve northeast, cross over the UPRR/SR 99 corridor, and then would continue north along the east side of Road 19. Approximately 0.6 mile north of Sandy Mush Road, the alternative would ascend to grade and continue along the UPRR/SR 99 corridor until connecting with the Merced to Fresno Section: Hybrid Alternative at Ranch Road.

The San Jose to Fresno leg of this alternative would continue east from Road 16, along the north side of SR 152, to cross the SR 99 corridor north of the SR 99/SR 152 interchange. It would then curve southeast to join the Merced to Fresno Section: Hybrid Alternative along the west side of the BNSF corridor, at Avenue 19. The curve would pass within 780 feet of Fairmead Elementary School.

The Merced to Fresno leg of this alternative would split from the San Jose to Fresno leg near Road 20 1/2 and curve northwest, connecting to the San Jose to Merced leg near Avenue 25.

The majority of the SR 152 (North) to Road 19 Wye Alternative would be at-grade, but the alternative would include elevated structures spanning some waterways, roadways, or other railroads and HSR tracks. Section 2.3.2, SR 152 (North) to Road 19 Wye Alternative, provides additional detail for this alternative.

4.4.4 Avenue 21 to Road 13 Wye Alternative

The Avenue 21 to Road 13 Wye Alternative would extend approximately 51 miles through Merced and Madera Counties. The alternative would follow the existing Henry Miller Road and Avenue 21 rights-of-way as closely as practicable in the east-west direction and the Road 13, SR 99, and BNSF rights-of-way in the north-south direction.

The Avenue 21 to Road 13 Wye Alternative would begin at the intersection of Henry Miller Road and Carlucci Road, and travel east. West of Elgin Avenue, this alternative would curve southeast toward and cross over the San Joaquin River, SR 152, and the Eastside Bypass. The alignment would continue east along the north side of Avenue 21 toward Chowchilla. Approximately 4.5 miles southeast of the SR 152/SR 59 interchange, the Avenue 21 to Road 13 Wye Alternative would cross the Chowchilla Canal.

Southwest of Chowchilla, near Road 11, the San Jose to Merced leg would split from the mainline, cross Road 13, and continue north along the east side of Road 13. It would then curve west to connect to the Merced to Fresno Section: Hybrid Alternative along the west side of the UPRR/SR 99 corridor, continuing to its termination at Ranch Road.

The San Jose to Fresno leg would continue east from the split near Road 11, along the north side of Avenue 21, cross the UPRR/SR 99 corridor, and then curve southeast to meet the Merced to

Fresno Section: Hybrid Alternative along the west side of the BNSF corridor, ending at Avenue 19. Similar to the SR 152 (North) to Road 13 and SR 152 (North) to Road 19 Wye Alternatives, this alternative would require reconfiguration of a portion of Robertson Boulevard, approximately 2.5 miles to the south of the other three alternatives. As with the SR 152 (North) to Road 13 and SR 152 (North) to Road 19 Wye Alternatives, this reconfiguration would result in the removal of a portion of the Robertson Boulevard Tree Row. The Avenue 21 to Road 13 Wye Alternative would completely avoid the Fairmead Elementary School.

The Merced to Fresno leg of the alternative would split from the San Jose to Fresno leg near Road 15 and curve northwest, connecting to join the San Jose to Merced leg near SR 152.

The majority of the Avenue 21 to Road 13 Wye Alternative would be at-grade, but the alternative would include elevated structures spanning some waterways, roadways, or other railroads and HSR tracks. Section 2.3.3, Avenue 21 to Road 13 Wye Alternative, provides additional detail for this alternative.

4.4.5 SR 152 (North) to Road 11 Wye Alternative

The SR 152 (North) to Road 11 Wye Alternative would extend approximately 51 miles through Merced and Madera Counties. The alternative would follow the existing Henry Miller Road and SR 152 rights-of-way as closely as practicable in the east-west direction and the Road 11, SR 99, and BNSF rights-of-way in the north-south direction

The SR 152 (North) to Road 11 Wye Alternative would begin at the intersection of Henry Miller Road and Carlucci Road and continue east toward Elgin Avenue, where it would curve south to run southeast toward and cross over the San Joaquin River and the Eastside Bypass. It would then continue east, cross SR 59 just north of the existing SR 152/SR 59 interchange, and continue parallel to the north side of SR 152. The SR 152 (North) to Road 11 Wye Alternative would cross the Chowchilla Canal at the same location as the SR 152 (North) to Road 13 Wye Alternative, and would require reconfiguration of the Robertson Boulevard Tree Row, resulting in the removal of palm trees at the same location as the SR 152 (North) to Road 19 Wye Alternative.

West of Chowchilla, at approximately Road 10, the San Jose to Merced leg of this alternative would split from the mainline and curve north along the east side of Road 11. It would then curve to the northwest to connect to the Merced to Fresno Section: Hybrid Alternative along the west side of the UPRR/SR 99 corridor, continuing to its termination at Ranch Road.

The San Jose to Fresno leg of this alternative would continue east from the split near Road 10, along the north side of SR 152 toward Chowchilla. The alternative would travel south of Chowchilla and cross over the UPRR/SR 99 corridor and Fairmead Boulevard north of Avenue 23. It would then curve southeast to meet the Merced to Fresno Section: Hybrid Alternative along the west side of the BNSF corridor, ending at Avenue 19. Along this leg, the alignment would pass within 850 feet of Fairmead Elementary School.

The Merced to Fresno leg of the Central Valley Wye alternative would split from the San Jose to Fresno leg near Road 13 and curve northwest, connecting to the San Jose to Merced leg near Avenue 25.

The majority of the SR 152 (North) to Road 11 Wye Alternative would be at-grade, but the alternative would include elevated structures spanning some waterways, roadways, or other railroads and HSR tracks. Section 2.3.4, SR 152 (North) to Road 11 Wye Alternative, provides additional detail for this alternative.

4.5 Section 4(f) Applicability Analysis

Section 4.5.1, Parks, Recreation, and Open Space, identifies the park, recreation, and open-space properties that meet the criteria for protection as Section 4(f) resources. Section 4.5.2, Cultural Resources, identifies cultural resources that meet the criteria for protection as Section 4(f) resources. All Section 4(f) resources are shown on Figure 4-1. Table 4-2 and Table 4-3 provide information about the attributes of each of the properties that either have proximity

impacts that could result in the potential for a Section 4(f) use (parks, recreational areas, and open space) or are located in the historic architectural APE, which includes the archaeological APE. No wildlife or waterfowl refuges were identified in the RSA (refer to Section 4.2).

Table 4-2 Recreation and Open Space Evaluated for Section 4(f) Use

Property Name	Description	Official with Jurisdiction	Alternative	Distance from Centerline
Fairmead Elementary School Play Areas	Location: Fairmead Size: 4.3 acres Features: play areas, including two basketball courts open to the public	Chowchilla Elementary School District	SR 152 (North) to Road 13 Wye SR 152 (North) to Road 19 Wye SR 152 (North) to Road 11 Wye	780–850 feet

Source: Authority, 2018
SR = State Route

Table 4-3 Resources Listed in, or Determined or Recommended Eligible for, the National Register of Historic Places

Resource Name	Address/Vicinity	County	Year Built	NRHP Eligibility Status	Central Valley Wye Alternative in which Property is Located in APE
Chowchilla Canal	Crosses SR 152	Madera	1872	Individual property determined eligible for the NRHP through Section 106 process	All
Robertson Boulevard Tree Row	Extends 9.4 miles from downtown Chowchilla southwest along SR 233	Madera	1912	Individual property determined eligible for the NRHP through Section 106 process	All

Source: Authority, 2018
APE = area of potential effect
NRHP = National Register of Historic Places
SR = State Route

4.5.1 Parks, Recreation, and Open Space

Section 3.15, provides a description of each recreation and open-space area in the RSA; however, not all of these resources meet the requirements to qualify for protection under Section 4(f).

Data collection to identify potential Section 4(f) resources consisted of a review of the plans and policies listed in Table 3.15-1 of Section 3.15.2.3, Regional and Local; consultation with officials with jurisdiction over resources; field reviews; public input; and the use of geographic information system data banks. The cities and counties provided the boundaries for parks and recreation resources within the RSA in geographic information system data format and in adopted plans. As noted, no public parks are present in the RSA.

Based on the applicability criteria described in Section 4.1.3, Section 4(f) Applicability, one recreation resource identified in Section 3.15 is analyzed for potential use because it meets the criteria to qualify for protection under Section 4(f)—the Fairmead Elementary School play areas. The following resources did not meet the criteria and were excluded from Section 4(f) consideration:

- **Berenda Slough**—This water-diversion slough has been considered by the City of Chowchilla as a potential future trail corridor along which a nonmotorized trail has been planned in the *City of Chowchilla 2040 General Plan* (City of Chowchilla 2011). Such future development has been excluded from Section 4(f) consideration because in the areas where the Central Valley Wye alternatives would cross the slough, the land is privately owned.
- **Ash Slough**—This water-diversion slough has been considered by the City of Chowchilla as a potential future trail corridor along which a nonmotorized trail has been planned in the *City of Chowchilla 2040 General Plan* (City of Chowchilla 2011). Such future development has been excluded from Section 4(f) consideration because in the areas where the Central Valley Wye alternatives would cross the slough, the land is privately owned.
- **China Cabin Ranch Wetland Preserve**—This property is a private holding of Bert Crane Ranches that is occupied primarily by grazing cattle and is not a public resource or active wildlife refuge (Martin 2016). Accordingly, this property does not qualify for Section 4(f) protection.
- **Alview Elementary School Play Areas**—These play areas are not open to the public after school hours, and no joint-use agreement governs the use of these fields for public recreation purposes. Accordingly, these play areas do not qualify for Section 4(f) protection.
- **Grassland Ecological Area**—This roughly 160,000-acre area is composed of federal wildlife refuges (San Luis and Merced National Wildlife Refuges [U.S. Fish and Wildlife Service 2013]), state wildlife management areas, a state park (Great Valley Grasslands State Park located near the northern portion of the San Luis Wildlife Refuge), and nearly 200 privately owned parcels, most of which are waterfowl hunting clubs. The southern boundary, within the RSA of a network upgrade proposed under the SR 152 (North) to Road 19 Alternative, is comprised of private properties and is not a public resource or active wildlife refuge. Accordingly, this area does not qualify for protection under Section 4(f).

