4.0 Draft Section 4(f)/6(f) Evaluation

4.1 Introduction

This chapter provides the analysis to support preliminary determinations necessary to comply with the provisions of 49 U.S.C. 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)"). Section 4(f) properties are publicly owned parks, recreation areas, or wildlife and waterfowl refuges or properties of a historical site of national, state, or local significance as determined by the federal, state, regional, or local officials having jurisdiction over the resource. Under Section 4(f) an operating administration of the U.S. Department of Transportation may not approve a project that uses protected use properties unless there are no prudent of feasible alternatives and the project includes all possible planning to minimize harm to such properties.

Section 6(f) properties are recreation resources funded by the LWCF Act. Land purchased with these funds cannot be converted to a non-recreation use without coordination with the National Park Service (NPS) and mitigation that includes replacement of the quality and quantity of land used. Additional information on publicly owned parklands, recreation lands, wildlife and waterfowl refuges, and historic sites is provided in Section 3.15, Parks, Recreation, and Open Space; Section 3.17, Cultural Resources; and the *Merced to Fresno Section Historic Properties Survey Report* (Authority and FRA 2011a).

This chapter describes the statutory requirements associated with Section 4(f) and Section 6(f) and identifies the potential protected properties in the project area; the use of those properties that would result from the Merced to Fresno Section of the HST project; feasible and prudent alternatives that would avoid or minimize use of the properties; measures to minimize harm; and mitigation measures that have been considered.

4.1.1 Study Area

The study area as defined below identifies the Section 4(f) and Section 6(f) properties considered for evaluation. Figure 4-1 depicts the Merced to Fresno Section of the HST System.

4.1.1.1 Public Park and Recreation Lands and Wildlife and Waterfowl Refuges

The study area for public park and recreation lands and wildlife and waterfowl refuges, as defined for analysis in Section 3.15, Parks, Recreation, and Open Space, is 1,000 feet on either side of the north-south alignments and wyes and 0.5 mile around the HMF, station areas, and support facilities such as power substations for the HST alternatives, with one exception—existing transportation corridors. In those areas where these resources are separated from the project element by the existing transportation corridors of SR 99 and the UPRR right-of-way, the 1,000-foot study area does not extend beyond these transportation rights-of-way because they provide a barrier to potential impacts on park and recreation resources.

4.1.1.2 Historic Properties

Because this project is a federal undertaking, 36 CFR 800.4(a)(1) requires establishing a project Area of Potential Effects (APE). The APE is the geographic area or areas within which an undertaking may directly or indirectly alter the character or use of historic properties, if any such properties exist.

The California State Historic Preservation Officer (SHPO) concurred with the initial version Merced to Fresno Section APE on August 16, 2010, prior to the refinement of alternatives. The initial APE was defined as a band centered on the project alternatives, expanding approximately 250 feet on either side of the centerline. The APE included the footprint of actual facilities that would be built (e.g., tracks, stations, switchyards, and maintenance facilities). The resulting APE along the UPRR/SR 99 Alternative