Table 4-2 and the discussion following describe the Section 4(f) property that has the potential to incur a Section 4(f) use, or are close enough to the Central Valley Wye alternatives that consideration under Section 4(f) use is warranted.

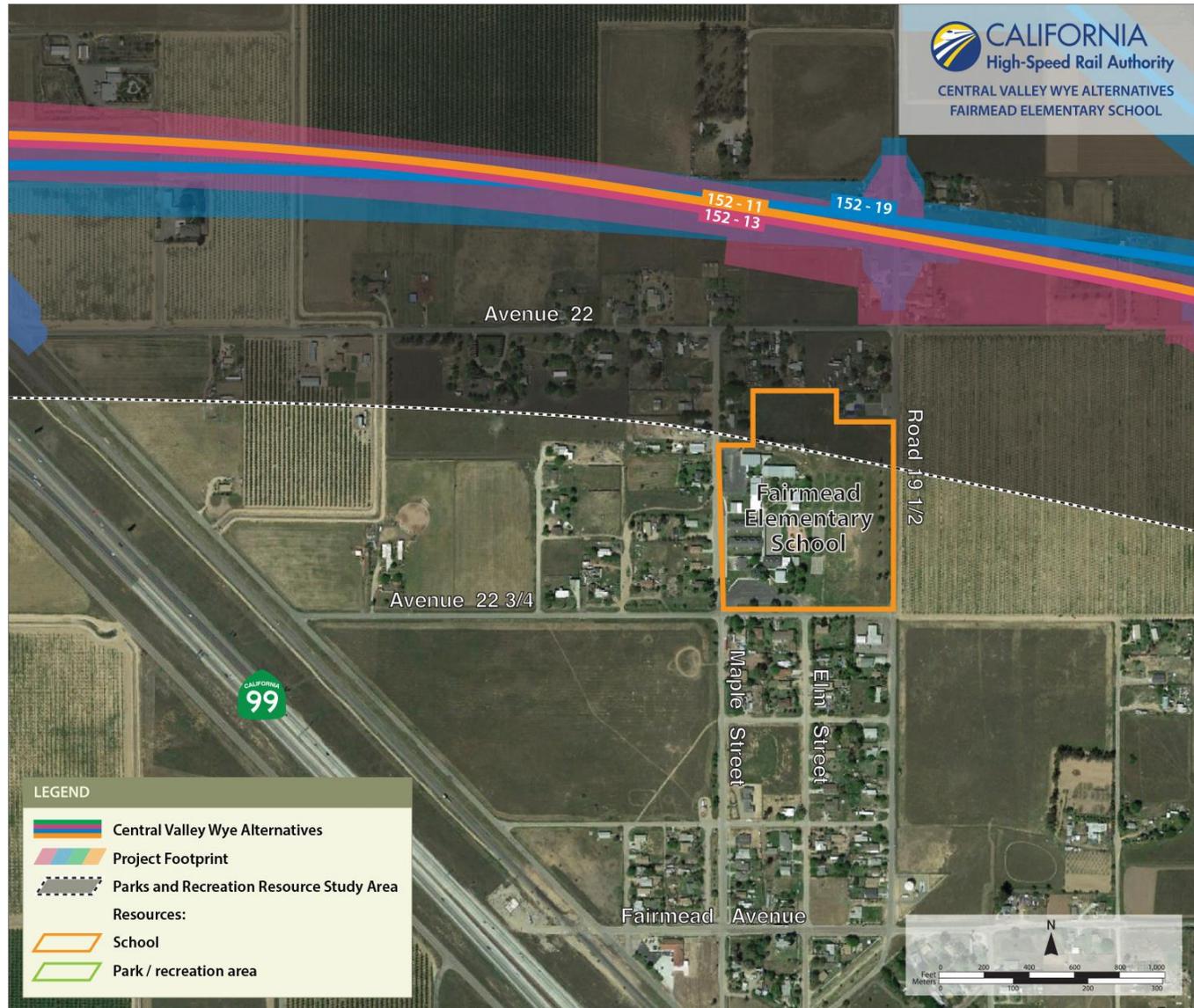
4.5.1.1 Fairmead Elementary School Play Areas

Fairmead Elementary School, owned by the Chowchilla Elementary School District, is at the northeast corner of Maple Street and Avenue 22 3/4 in Chowchilla, as shown on Figure 4-2. The play areas total 4.3 acres and are located along the eastern side of the school property. The play areas are within 410 to 460 feet of the project footprints for the SR 152 (North) to Road 13, SR 152 (North) to Road 19, and SR 152 (North) to Road 11 Wye Alternatives. However, they are outside the RSA for the Avenue 21 to Road 13 Wye Alternative, because of the distance (approximately 1.75 miles) from the project footprint.

Because of the limited availability of parks in the Fairmead area, the school fields were opened to the public through a Joint Use Facility Agreement with the County of Madera in February 2012. The school play areas remain open after school hours and on weekends for free public use. They are separated from the school grounds by a fence that limits access to school buildings and a playground and small paved play area that are used only during school hours. The portions of the fields that remain open to the public consist of an open grassy field that is used for organized sports and general sports play, and two basketball courts. Parking facilities on the school property are also available to the public users of the fields.

4.5.2 Cultural Resources

Within the historic architectural APE, background research and the field survey revealed two historic properties listed or eligible for listing in the NRHP that qualify as Section 4(f) resources. These properties—the Chowchilla Canal and Robertson Boulevard Tree Row—are shown on Figure 4-3 through Figure 4-9. Most historic architectural field surveys and inventories were conducted from public rights-of-way, which provided only limited access to the historic architectural APE. Background research and field surveys were also performed within an archaeological resources APE, which is defined in Section 3.17.5.1, Definition of Resource Study Area/Area of Potential Effect. Permission to enter was granted for 2,888 acres of the 10,586-acre archaeological resources APE, of which 2,188 acres were surveyed. The research found that there are no known archaeological resources in the archaeological resources APE that qualify as Section 4(f) resources. One archaeological site, assumed eligible for listing in the NRHP, was identified in the archaeological APE but would not be affected by the Central Valley Wye alternatives.



Source: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015; Google Earth, 2015

JUNE 15, 2017

Figure 4-2 Section 4(f) Properties, Fairmead Elementary School



Source: Authority and FRA, 2016

JUNE 15, 2017

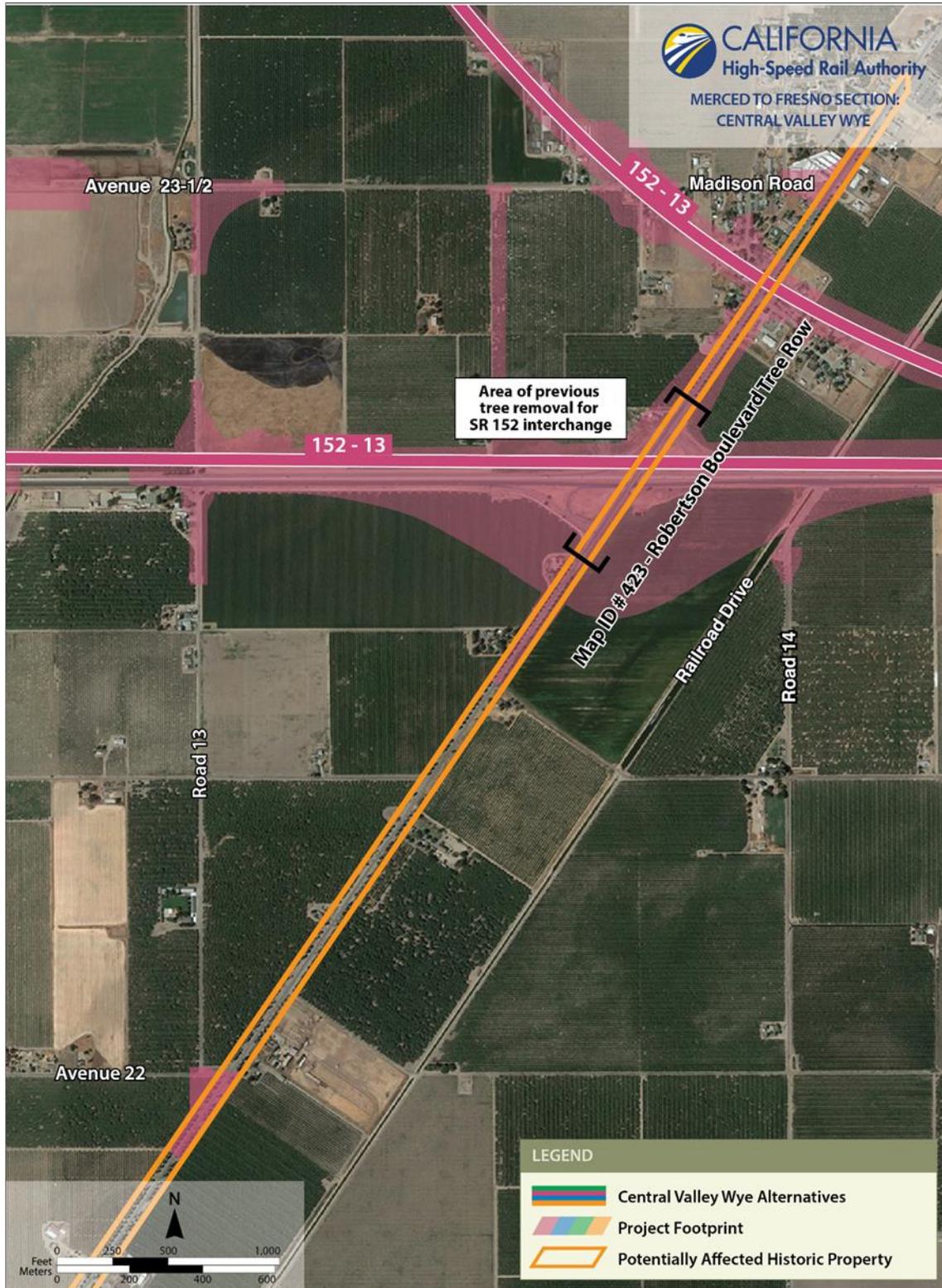
Figure 4-3 Section 4(f) Properties, Chowchilla Canal



Source: Authority, 2017

JUNE 15, 2017

Figure 4-4 Section 4(f) Properties, Chowchilla Canal



Source: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015; Google Earth, 2015

JANUARY 5, 2018

Figure 4-5 Section 4(f) Properties, Robertson Boulevard Tree Row



Source: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015; Google Earth, 2015

JANUARY 5, 2018

Figure 4-6 Section 4(f) Properties, Robertson Boulevard Tree Row



Source: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015; Google Earth, 2015

JUNE 15, 2017

Figure 4-7 Section 4(f) Properties, Robertson Boulevard Tree Row



Source: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015; Google Earth, 2015

JANUARY 5, 2018

Figure 4-8 Section 4(f) Properties, Robertson Boulevard Tree Row



Source: ESRI, 2013; CAL FIRE, 2004; ESRI/National Geographic, 2015; Google Earth, 2015

JANUARY 5, 2018

Figure 4-9 Section 4(f) Properties, Robertson Boulevard Tree Row

Table 4-3 describes resources listed in, or determined or recommended to be eligible for, the NRHP that are within the historic architectural APE. Unknown or unrecorded archaeological and historic architectural resources that are not observable when conducting standard surface archaeological inspections, including subsurface buried archaeological deposits, may exist in areas surveyed, within the urbanized or rural areas, or areas where permission to enter has not been granted. The Authority would incorporate impact avoidance and minimization features (IAMF) to avoid, minimize, or reduce impacts, as described in each resource section. For example, the Authority would perform a complete inventory of archaeological and historic architectural resources on the 8,398 acres and 67 buildings that are currently inaccessible in accordance with CUL-IAMF#3, Pre-Construction Cultural Resource Surveys, once permission to enter has been obtained in addition to those steps required in the Section 106 Programmatic Agreement (PA) and Memorandum of Agreement (MOA), in accordance with CUL-IAMF#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. Because the phased identification surveys would occur after the Record of Decision, they would only occur on those parcels within the selected alternative and thus the archaeological acreage and number of buildings to be surveyed may be lower. Further, in the event of an archaeological resource discovery, work would cease in the immediate vicinity of the find, as directed by the archaeological monitor, and the contractor would follow the procedures for unanticipated discoveries as stipulated in the PA, MOA, and associated Archaeological Treatment Plan.

In accordance with 36 C.F.R. 800.4(b)(2), phased identification may occur in situations where identification of historic properties cannot be completed. In these cases, subsequent MOAs would provide for a post-review identification and evaluation effort as applicable to the undertaking. This phased identification approach would be applied to this section of the Central Valley Wye alternatives because much of the project footprints for the four alternatives have not been accessible for archaeological pedestrian surveys. While all unsurveyed parcels in the selected alternative will be subject to phased survey and identification, only areas determined to have the potential to yield buried resources through research and geoarchaeological studies will be monitored during construction. Should an archaeological resource be discovered during the phased identification efforts or construction monitoring, and determined to have the potential to be eligible, it would be evaluated to determine if it is valuable for preservation in place (NRHP criterion A, B, and/or C). If it is not valuable for preservation in place, appropriate data recovery steps would be taken, in accordance with the Archaeological Treatment Plan. If it is valuable for preservation in place, and the SHPO concurs, an expedited Section 4(f) evaluation would be prepared in accordance with 23 C.F.R. 774.9(e).

Section 4(f) historic properties were evaluated by (1) identifying if the Central Valley Wye alternative would permanently incorporate land from the property, and (2) reviewing the effects on the property as documented during the Section 106 process.

The properties in the historic architectural APE that are listed, or have been determined eligible for listing, in the NRHP and are therefore protected under Section 4(f) are:

- Chowchilla Canal**—The Chowchilla Canal (Map ID #197 on Figure 4-3 and Figure 4-4) was built in 1872 by the Miller & Lux Company and W. S. Chapman. The entire canal is approximately 24 miles long, 8 feet wide at the top, and 5 feet deep, with a V-shaped bottom surface. The Chowchilla Canal was one of the first large-scale canals constructed in the region and was central to an extensive water conveyance system managed by the Miller & Lux Company. The canal carries water northward from the San Joaquin River at Mendota to its terminus near the Chowchilla River. Originally constructed as an earthen canal, large segments of the Chowchilla Canal were later lined with concrete. Nevertheless, it largely maintains its historic alignment and continues to convey its significance as one of the first large-scale canals constructed in the region. The Chowchilla Canal is eligible for listing in the NRHP at the local level of significance under NRHP Criterion A and California Register of Historical Resources (CRHR) Criterion 1 for its association with an extensive, early irrigation system that transformed the development of agriculture in the San Joaquin Valley.

- **Robertson Boulevard Tree Row**—The Robertson Boulevard Tree Row (Map ID#423 on Figure 4-5 through Figure 4-9) was designated a California Point of Historical Interest in 1989 (Department of Parks and Recreation 1989). On March 13, 2012, the resource was determined eligible for listing in the NRHP and CRHR by the FRA with concurrence from the SHPO, as part of the Merced to Fresno Section project. The tree row consists of Canary Island palm, short Mexican fan palms, and oleanders that Orlando Robertson, founder of Chowchilla, planted in 1912 as part of the marketing efforts to attract settlers, specifically farmers, to the area. The row of trees is a recognizable landmark and has a direct association with the initial development of Chowchilla. As such, this resource meets NRHP Criterion A and CRHR Criterion 1 in the area of community development and NRHP Criterion C and CRHR Criterion 3 in the area of landscape architecture.

The Department of Parks and Recreation (1989) characterized the length of the resource as 11 miles. Recent investigations on the existing tree row reveal that it extends along both sides of a 9.4-mile (approximately 49,600 linear feet) stretch of Robertson Boulevard (SR 233). The northern portion of the tree row begins at the intersection of Robertson Boulevard and SR 99 (SR 233 exit off SR 99). From that point, the tree row runs through the downtown core of Chowchilla and continues for several miles southwest along an approximately 100-foot-wide two-lane road through a more rural area of the town until its terminus at Avenue 18½. The expansion of SR 152 in the mid-1960s created an approximate 1,700-foot gap in the tree row. Although a visually prominent feature of the Chowchilla landscape, including roughly 1,000 trees, the row of palms is not contiguous and fluctuates between dense stretches of evenly spaced trees and more unevenly spaced trees. In addition, the *Final Section 4(f)/6(f) Evaluation for the California HSR Merced to Fresno Section* (Authority and FRA 2012b: pages 4-1 through 4-58) previously identified the Robertson Boulevard Tree Row as a Section 4(f) protected historic site.

4.6 Section 4(f) Use Assessment

4.6.1 Recreation and Open Space

This section discusses use assessments for the recreation resources relative to the Central Valley Wye alternatives. The Section 4(f) park and recreation property is shown on Figure 4-2.

4.6.1.1 Fairmead Elementary School Play Areas Use Assessment

As detailed in this section, none of the Central Valley Wye alternatives would use the Fairmead Elementary School play areas.

SR 152 (North) to Road 13 Wye Alternative

No land from the play areas would be required to construct the SR 152 (North) to Road 13 Wye Alternative. Therefore, no permanent use would result from the SR 152 (North) to Road 13 Wye Alternative. This alternative would run within 850 feet of the Fairmead Elementary School play areas, and construction activities related to roadway reconfiguration would take place within 460 feet of the publicly used portions of the play areas. Any increases in noise and dust levels would be noticeable to users of the play areas during construction-related activities. While these impacts would be noticeable to play area users, they would be temporary in nature and would not substantially impair the use of the play area for its intended purpose. Further, the design of the Central Valley Wye alternatives includes measures that would minimize noise and vibration and fugitive dust emissions generated during construction (NV-IAMF#1, Noise and Vibration, and AQ-IAMF#1, Fugitive Dust Emissions).

During construction, vehicular access to the Fairmead Elementary School play areas would be reduced due to road closures, including Avenue 22, Road 19 1/2, and Road 20. Potential play area users would have to travel approximately 1 mile south of the play areas, where they would navigate local roadways (e.g., Avenue 22 1/2) to access the school play areas. The design of the Central Valley Wye alternatives (TR-IAMF#1, Protection of Public Roadways during Construction, through TR-IAMF#8, Construction during Special Events) would provide signage and manage disruptions to access so that motorists and pedestrians would continue to have access to recreation. This approach would avoid impacts on access and inconvenience for play area users

through temporary disruptions to traffic patterns. Following the construction period, the reconstructed Road 20 1/2 would maintain north-south access near the Fairmead Elementary School play areas, although access to the school from those areas north of Avenue 22 3/4 could be permanently reduced. Users of the Fairmead Elementary School play areas who intend to access the play areas from the north would either travel south on SR 99 and exit at Avenue 21 1/2 or travel south on Road 20 1/2. Because construction of this alternative would not prevent public access to the school play areas or substantially impair the public's use of the fields, basketball courts, or parking facilities, no use would occur during construction.