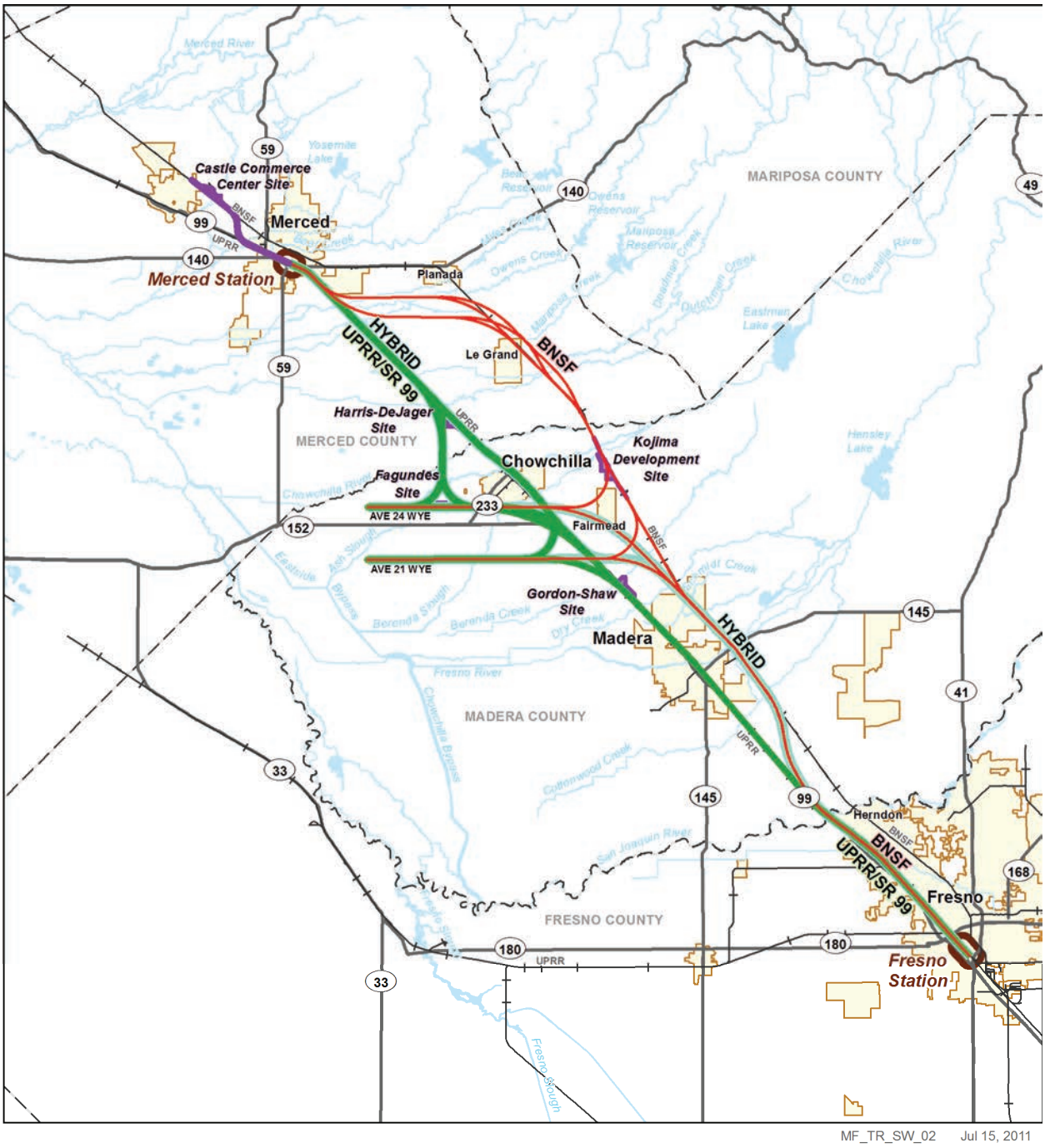


Figure 4-1
Project Location Map

ranged from 100 feet to 2,500 feet wide. The BNSF Alternative is much narrower, rarely more than 100 feet where it crosses agricultural properties, but expanding to accommodate yards, construction zones, and wider footprints where project engineering makes it necessary. In areas where there were proposed HMF locations, the APE also provided an approximately 250-foot buffer along the outside limits of those proposed facilities.

Following SHPO concurrence with the initial version of the APE, alternatives have been refined and revised. An updated APE based upon current designs and impacts has been prepared and submitted to SHPO for review. The revised APE has been prepared in accordance with the guidance included within Attachment B of the Final Programmatic Agreement (Appendix 3.17-A). All cultural resources studies to support this Draft Section 4(f) Evaluation (Historic Properties Survey Report, Historic Architectural Survey Report, and Archaeological Survey Report (Authority and FRA 2011a,b,c, respectively) have been undertaken within this updated APE. The APE for archaeological and architectural resources is described below:

Archaeological APE

The APE for archaeological sites is the area of ground proposed to be disturbed during construction of the undertaking, including grading, cut-and-fill, easements, staging areas, utility relocation, borrow pits, and biological mitigation areas (not yet defined).