Impacts on the play areas associated with operation of the SR 152 (North) to Road 13 Wye Alternative would be limited to minor changes to the visual environment because trains and some track facilities would be visible from the play areas. Visual screening in the Fairmead area has been included as mitigation measures (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, and AVR-MM#6, Landscape Treatments along HSR Overcrossings and Retained Fill Elements) to reduce the visual impact of the Central Valley Wye alternatives on the rural neighborhood surrounding the school play areas. These mitigation measures would also help reduce the impacts on the school play areas. In addition, minor changes to the noise environment related to train operations would occur; however, operations of the Central Valley Wye alternatives would not result in noise levels that exceed the exterior noise criteria for school uses, as discussed in Section 3.4, Noise and Vibration. Users of the play areas may be able to hear when a high-speed train passes; however, at this distance, noise generated from operations of the Central Valley Wye alternatives would generally not be disruptive to the use of the play areas and the user experience would not be substantially degraded. While the HSR could be noticeable to users of the play areas, the change would not be such that the regular use or user experience would be altered. Accordingly, permanent noise and visual impacts would not be of a severity that the protected activities, features, or attributes that qualify the play areas for protection under Section 4(f) are substantially impaired, and no constructive use would result. There is no potential for use of the play areas under the SR 152 (North) to Road 13 Wye Alternative.

SR 152 (North) to Road 19 Wye Alternative

Near the Fairmead Elementary School play areas, the SR 152 (North) to Road 19 Wye Alternative would be in a similar location and orientation to that of the SR 152 (North) to Road 13 Wye Alternative. However, this alternative would have a slightly different geometry as compared to the SR 152 (North) to Road 13 Wye Alternative. This alternative would run within 780 feet of the Fairmead Elementary School play areas, and construction activities related to roadway reconfiguration would take place within 410 feet of the publicly used portions of the play areas. Given the location and similar distances, impacts on the Fairmead Elementary School under the SR 152 (North) to Road 19 Wye Alternative would be approximately the same as those described under the SR 152 (North) to Road 13 Wye Alternative. Therefore, the discussion and use assessment provided for the SR 152 (North) to Road 13 Wye Alternative applies to this alternative and there is no potential for use of the play areas under the SR 152 (North) to Road 19 Wye Alternative.

Avenue 21 to Road 13 Wye Alternative

Fairmead Elementary School is approximately 1.75 miles from the Avenue 21 to Road 13 Wye Alternative, which is well outside the recreation and open space RSA of the Avenue 21 to Road 13 Wye Alternative (Figure 4-1). Therefore, there is no potential for use of the Fairmead Elementary School play areas under the Avenue 21 to Road 13 Wye Alternative.

SR 152 (North) to Road 11 Wye Alternative

Near the Fairmead Elementary School play areas, the SR 152 (North) to Road 11 Wye Alternative would have the same project footprint and geometry as the SR 152 (North) to Road 13 Wye Alternative, and therefore the same visual and noise disturbance and the same distance to the Fairmead Elementary School play areas. This alternative would run approximately 850 feet north of

the Fairmead Elementary School play areas, and construction activities related to roadway reconfiguration would take place within 460 feet of the publicly used portions of the play areas. Impacts on the play areas associated with operation of the SR 152 (North) to Road 11 Wye Alternative would be limited to minor changes to the visual environment because trains and some track facilities would be visible from the play areas. Visual screening in the Fairmead area has been included as mitigation measures (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, and AVR-MM#6, Landscape Treatments along HSR Overcrossings and Retained Fill Elements) would help reduce the impacts on the school play areas. Operations of the Central Valley Wye alternatives would not result in noise levels that exceed the exterior noise criteria for school uses, as discussed in Section 3.4. Accordingly, permanent noise and visual impacts would not be of a severity that the protected activities, features, or attributes that qualify the play areas for protection under Section 4(f) are substantially impaired, and no constructive use would result. There is no potential for use of the play areas under the SR 152 (North) to Road 11 Wye Alternative.

4.6.2 Historic Properties

Based on the analysis conducted for cultural resources (see Section 3.17), two NRHP-eligible historic sites could be affected under Section 106 by one or more of the Central Valley Wye alternatives.

4.6.2.1 Chowchilla Canal (Madera County)

SR 152 (North) to Road 13 Wye Alternative

The SR 152 (North) to Road 13 Wye Alternative would cross the Chowchilla Canal at grade and would require an extension or reconstruction of the existing culvert that currently carries the canal under SR 152 to route the canal segment under the HSR alignment. Construction of the SR 152 (North) to Road 13 Wye Alternative would result in the placement of HSR components within the physical boundary of the historic property. These impacts would be limited to the specific segments of the canal subject to construction (approximately 400 linear feet of canal) and would not extend to other historically significant segments of the 24-mile-long canal. The Chowchilla Canal would not be realigned to accommodate the HSR and would continue to convey water along its original historic alignment. Therefore, the integrity of the Chowchilla Canal would not be impaired because it would still be able to convey its historic significance.

The Authority has made a finding of no adverse effect for this resource under Section 106 for the SR 152 (North) to Road 13 Wye Alternative. In a March 16, 2018 letter, the Authority provided this finding to the SHPO for review, comment, and concurrence as part of the Section 106 process. In the same letter, the Authority notified the SHPO of its intent to make a Section 4(f) *de minimis* determination concerning the Chowchilla Canal.

In an April 6, 2018 letter to the Authority, the SHPO provided its concurrence on the Section 106 finding of no adverse effect on the Chowchilla Canal. Because the SR 152 (North) to Road 13 Wye Alternative would not have an adverse effect under Section 106 on the Chowchilla Canal, the Authority has made a Section 4(f) *de minimis* impact determination for this resource.

SR 152 (North) to Road 19 Wye Alternative

Potential impacts on the Chowchilla Canal and Section 4(f) use under the SR 152 (North) to Road 19 Wye Alternative would be the same as those described for the SR 152 (North) to Road 13 Wye Alternative because the construction activities would be the same. Both SR 152 (North) to Road 13 and SR 152 (North) to Road 19 Wye Alternatives would cross the canal at the same location, and the at-grade crossing would be treated with the same design solution for extending or reconstructing the existing culvert that currently carries the canal under SR 152.

The Authority has made a finding of no adverse effect for this resource under Section 106 for the SR 152 (North) to Road 19 Wye Alternative. In a March 16, 2018 letter, the Authority provided this finding to the SHPO for review, comment, and concurrence as part of the Section 106

process. In the same letter, the Authority notified the SHPO of its intent to make a Section 4(f) *de minimis* determination concerning the Chowchilla Canal.

In an April 6, 2018 letter to the Authority, the SHPO provided its concurrence on the Section 106 finding of no adverse effect on the Chowchilla Canal. Because the SR 152 (North) to Road 19 Wye Alternative would not have an adverse effect under Section 106 on the Chowchilla Canal, the Authority has made a Section 4(f) *de minimis* impact determination for this resource.

Avenue 21 to Road 13 Wye Alternative

Impacts on the Chowchilla Canal and Section 4(f) use would be similar to those described under the SR 152 (North) to Road 13 Wye Alternative, but would take place at a different location approximately 2 miles south. Under all four Central Valley Wye alternatives, an existing culvert carries the canal under a vehicular roadway, and in all cases, the canal is an open canal north of the roadway and has been tunneled underground south of the roadway. The continuation of the canal to the south is not apparent, and the canal effectively disappears from view south of the road crossing. Therefore, even though the culvert itself at SR 152 is wider than at Avenue 21, and the extension of the culvert to accommodate the HSR crossing would be wider, this wider culvert and extension would not be visible to the public; the width of the culvert is not discernable because it transitions immediately into the underground tunnel.

The Authority has made a finding of no adverse effect for this resource under Section 106 for the Avenue 21 to Road 13 Wye Alternative. In a March 16, 2018 letter, the Authority provided this finding to the SHPO for review, comment, and concurrence as part of the Section 106 process. In the same letter, the Authority notified the SHPO of its intent to make a Section 4(f) *de minimis* determination concerning the Chowchilla Canal.

In an April 6, 2018 letter to the Authority, the SHPO provided its concurrence on the Section 106 finding of no adverse effect on the Chowchilla Canal. Because the Avenue 21 to Road 13 Wye Alternative would not have an adverse effect under Section 106 on the Chowchilla Canal, the Authority has made a Section 4(f) *de minimis* impact determination for this resource.

SR 152 (North) to Road 11 Wye Alternative

Potential impacts on the Chowchilla Canal and Section 4(f) use under the SR 152 (North) to Road 11 Wye Alternative would be the same as those described for the SR 152 (North) to Road 13 Wye Alternative because the construction activities would be the same. Both SR 152 (North) to Road 13 and SR 152 (North) to Road 11 Wye Alternatives would cross the canal at the same location, and the at-grade crossing would be treated with the same design solution for extending or reconstructing the existing culvert that currently carries the canal under SR 152.

The Authority has made a finding of no adverse effect for this resource under Section 106 for the SR 152 (North) to Road 11 Wye Alternative.

In a March 16, 2018 letter, the Authority provided this finding to the SHPO for review, comment, and concurrence as part of the Section 106 process. In the same letter, the Authority notified the SHPO of its intent to make a Section 4(f) *de minimis* determination concerning the Chowchilla Canal.

In an April 6, 2018 letter to the Authority, the SHPO provided its concurrence on the Section 106 finding of no adverse effect on the Chowchilla Canal. Because the SR 152 (North) to Road 11 Wye Alternative would not have an adverse effect under Section 106 on the Chowchilla Canal, the Authority has made a Section 4(f) *de minimis* impact determination for this resource.

4.6.2.2 Robertson Boulevard Tree Row

One historic property, the Robertson Boulevard Tree Row, would incur an adverse effect under Section 106 and a use under Section 4(f) as part of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012a: page 4-40) and related Final Section 4(f)/6(f) Evaluation (Authority and FRA 2012b). As discussed in the Final Section 4(f)/6(f) Evaluation, a use would occur under each of the alternatives analyzed as part of that evaluation because both the Avenue 21 Wye and

Avenue 24 Wye would cross the tree row perpendicularly, resulting in the physical demolition, destruction, damage, or substantial alteration of the Robertson Boulevard Tree Row. The Authority has not made a finding of *de minimis* impact under Section 4(f) because that finding can be made only when a “no adverse effect” finding is made for the resource under Section 106.

As part of the Section 4(f) analysis for the Central Valley Wye alternatives, the Robertson Boulevard Tree Row was analyzed for potential impacts under each of the Central Valley Wye alternatives. The analysis determined that the impacts would be very similar to those disclosed in the Merced to Fresno Final EIR/EIS (Authority and FRA 2012a: page 4-40). Although the alignments of the wye alternatives analyzed in the Merced to Fresno Final EIR/EIS and the Central Valley Wye alternatives differ, the impacts resulting from the crossing of the Robertson Boulevard Tree Row would be substantially the same as those described in the Merced to Fresno Final EIR/EIS; namely, the physical demolition, destruction, damage, or substantial alteration of the linear historic property. These impacts under each Central Valley Wye alternative are described in this section.

SR 152 (North) to Road 13 Wye Alternative

Under the SR 152 (North) to Road 13 Wye Alternative, the track alignment would cross Robertson Boulevard at two locations—the San Jose to Fresno leg would cross Robertson Boulevard just north of the SR 152 interchange, while the Merced to Fresno leg would cross Robertson Boulevard on an aerial structure at the Valeta Drive intersection approximately 0.4 mile north of SR 152. Impacts on the Robertson Boulevard Tree Row resulting from the placement of HSR track would be minor—approximately six trees would require removal for the Merced to Fresno leg, and no trees exist within the track footprint of the San Jose to Fresno leg. However, because the San Jose to Fresno leg would be placed at-grade in this location, Robertson Boulevard would be grade-separated by building an underpass below the HSR track to maintain circulation along Robertson Boulevard. Construction of the grade-separated Robertson Boulevard would result in demolition of a stretch of palm trees that comprise the Robertson Boulevard Tree Row. In total, the SR 152 (North) to Road 13 Wye Alternative would result in the removal of all trees within 4,516 linear feet of the row, which does not include the previously disturbed 1,700 feet at the SR 152/Robertson Boulevard interchange (see Figure 4-5). Because numerous trees are absent in this area, the integrity of the tree row is low in this location. Because a portion of the Robertson Boulevard Tree Row would be permanently incorporated into the project footprint of this alternative, resulting in the destruction of a portion of this historic site, the Authority has determined that the SR 152 (North) to Road 13 Wye Alternative would result in a use of the Robertson Boulevard Tree Row under Section 4(f).

SR 152 (North) to Road 19 Wye Alternative

The SR 152 (North) to Road 19 Wye Alternative would result in similar impacts on the Robertson Boulevard Tree Row to those of the SR 152 (North) to Road 13 Wye Alternative. The key difference between the SR 152 (North) to Road 19 Wye Alternative and SR 152 (North) to Road 13 Wye Alternative is that the Merced to Fresno leg of this alternative would not cross Robertson Boulevard. However, the San Jose to Fresno leg and associated grade separation of Robertson Boulevard would still result in the removal of a substantial number of palm trees, and the overall number of trees removed would be approximately identical to that of the SR 152 (North) to Road 13 Wye Alternative.

As depicted on Figure 4-6, the portion of the tree row that would be affected is in approximately the same location as the SR 152 (North) to Road 13 Wye Alternative. In total, the SR 152 (North) to Road 19 Wye Alternative would result in the removal all trees within 4,428 linear feet of the row; this portion does not include the previously disturbed 1,700 feet of the tree row at SR 152/Robertson Boulevard interchange (see Figure 4-6). The integrity of the tree row is low in the location where trees were previously removed to construct the SR 152/Robertson Boulevard interchange. Because a portion of the Robertson Boulevard Tree Row would be permanently incorporated into the project footprint for this alternative, resulting in the destruction of a portion of this historic site, it has been determined that the SR 152 (North) to Road 19 Wye Alternative would result in a use of the Robertson Boulevard Tree Row under Section 4(f).

Avenue 21 to Road 13 Wye Alternative

The Avenue 21 to Road 13 Wye Alternative would cross the Robertson Boulevard Tree Row at a different location than the other Central Valley Wye alternatives and would result in the most tree removals among the alternatives. Specifically, the San Jose to Fresno and Merced to Fresno legs of this alternative would cross Robertson Boulevard and the associated historic tree row, but in a different location, approximately 0.9 mile south of SR 152. The Merced to Fresno leg would cross Robertson Boulevard on an aerial structure just north of Avenue 22 and would result in the removal of approximately two or three trees associated with the Robertson Boulevard Tree Row. As with the other alternatives, the San Jose to Fresno leg would cross Robertson Boulevard perpendicularly and would require grade separating Robertson Boulevard, resulting in the removal of a substantial number of trees. This portion of the existing Robertson Boulevard Tree Row is more intact than the portions affected under the SR 152 (North) to Road 13 and SR 152 (North) to Road 19 Wye Alternatives because there have been fewer trees removed by previous development projects, and therefore, a greater number of trees would be affected. No portion of Robertson Boulevard is grade separated in this area, as is the case at the SR 152 interchange. Accordingly, the Avenue 21 to Road 13 Wye Alternative would result in the removal of all trees within 5,590 linear feet of the row. Because a portion of the Robertson Boulevard Tree Row would be permanently incorporated into the project footprint for this alternative, resulting in the destruction of a portion of this historic site, it has been determined that the Avenue 21 to Road 13 Wye Alternative would result in a use of the Robertson Boulevard Tree Row under Section 4(f).

SR 152 (North) to Road 11 Wye Alternative

The SR 152 (North) to Road 11 Wye Alternative would result in the removal of the fewest trees among the Central Valley Wye alternatives under consideration. As with the SR 152 (North) to Road 19 Wye Alternative, the San Jose to Fresno leg and associated grade separation of Robertson Boulevard would result in the removal of a substantial number of palm trees, although the SR 152 (North) to Road 11 Wye Alternative would disturb slightly fewer linear feet of the tree row as a result of the grade separation.

As depicted on Figure 4-9, the portion of the tree row that would be affected is in approximately the same location as the SR 152 (North) to Road 13 Wye Alternative. The SR 152 (North) to Road 11 Wye Alternative would result in the removal of all trees within 4,088 linear feet of the row; this portion does not include the previously disturbed 1,700 feet at the SR 152/Robertson Boulevard interchange (see Figure 4-9). The integrity of the tree row is low in the location where trees were previously removed to construct the SR 152/Robertson Boulevard interchange. Because a portion of the Robertson Boulevard Tree Row would be permanently incorporated into the project footprint for this alternative, resulting in the destruction of a portion of this historic site, it has been determined that the SR 152 (North) to Road 11 Wye Alternative would result in a use of the Robertson Boulevard Tree Row under Section 4(f).

4.7 Avoidance Alternatives

Section 4(f) requires the selection of an alternative that avoids the use of a Section 4(f) property if that alternative is deemed feasible and prudent and the use does not qualify for a finding of *de minimis* impact. The Purpose and Need statement of this Final Supplemental EIR/EIS tiers from the approved *Final Program EIR/EIS for the Proposed California High-Speed Train System* (Statewide Program EIR/EIS) (Authority and FRA 2005), *San Francisco Bay Area to Central Valley High-Speed Train Final Program EIR/EIS* (Authority and FRA 2008), *2010 Bay Area to Central Valley High-Speed Train Revised Final Program EIR* (Authority 2010), and the *2012 Bay Area to Central Valley High-Speed Train Partially Revised Final Program EIR* (Authority 2012a), collectively referred to as the Program EIR/EIS documents.

The No Project Alternative would not include the construction of the HSR or any associated facilities, and thus would have no impact on any Section 4(f) resources associated with the construction and operation of the HSR. However, impacts on Section 4(f) resources could result from existing and planned improvements in local and regional land use plans associated with the No Project Alternative. Planned projects include residential, commercial, and industrial

developments, as well as transportation projects such as the expansion of SR 99. A full list of anticipated future development projects is provided in Appendix 3.19-A, Cumulative Plans and Non-Transportation Projects List, and Appendix 3.19-B, Cumulative Transportation Projects Lists. The growth expected in and around Chowchilla, as described in the *City of Chowchilla 2040 General Plan* (pages I-1 through L-69) (City of Chowchilla 2011), is anticipated to affect cultural resources through construction-related surface disturbance, which could lead to the unearthing of sensitive archaeological resources, disturbance of traditional cultural properties, or changes in the historic character or setting of historic architectural resources. Use of Fairmead Elementary School is expected to increase under the No Project Alternative as a result of population growth but not to the extent that the resources would be adversely affected.

The No Project Alternative may involve land acquisition and proximity impacts on Section 4(f) resources. The No Project Alternative would not address the state's Purpose and Need for the HSR project. This alternative is insufficient to meet existing and future travel demand; current and projected future congestion of the transportation system would continue to result in deteriorating air quality, reduced reliability, and increased travel times. Because the No Project Alternative would not meet the project Purpose and Need, it is neither feasible nor prudent and is not discussed further as an avoidance alternative for the Robertson Boulevard Tree Row.

The alternatives screening process for the Central Valley Wye connection began in 2010 and continued through development of this Final Supplemental EIR/EIS. The Authority and FRA evaluated a range of alternative options for the wye connection based on multiple criteria and stakeholder input. The alternatives screening process and evaluation criteria are discussed in detail in Section 2.1.2, The Wye Connection.

Although the alternatives analysis process considered multiple criteria, the screening emphasized the objective to maximize the use of existing transportation corridors and available rights-of-way to the extent feasible. Each wye alternative was evaluated to isolate concerns and to screen and refine the overall alternative to avoid key environmental issues or improve performance. The alternatives not carried forward had greater direct and indirect environmental impacts, were impracticable, or failed to meet the Purpose and Need for the Central Valley Wye alternatives.