Historic APE

The APE for historic architectural properties includes all properties that contain buildings, structures, objects, sites, landscapes, and districts more than 50 years of age at the time the intensive survey was completed (2010) as follows:

- Properties within the proposed construction footprint.
- 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 that would be the basis for their eligibility for listing in the National Register.
- Properties near the undertaking that were either used by a railroad, served by a railroad, or where railroad materials, features, and activities have long been part of their historic setting, but only in such cases where the undertaking would result in a substantial change from the historic use, access, or noise and vibration levels that were present 50 years ago, or during the period of significance of a property, if different.
- The revised APE limits are the result of updated project understanding as well as ongoing field efforts that clarify the ability for individual properties to meet the above stipulations. This analysis is based on 15% design development. As possible future project revisions take place, updated APE maps would be produced and authorized as per the stipulations of the Draft Programmatic Agreement with the SHPO.

4.1.2 Laws, Regulations, and Orders

This section includes the federal laws and regulations that pertain to Sections 4(f) and 6(f) properties in the study area.

4.1.2.1 Federal

The project is an intercity passenger rail project that is receiving federal funding through the FRA. Therefore, compliance with Section 4(f) is required. Whereas Section 4(f) applies only to programs and policies undertaken by the U.S. Department of Transportation, Section 6(f) applies to programs and policies of any federal agency and is therefore relevant here.

U.S. Department of Transportation Act 49 U.S.C. 303(c) [Section 4(f)]

Compliance with Section 4(f) is required for transportation projects that are undertaken by an operating administration of the U.S. Department of Transportation or that may receive federal funding and/or discretionary approvals. 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. FRA's Procedures for Considering Environmental Impacts (64 FR 25445, May 26, 1999) contains FRA process and protocols for analyzing the potential use of Section 4(f) protected properties. In addition, although not subject to Title 23 Section 774 regarding Section 4(f) for highway and transit projects, FRA uses this regulation as additional guidance regarding the requirements established in 49 U.S.C. 303.

FRA may not approve the use of a Section 4(f) property, as defined in 49 U.S.C. 303(c), 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 the project has a *de minimis* impact according to 49 U.S.C. 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 not prudent, the FRA may consider if the alternative will result in any of the following:

- Compromising 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, 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; or
- Multiple factors that, while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

If there is no prudent and feasible alternative, the project must include all possible planning to minimize harm to the site, which includes all reasonable measures to minimize harm or mitigate impacts (49 U.S.C. 303(c)(2)). After making a preliminary 4(f) determination and identifying the reasonable measures to minimize harm, FRA may also compare the alternatives to determine which alternative has the potential to cause the least overall harm. 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;

- 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); and
- Substantial differences in costs among the alternatives.

Land and Water Conservation Fund Act of 1965, Public Law 88-578, Title 16, United States Code

The purpose of the LWCF Act is to assist in preserving, developing, and ensuring accessibility to outdoor recreation resources as 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's most important tool for ensuring 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.

4.1.3 Section 4(f) Use Definition

A "use" of a Section 4(f) resource occurs in the following circumstances:

1. When the protected property is permanently incorporated into a transportation facility – this is known as a "permanent use";
2. When there is a temporary occupancy of Section 4(f) property that is adverse in terms of the statute's preservationist purpose – this is known as a "temporary use"; or
3. When the transportation project does not incorporate land, but its proximity results in impacts (e.g., noise, vibration, visual, access, ecological) that substantially impair the activities, features, or attributes that qualify a resource for protection under Section 4(f) – this is known as a "constructive use." Substantial impairment occurs only if the protected activities, features, or attributes of the resource are diminished. This determination is made through the following analysis:
   - 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.

In addition, it is important to note that erecting a structure over a Section 4(f) property, and thus requiring an air lease, does not in and of itself constitute a use unless a constructive use is present.

4.1.3.1 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 use, as noted below.

4.1.3.2 Temporary Use

A temporary use of a Section 4(f) resource occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purposes of the Section 4(f) statute. A temporary occupancy of 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 prior to the proposed project.
- There must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

4.1.3.3 Constructive Use

A constructive use of a Section 4(f) resource occurs when a transportation project does not permanently incorporate land from the 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 diminished. This determination is made through the following:

- 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.