Two of the alternatives analyzed during this process would have avoided the Robertson Boulevard Tree Row. The following describes these alternatives and reasoning for not carrying them forward:

- **SR 140 Wye Alternative**—The SR 140 Wye Alternative was the preferred program alignment identified in the Statewide Program EIR/EIS; however, it was withdrawn from consideration prior to the *Merced to Fresno Section: Central Valley Wye Alternatives Supplemental Alternatives Analysis Report* (Authority and FRA 2013) because the potential impacts on aquatic resources, particularly impacts on vernal pool complexes (125 acres), would be the third highest of all of the Central Valley Wye alternatives. In addition, this alternative would be the only one to affect the North Grasslands Wildlife Area, portions of which are Section 4(f) protected, with 22 acres of impact. Additionally, the alternative would have resulted in unavoidable impacts on the community of Atwater.
- **South of Grasslands Ecological Area Wye Alternative**—The South of Grasslands Ecological Area Wye Alternative was first identified in the *Merced to Fresno Section Preliminary Alternatives Analysis Report* (Authority and FRA 2010a) in 2010 as the South Grasslands Ecological Area connection. Among the many reasons for consideration of this alternative was the avoidance of the South Grasslands Ecological Area, portions of which are Section 4(f)-protected resources (e.g., wildlife refuge and state park). The alignment curves south from the San Luis Reservoir along the east side of Interstate 5 and avoids the Grasslands Wildlife Area. However, the alignment was withdrawn from consideration prior to the *Merced to Fresno Section: Central Valley Wye Alternatives Supplemental Alternatives Analysis Report* (Authority and FRA 2013) because it would add 14 minutes of travel time between San Jose and Merced and an additional 20 miles, with associated environmental impacts and costs. It would be the most costly alternative evaluated because it is longer than the other alternatives. The additional length of track would cross habitats that are known to

support threatened and endangered species, including California tiger salamander, San Joaquin kit fox, California red-legged frog, and species dependent on vernal pool complexes, resulting in greater environmental impacts. It would also result in substantial displacement of residential units. In addition, this alternative was not carried forward because the additional travel time would severely affect the ability of the Authority to meet the overall travel time requirements between Los Angeles and San Francisco, and therefore it would not meet the Purpose and Need. This alternative would not be prudent per 23 C.F.R. 774.17 because, after reasonable mitigation, it would not meet Purpose and Need, would still result in severe impacts on established communities and environmental resources protected under other federal statutes (threatened and endangered species), and would result in additional construction, maintenance, or operational costs of an extraordinary magnitude.

The remaining wye alternatives identified and evaluated in the alternatives screening process all include east-west alignments that would cross Robertson Boulevard and would have similar or the same impacts on the Robertson Boulevard Tree Row as those carried forward for further analysis in this Final Supplemental EIR/EIS. The evaluation of localized Avoidance Alternatives is discussed in Section 4.7.1, Shifted Alignment, and Section 4.7.2, Profile Variation.

All Central Valley Wye alternatives would result in the use of one Section 4(f) resource (the Robertson Boulevard Tree Row). In addition, the Authority has made a Section 4(f) *de minimis* determination for the Chowchilla Canal. In a March 16, 2018 letter to the SHPO, the Authority both sought SHPO's consultation on its finding of no adverse effect under Section 106 and advised the SHPO of its intended Section 106 *de minimis* impact determination for this resource. The SHPO provided written concurrence on the Authority's Section 106 finding of no adverse effect in April 2018 correspondence with the Authority. As discussed in the Final Section 4(f)/6(f) Evaluation prepared for the Merced to Fresno Section, all HSR alternatives would result in a Section 4(f) use of the Robertson Boulevard Tree Row because the Central Valley Wye alternatives considered at the time would cross the tree row perpendicularly to reach the eastern portions of the alignment in order to avoid crossing through Chowchilla. The alternatives pass near Chowchilla because SR 152 is the main east/west transportation corridor through the region and is a preferred corridor for analysis. The following discussion describes localized Avoidance Alternatives aimed at avoiding the Robertson Boulevard Tree Row.

4.7.1 Shifted Alignment

The Robertson Boulevard Tree Row lines Robertson Boulevard, which is a north-south oriented roadway that is also a major transportation corridor in the region. Because the Central Valley Wye is the east-west connection between the Central Valley and the San Francisco Bay Area, as described in Chapter 1, Introduction, Purpose, Need, and Objectives, all of the Central Valley Wye alternatives must include an east-west alignment. It would be possible to avoid the Robertson Boulevard Tree Row completely if the east-west portions of the Central Valley Wye alternatives were shifted several miles to the north or several miles to the south of Chowchilla. However, as described in Chapter 4 of the Merced to Fresno Final EIR/EIS (Authority and FRA 2012a: Section 4.8.1.7, Robertson Boulevard Tree Row, page 4-52), all previously considered alternatives that would avoid the Robertson Boulevard Tree Row, including the SR 140 Wye Alternative and the South of Grasslands Ecological Area Wye Alternative described in Section 4.7, Avoidance Alternatives, were found to not be prudent because they would add length of track resulting in impacts on sensitive wildlife habitat and additional travel time and cost (Authority and FRA 2012a: page 4-52). In addition, an alternative that avoids the Robertson Boulevard Tree Row by shifting the east-west alignment well to the north or south of Chowchilla would include running the Central Valley Wye through areas that contain substantial farming operations and would affect this agricultural land. Even if the east-west portion of the Central Valley Wye could be shifted to avoid the Robertson Boulevard Tree Row, it would not be feasible for the north-south portion of the Central Valley Wye alternatives to avoid a perpendicular crossing of Robertson Boulevard. Accordingly, shifting the alignment of the east-west portion of the Central Valley Wye alternatives would not be prudent or feasible.

4.7.2 Profile Variation

Designs that would either raise the profile of the Central Valley Wye alternatives over Robertson Boulevard or that would lower the profile below Robertson Boulevard have been explored in the development of the Central Valley Wye alternatives design. The following describes the design complications associated with such options as well as the potential for increased impacts, costs, and other conflicts associated with changing the profile of the proposed Central Valley Wye alternatives design.

4.7.2.1 Clear Span Structure over Robertson Boulevard Tree Row

Design of a structure over Robertson Boulevard would present substantial challenges because of the height required to clear the roadway—currently a raised structure over SR 152—while still providing safe operational conditions. The structure required to span over Robertson Boulevard would consist of approximately 1,200 feet of span structure and an additional 2.6 miles of alignment on a raised embankment in order to clear the tallest trees. Such a structure would require columns that are of a height that exceeds typical design guidelines for HSR operations and would result in substantial changes in the visual environment and rural setting surrounding Robertson Boulevard. In addition, the amount of land required to construct and maintain the structure would increase beyond current design by approximately 20 percent in the areas surrounding the crossing at Robertson Boulevard and the associated embankment on each side of the crossing. This design option would cost approximately \$132 million, adding approximately \$66 million to the project cost.

These design changes would increase impacts on agricultural resources, including the potential conversion of agricultural land to a nonagricultural use. Under the SR 152 (North) to Road 11 Wye Alternative, an aerial alignment over Robertson Boulevard may not be feasible because of the proximity of the Merced to Fresno crossover track, which would not provide adequate space for turnout and switching facilities if the portion of the alignment directly east of the crossover were on a raised structure. For these reasons, the Authority has determined that a clear span structure over the Robertson Boulevard Tree Row would not be prudent.

4.7.2.2 Tunnel under Robertson Boulevard Tree Row

A tunnel option design that would avoid use of the Robertson Boulevard Tree Row would involve the excavation of cut trench and bored tunnel under Robertson Boulevard, the length of which would vary by alternative. Lowering the alignment to provide sufficient clearance for a tunnel would involve the reconfiguration of the alignments, and depending on the alternative, may require additional tunneling to avoid other environmental or structural constraints (e.g., sloughs, other HSR crossings) and the reconfiguration of additional intersections. For example, there is not sufficient distance for the San Jose to Fresno leg of the SR 152 (North) to Road 13, SR 152 (North) to Road 19, and SR 152 (North) to Road 11 Wye Alternatives to change profile from below grade to an aerial structure over Berenda Slough. A tunnel below Berenda Slough would therefore be required, which would present both environmental and engineering feasibility concerns. Additionally, under all four alternatives, a tunnel under Robertson Boulevard Tree Row would require the Bethel and Berenda Canals to be rerouted or siphoned under the depressed tracks, presenting additional feasibility concerns and resulting in impacts on surface-water resources.

Under the Avenue 21 to Road 13 Wye Alternative, there is not sufficient distance to change the profile to go over Road 14 on aerial structure. Therefore, the Road 14 crossing would need to be converted into an interchange and, because of the proximity of the Merced to Fresno alignment, the interchange would be extremely high to clear the alignment and would require an additional structure south along Road 14 to cross Berenda Slough. Such a design would result in additional aesthetic and visual quality impacts, and require more land to construct the additional structures. The cost associated with this design option would be approximately \$347 million, which would add approximately \$281 million to the overall cost of the Central Valley Wye alternatives.

Under all alternatives, tunneling under the Robertson Boulevard Tree Row would require more land to be acquired for construction and operations, and would result in additional environmental

impacts on water features and natural habitats. Substantial amounts of soil would be removed, the export and storage of which would be considerable, resulting in additional air quality, cultural, and potential hazardous materials impacts. In addition, property acquisition required for the trenched entrances of the tunnel would increase current property requirements by approximately 45 percent, resulting in impacts on agricultural resources. For these reasons, the Authority has determined that a tunnel under the Robertson Boulevard Tree Row would not be prudent. Additionally, after substantial analysis of the design, there is no clear indication that such a tunnel would be feasible from an engineering perspective under any Central Valley Wye alternative, given other road crossing, alignment crossing, and canal constraints.

Greater detail on alternatives considered but dismissed is provided in the Statewide Program EIR/EIS (Authority and FRA 2005), the *Merced to Fresno Section Preliminary Alternatives Analysis Report* (Authority and FRA 2010a), the *Merced to Fresno Section Supplemental Alternatives Analysis Report* (Authority and FRA 2011a), and the *San Jose to Merced Section Supplemental Alternatives Analysis Report* and attachments (Authority and FRA 2011b).

4.8 Planning Measures to Minimize Harm

Measures to minimize harm include measures that were taken during project planning to avoid or minimize impacts as well as mitigation and enhancement measures to compensate for unavoidable impacts. Table 4-4 lists the preliminary measures identified by the Authority to minimize harm, as required by Title 49 U.S.C. section 303(c)(2), that would be incorporated into the Central Valley Wye alternatives to address the impacts of the alternatives. The FRA and the Authority coordinated with the SHPO, and the Authority is continuing to coordinate with the SHPO, as appropriate. During the Authority's consideration of its decision and during final design, additional measures to minimize harm may be agreed on to further reduce potential impacts on Section 4(f) properties.

For impacts on historic properties, the Programmatic Agreement (Authority and FRA 2011c) between the SHPO, the ACHP, the Authority, and the FRA outlines an approach for compliance with Section 106 of the NHPA. The Authority must address the treatment of adverse effects on the built environment from the proposed Central Valley Wye alternatives under the Memorandum of Agreement (FRA et al. 2012) prepared for the Merced to Fresno Section. The process for addressing a change in undertaking is described in the Memorandum of Agreement, Stipulation V.D. (FRA et al. 2012), which states:

To address changes in the Undertaking or the treatment of historic properties affected by the Undertaking, the Authority may propose revisions to one or both historic property treatment plans to the other parties to this Amended MOA. Upon written concurrence of the SHPO, the Authority in coordination with FRA and STB [U.S. Surface Transportation Board] may revise the plan(s) to incorporate the agreed-upon changes without executing a formal amendment to the MOA.

Although changes to the MOA are not anticipated at this time, if such changes to the MOA are determined to be necessary, amendments to the treatment plans (i.e., the archaeological treatment plan and built environment treatment plan) would be developed for the Central Valley Wye alternatives before the Authority would commence an amendment to the MOA. The measures and processes stipulated in the Memorandum of Agreement would be described in detail in the amended *Merced to Fresno Built Environment Treatment Plan* (FRA et al. 2012). Proposed measures to minimize harm for all historic properties are listed together in Table 4-4; measures pertaining to each individual historic property are outlined in Section 3.17. As described, the Central Valley Wye alternatives include all possible planning to minimize harm to Section 4(f) properties resulting from use, as required by Title 49 U.S.C. section 303(c)(2). The evaluation of impacts presented in this section is based on 15 percent engineering design. During final design, the number of trees anticipated for removal may be reduced.

General measures that would minimize harm to all potentially affected properties as a result of noise or visual intrusion are listed in Section 3.4, and Section 3.16, Aesthetics and Visual

Resources. While these measures would apply to all discussed Section 4(f) resources, they are not repeated in Table 4-4.

Table 4-4 Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Chowchilla Canal (Officials with Jurisdiction: SHPO)	
Reconstruction of 400 linear feet of the canal	Proposed culvert would be designed to withstand anticipated operations vibration from the HSR to minimize potential vibration-related harm to the historic structural material. Final design would continue to strive to minimize construction impacts on the canal.
Robertson Boulevard Tree Row (Officials with Jurisdiction: SHPO)	
Tree removal and visual intrusion	The BETP currently identifies protective measures for any substantially affected historic properties. Mitigation commitments include, but are not limited to, pre-construction condition assessments, a plan for protection, a response plan for unanticipated effects, relocation of selected trees and replacement in kind of any trees that would not survive relocation, interpretive materials, weekly assessments during construction, and a post-construction conditions assessment. The BETP has been amended and SHPO concurred with the amendment to add a commitment for the Authority to refine the design to further minimize the number of trees affected. Further, the SHPO would be asked to review and comment on the design as it is developed.

Source: Authority, 2012b, 2019

SHPO = State Historic Preservation Office(r) HSR = high-speed rail
Authority = California High-Speed Rail Authority BETP = Built Environment Treatment Plan

4.9 Section 4(f) Least Overall Harm Analysis

When no feasible and prudent avoidance alternative to using Section 4(f) resources is possible, the Authority must approve the alternative that causes the least overall harm to Section 4(f) resources, taking into consideration the preservationist purpose of the statute. To ascertain which alternative would cause the least overall harm, the Authority considers seven factors. These factors are listed in Table 4-5.

The first four factors relate to the net harm that each alternative would cause to Section 4(f) property. The remaining three factors take into account concerns with the alternatives that are not specific to Section 4(f). The evaluation of each of these factors is documented in Table 4-5. The three factors that relate to resource issues or other topics not specific to Section 4(f) are discussed in other chapters and sections of this Final Supplemental EIR/EIS. For example, the purpose and need is discussed in Chapter 1; impacts on other resources not protected by Section 4(f) are discussed in the relevant resource and impact discussions in Chapter 3, Affected Environment, Environmental Consequences, and Mitigation Measures; and capital costs are discussed in Chapter 6, Project Costs and Operations.

There is no feasible and prudent avoidance alternative to the use of one Section 4(f) property, the Robertson Boulevard Tree Row, regardless of which Central Valley Wye alternative is selected. All Central Valley Wye alternatives would affect the Robertson Boulevard Tree Row in differing locations and to varying degrees.

4.9.1 Least Harm Analysis for the Central Valley Wye Alternatives

Because all four Central Valley Wye alternatives would result in a Section 4(f) use of the Robertson Boulevard Tree Row, the Authority has completed the following least harm analysis. Table 4-5 shows the Section 4(f) property that would incur a use as a result of the Central Valley Wye alternatives and characterizes each alternative using the seven least harm analysis factors.

All of the Central Valley Wye alternatives would affect the Robertson Boulevard Tree Row with varying degrees of severity. Though each alternative would affect the Robertson Boulevard Tree Row, the impact would differ in terms of numbers of trees that would need to be removed and in which locations would be affected. Based on the analysis of all of the factors contained in Table 4-5 and in light of the preservationist purpose of Section 4(f), the Authority has determined that the SR 152 (North) to Road 11 Wye Alternative would result in the least overall harm to properties protected by Section 4(f).

Table 4-5 Least Harm Analysis for the Robertson Boulevard Tree Row

Least Harm Factor	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
Factor 1: The ability to mitigate adverse impacts on each Section 4(f) property (including any measures that result in benefits to the property).	Impacts on trees would be mitigated in a similar manner under all alternatives; remaining tree row segments would retain integrity.	Impacts on trees would be mitigated in a similar manner under all alternatives; remaining tree row segments would retain integrity.	Impacts on trees would be mitigated in a similar manner under all alternatives; remaining tree row segments would retain integrity.	Impacts on trees would be mitigated in a similar manner under all alternatives; remaining tree row segments would retain integrity.
Factor 2: The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection.	Given the location of the alternative, along the SR 152/ Robertson Boulevard interchange where 1,700 linear feet of trees have already been removed as part of the interchange construction, this alternative would avoid the portions of Robertson Boulevard with more continuity of trees and strong historical integrity. This alternative would disrupt the second-highest linear feet of the tree row (approximately 4,516 linear feet) with the largest amount taken at an existing gap, and two smaller amounts (632 and 920 linear feet) taken where there is currently not a gap.	The impacts on Robertson Boulevard by the SR 152 (North) to Road 19 Wye Alternative would result in approximately the same impacts as the SR 152 (North) to Road 13 Wye Alternative, and would disrupt the second-lowest linear feet of the tree row (approximately 4,428 linear feet), have the second-highest total amount of the historic site incorporated into the project (6,128 linear feet), and would introduce two new gaps (920 and 682 linear feet) and expand an existing gap.	This alternative would disrupt the most linear feet of the tree row (approximately 5,590 linear feet) entirely in two locations where the tree row otherwise maintains strong historical integrity. This alternative would introduce a very large gap in the row of trees (4,925 linear feet) where there is not currently a gap, plus one smaller gap (665 linear feet), which, when added to a large existing third gap at SR 152, would result in the highest relative severity of remaining harm on the Robertson Boulevard Tree Row.	The impacts on Robertson Boulevard by the SR 152 (North) to Road 11 Wye Alternative would disrupt the fewest linear feet of the tree row (approximately 4,088 linear feet) as a result of construction and the same number of total gaps in the Robertson Boulevard Tree Row as the other SR 152 alternatives: the introduction of two smaller gaps and expansion of one existing gap.
Factor 3: The relative significance of each Section 4(f) property.	The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Therefore, there is no differentiation in significance between the Central Valley Wye alternatives.	The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Therefore, there is no differentiation in significance between the Central Valley Wye alternatives.	The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Therefore, there is no differentiation in significance between the Central Valley Wye alternatives.	The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Therefore, there is no differentiation in significance between the Central Valley Wye alternatives.