In addition, it is important to note that erecting a structure over a Section 4(f) property, and thus requiring an air lease, does not in and of itself constitute a use unless a constructive use is present.

4.1.3.4 *De Minimis* Impact

According to 49 U.S.C. 303(d), the following criteria must be met to reach a *de minimis* impact determination):

- For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact determination may be made if a 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
  - Written concurrence received from the officials with jurisdiction over the property.
- For a historic site, a *de minimis* impact determination may be made only if, in accordance with the Section 106 process of the National Historic Preservation Act and written concurrence from the SHPO, it is found that the transportation program or project will have no effect or no adverse effect on historic properties. In addition, FRA will inform these officials of its intent to make a *de minimis* impact determination based on their concurrence in the finding of “no adverse effect” or “no historic properties affected.”

4.1.3.5 Section 4(f) Applicability

A park qualifies for protection under Section 4(f) if: (1) the property is publicly owned, (2) the park is open to the general public, (3) it is being used for outdoor recreation, and (4) it is considered significant

by the authority with jurisdiction. The park must be publicly owned at the point at which "use" occurs. A historic site on or eligible for the NRHP qualifies for protection under Section 4(f) and a use may occur if land from the site is permanently or temporarily incorporated into the project. If a project does not physically take (permanently incorporate) historic property but causes an adverse effect, the proximity impacts must be evaluated to determine if the proximity impacts will substantially impair the features or attributes that contribute to the National Register eligibility of the historic site or district. While the statutory requirements of Section 106 and Section 4(f) are similar, even if a proposed action results in an "adverse effect" under Section 106, there will not automatically be a Section 4(f) "use" absent a separate analysis and determination by FRA.

In order for a cultural resource to be protected by Section 4(f), it must be eligible for the National Register under specific criteria. Specifically, archaeological sites whose importance as a resource can be documented through a data recovery process alone are not protected under Section 4(f). In other words, Section 4(f) does not apply to a site if, a federal agency, after consultation with the SHPO and the appropriate Native American Tribes and/or Tribal Historic Preservation Officer (THPO), concludes that the archaeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place.

The NHPA provides specific criteria to assist in making this determination. An archaeological resource that is eligible only under NHPA "Criterion D" is considered valuable only in terms of the data that can be recovered from it. For such resources (such as pottery scatters and refuse deposits), it is generally assumed that there is minimal value attributed to preserving such resources in place. Conversely, resources eligible under Criteria A, B, and/or C are considered to have value intrinsic to the resource's location.

4.2 Coordination

49 U.S.C. 303(b) requires cooperation and consultation with the Secretary of the Interior (and the Secretaries of Housing and Urban Development and Agriculture, if appropriate) and the states in development of transportation plans. Throughout the EIR/EIS process, the Authority and FRA consulted with the SHPO, local jurisdictions, the California Department of Fish and Game, and the Native American Heritage Commission and interested tribes. Section 4(f) determinations may be aided by coordination with the SHPO, pursuant to 36 CFR Part 800, and agencies of jurisdiction in identifying Section 4(f) properties and assessing impacts on the properties. Table 4-1 lists the Authority and FRA coordination to date with these agencies. The Authority consulted with the agencies with jurisdiction over the public park properties including the cities of Merced, Madera, and Fresno to discuss potential park impacts. The Authority also coordinated with the California Department of Fish and Game regarding impacts on Camp Pashayan.

Table 4-1
Section 4(f) and 6(f) Evaluation Consultation Summary

Date	Form	Participants	General Topic(s)
January 29, 2009	Meeting	SHPO, Authority, and project consultant staff	Analysis methodology review, mitigation measures from the Program EIR/EIS, developing a Memorandum of Agreement
July 29, 2009	Meeting	SHPO, Authority, and project consultant staff	Area of potential effects, analysis methodology, Program Agreement for the overall HST
December 2, 2009	Letter	Authority to tribes in the Merced to Fresno Section study area	Initiating consultation, providing project background