Least Harm Factor	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
<p>Factor 4: The views of the official(s) with jurisdiction over each Section 4(f) property.</p>	<p>The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Consultation with the SHPO resulted in a finding of adverse effect on the Robertson Boulevard Tree Row. Therefore, there is no differentiation in the view of the SHPO between the various Central Valley Wye alternatives.</p>	<p>The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Consultation with the SHPO resulted in a finding of adverse effect on the Robertson Boulevard Tree Row. Therefore, there is no differentiation in the view of the SHPO between the various Central Valley Wye alternatives.</p>	<p>The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Consultation with the SHPO resulted in a finding of adverse effect on the Robertson Boulevard Tree Row. Therefore, there is no differentiation in the view of the SHPO between the various Central Valley Wye alternatives.</p>	<p>The same resource, the Robertson Boulevard Tree Row, would be affected under each Central Valley Wye alternative. Consultation with the SHPO resulted in a finding of adverse effect on the Robertson Boulevard Tree Row. Therefore, there is no differentiation in the views of the SHPO between the various Central Valley Wye alternatives.</p>
<p>Factor 5: The degree to which each alternative meets the Purpose and Need for the project.</p>	<p>The SR 152 (North) to Road 13 Wye Alternative would achieve the second-best travel time of the alternatives. As described in Chapter 2, travel time under this alternative would be 23:20 minutes from San Jose to Fresno, 16:17 minutes from Merced to Fresno, and 17:52 minutes from San Jose to Merced.</p>	<p>The SR 152 (North) to Road 19 Wye Alternative would have the worst travel time of the alternatives, particularly on the San Jose to Merced leg, the key leg in achieving the project objective of travel from Los Angeles to San Francisco in 2 hours and 40 minutes. As described in Chapter 2, travel time under this alternative would be 23:20 minutes from San Jose to Fresno, 17:35 minutes from Merced to Fresno, and 22:05 minutes from San Jose to Merced.</p>	<p>The Avenue 21 to Road 13 Wye would achieve the third-best travel time of the alternatives. As described in Chapter 2, travel time under this alternative would be 23:24 minutes from San Jose to Fresno, 16:47 minutes from Merced to Fresno, and 18:43 minutes from San Jose to Merced.</p>	<p>The SR 152 (North) to Road 11 Wye Alternative best meets the Purpose and Need of the Central Valley Wye alternatives, as it would have marginally better travel time than the other three Central Valley Wye alternatives. As described in Chapter 2, travel time under this alternative would be 23:20 minutes from San Jose to Fresno, 16:31 minutes from Merced to Fresno, and 17:20 minutes from San Jose to Merced.</p>
<p>Factor 6: After reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f).</p>	<p>The SR 152 (North) to Road 13 Wye Alternative would result in the second-most temporary impacts on waters of the United States (9.95 acres), second-most permanent impacts on acres of waters of the United States (29.26 acres), would permanently convert the second-least amount of agricultural resources (2,385 acres), and would result in the second-lowest number</p>	<p>The SR 152 (North) to Road 19 Wye Alternative would result in the most temporary impacts on acres of waters of the United States (10.17 acres), second-fewest permanent impacts on waters of the U.S. (27.40 acres), would permanently convert the most agricultural resources (2,537 acres), and would result in the fewest single-family residences</p>	<p>The Avenue 21 to Road 13 Wye Alternative would result in the second-fewest temporary impacts on waters of the United States (9.73 acres), most permanent impacts on acres of waters of the United States (35.96 acres), would permanently convert the second-most acres of agricultural resources (2,467 acres), and would result in the most single-family</p>	<p>The SR 152 (North) to Road 11 Wye Alternative would result in the fewest temporary (7.26 acres) and permanent impacts (22.72 acres) on waters of the United States, would permanently convert the fewest acres of agricultural resources (2,337 acres¹), and would result in the second-most single-family residences severely</p>

Least Harm Factor	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
	of single-family residences severely affected by noise during operations (27 residences).	severely affected by noise during operations (23 residences).	residences severely affected by noise during operations (39 residences).	affected by noise during operations (35 residences).
Factor 7: Substantial differences in costs among the alternatives.	The SR 152 (North) to Road 13 Wye Alternative would have the second-highest capital costs, \$3.834 billion (2015 dollars).	The SR 152 (North) to Road 19 Wye Alternative would have the highest capital costs, \$4.208 billion (2015 dollars).	The Avenue 21 to Road 13 Wye Alternative would have the second-lowest capital costs, \$3.765 billion (2015 dollars).	The SR 152 (North) to Road 11 Wye Alternative would have the lowest capital costs, \$3.613 billion (2015 dollars).
Summary	The SR 152 (North) to Road 13 Wye Alternative would result in the disruption of the second-fewest linear feet of the Robertson Boulevard Tree Row, with the largest amount taken at an existing gap, and two smaller amounts taken where there currently is not a gap. This alternative would have the second-shortest travel time of the alternatives. It also would affect the second-fewest acres of agricultural land. However, this alternative would result in the second-most permanent impacts on waters of the United States and would have the second-highest capital costs.	The SR 152 (North) to Road 19 Wye Alternative would result in the disruption of the second-fewest linear feet of the Robertson Boulevard Tree Row, with the largest amount taken at an existing gap, and two smaller amounts taken where there currently is not a gap. This alternative would have the longest travel time of the alternatives, would have the most impact on agricultural resources, would result in the most temporary impacts on waters of the United States, and would have the highest capital costs.	The Avenue 21 to Road 13 Wye Alternative would result in the disruption of the most linear feet of the Robertson Boulevard Tree Row, with the largest amount taken where the tree row otherwise maintains strong historical integrity, and would introduce one smaller gap, which, when added to a large existing third gap at SR 152, would result in the highest relative severity of remaining harm on the Robertson Boulevard Tree Row. This alternative would achieve the third-shortest travel time of the alternatives, would permanently convert the second-most acres of agricultural resources, and would result in the most permanent impacts on waters of the United States. It would have the second-lowest capital costs.	The SR 152 (North) to Road 11 Wye Alternative would result in the disruption of the fewest linear feet of the Robertson Boulevard Tree Row, with the largest amount taken at an existing gap, and two smaller amounts taken where there currently is not a gap. This alternative would have the shortest travel time of the alternatives, would permanently convert the fewest acres of agricultural resources and result in the fewest permanent impacts on waters of the United States. This alternative would also have the lowest capital costs. The SR 152 (North) to Road 11 Wye Alternative would cause the least overall harm.

Source: 23 C.F.R. 774.3(c) (Factors 1 through 7)

APE = Area of Potential Effect

SR= State Route

SHPO = State Historic Preservation Office(r)

RSA = resource study area

¹ This value has been updated to reflect refinements to the Site 6 electrical interconnection. Refer to Section 2.2.3, Description of the Central Valley Wye Alternatives.

4.9.2 Net Harm to Section 4(f) Property

Factors one through four in Table 4-5 consider the net harm that each alternative would cause to a Section 4(f) property. Generally, all four Central Valley Wye alternatives would have a similar potential level of harm to the Robertson Boulevard Tree Row because unavoidable adverse effects would occur under each of the alternatives analyzed; therefore, there is little to no differentiation among the alternatives related to harm to Section 4(f) resources.

Based on SHPO consultation, the SR 152 (North) to Road 11 Wye Alternative has been deemed least harmful to the Robertson Boulevard Tree Row because, as with the other SR 152 alternatives, it would result in the fewest linear feet of disruption to the tree row, and the greatest disruption would occur at a location that has been previously disturbed, with two smaller amounts taken where there currently is not a gap. After considering all the factors in Table 4-5, the SR 152 (North) to Road 11 Wye Alternative would result in fewer overall impacts on properties protected by Section 4(f). Harm to the Robertson Boulevard Tree Row would be further reduced as the final design is refined. The Built Environment Treatment Plan has been amended to add a commitment for the Authority and design contractor to refine the design to further minimize the number of trees affected. Further, the SHPO would be asked to review and comment on the design as it is developed, and additional opportunities may be identified to further reduce harm through this consultation. SHPO concurred with the amendment to the Built Environment Treatment Plan in May 2018. General measures that would minimize harm to all potentially affected properties as a result of noise or visual intrusion are listed in Section 3.4 and Section 3.16.

4.9.3 Impacts on Environmental Resources Outside of Section 4(f) Uses

Factors five through seven in Table 4-5 provide comparison with non-Section 4(f) considerations and are helpful in determining overall least harm where the impacts on the Section 4(f) qualifying attributes of the resources do not provide a clear distinction. Generally, the SR 152 (North) to Road 11 Wye Alternative would best meet the Purpose and Need of the Central Valley Wye alternatives, as it would have the shortest travel time of the four Central Valley Wye alternatives, would incur the lowest capital costs, would result in the fewest acres of impact on agricultural land, and would result in the fewest permanent impacts on waters of the United States. Based on this information, the Authority has determined that the SR 152 (North) to Road 11 Wye Alternative would have the least overall harm to resources not protected by Section 4(f).

4.10 Final Section 4(f) Determination

Based upon the above considerations, the Authority has determined that there is no feasible and prudent alternative to the use of land from the Robertson Boulevard Tree Row, and the proposed action includes all possible planning to minimize harm to the Robertson Boulevard Tree Row resulting from such use.

In addition, the Authority has made a *de minimis* determination for the Chowchilla Canal. This determination was based on the Authority's Section 106 consultation with the SHPO, with SHPO's written concurrence on the Section 106 determination received in April 2018.

4.11 Section 6(f)

The purpose of the LWCF Act is to assist in preserving and developing accessibility to outdoor recreation resources and to strengthen the health and vitality of the citizens of the United States by providing funds, planning, acquisition, and development of facilities. Recreation facilities awarded such funds are subject to the provisions of this act. The LWCF Act's most important tool for establishing long-term stewardship is its "conversion protection" requirement. Section 6(f)(3) strongly discourages conversions of state and local park and recreation facilities to other uses. Conversion of property acquired or developed with assistance under the program requires approval of the NPS and substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

Section 6(f)(3) of the LWCF Act requires that no property acquired or developed with LWCF assistance be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior, only if the Secretary finds it to be in accord with the then-existing Statewide Comprehensive Outdoor Recreation Plan, and only upon such conditions as the Secretary deems necessary so that recreation properties are substituted with other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location (pursuant to 36 C.F.R § 59). Section 6(f) conversion requires additional coordination with the agency of jurisdiction and California State Parks, which oversees the LWCF program for the NPS, and the NPS regarding the project impacts and conversion area and replacement property.

The LWCF Detailed Listing of Grants with County Totals datasets website (LWCF n-d) was investigated for each county within the Central Valley Wye alternatives RSA. No Section 6(f)-protected properties were identified as part of this review. Therefore, the Central Valley Wye alternatives would not result in any Section 6(f) impacts associated with the Central Valley Wye alternatives.