Date	Form	Participants	General Topic(s)
February 25, 2010	Letter	FRA to tribes	Initiating government-to-government tribal consultation, inviting participation, providing project background
March 17, 2010	Letter	United Auburn Indian Community of the Auburn Rancheria to FRA	Expressing interest in consultation in various HST sections, including the Merced to Fresno Section
March 2010	Letter	Chowchilla Tribe of Yokuts to Authority	Expressing interest in consultation in various HST sections, including the Merced to Fresno Section
May 17, 2010	Meeting	City of Fresno Parks and Recreation staff and project consultant staff	Roeding Park Sections 4(f) and 6(f)
May 18, 2010	Meeting	City of Madera staff and project consultant staff	Sharon Avenue Linear Park and Riverside Park Section 4(f)
May 20, 2010	Telephone	Dumna Wo Wah Tribe and project consultant staff	Information on potential areas of concern
May 27, 2010	Meeting	Dumna Wo Wah Tribe meeting in the field with project consultant staff archaeologist	Information on potential areas of concern
June 28, 2010	Meeting	California Department of Fish and Game staff and project consultant staff	Camp Pashayan Section 4(f) and Title 14
June 28, 2010	Meeting	City of Fresno Planning Department staff and project consultant staff	Roeding Park Sections 4(f) and 6(f)
August 16, 2010	Meeting	Tribes, FRA, Authority staff, project consultant staff	HST project, cultural resource identification
January 28, 2011	Telephone	Merced County Parks Department	Joe Stefani Elementary School (park status)
June 2011	Meeting	Representatives from Dumna, Amah Mutsun, Choinumni Tribes, and Big Sandy Rancheria will be invited, along with FRA, Authority, CH2M HILL, and AECOM.	Consultation Meeting for all interested tribal members

On June 29, 2009, the Authority met with staff of the SHPO to define the APE for the archaeology and historic property evaluation, discuss the method of analysis proposed for all of the Project EIR/EIS documents, and prepare a Programmatic Agreement for the overall HST project. The Authority and FRA consulted with the SHPO regarding eligibility of historic resources for the NRHP and determinations of effect throughout the EIR/EIS process. The SHPO concurred with the Merced to Fresno Section APE defined in Section 4.1.1.2 on August 4, 2010.

The Authority and FRA also consulted with the Native American Heritage Commission for a search of their Sacred Lands file and lists of Native American contacts. The contacts were sent letters providing information about the proposed HST alternatives and requesting information about any traditional cultural properties that could be affected by the project. The Authority and FRA have also met with tribal representatives. Table 4-1 summarizes these consultations.

The Authority and FRA will continue to consult with these agencies and tribal representatives regarding the effects of the project on the features and attributes of Section 4(f) properties and provide opportunity for public comment.

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 effects and conversion area and replacement property. If the alternative selected requires conversion of Section 6(f) property, the Authority and FRA will coordinate with the City of Fresno, California State Parks, and the NPS to establish the value of the converted area and to identify replacement property of at least equal value and function and to provide environmental analysis of development of the replacement property, including opportunity for public comment, as required by Section 6(f)(3).

4.3 Purpose and Need

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

4.3.1 Project Objectives for the HST System in California and in the Central Part of the San Joaquin Valley Region

The Authority's statutory mandate is to plan, build, and operate an HST system coordinated with California's existing transportation network, particularly intercity rail and bus lines, commuter rail lines, urban rail lines, highways, and airports. The Authority has responded to this mandate by adopting the following objectives and policies for the proposed HST System:

- Provide intercity travel capacity to supplement critically overused interstate highways and commercial airports.
- Meet future intercity travel demand that will be unmet by present transportation systems and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit systems, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operations and maintenance costs.

- Provide intercity travel in a manner sensitive to and protective of the region's natural and agricultural resources and reduce emissions and vehicle miles traveled for intercity trips.

The approximately 65-mile-long corridor between Merced and Fresno is an essential part of the statewide HST System. The Merced to Fresno Section is the location where the HST would intersect and connect with the Bay Area and Sacramento branches of the HST System; it would provide a potential location for the HMF where the HSTs would be assembled and maintained as well as a test track for the trains; it would provide Merced and Fresno access to a new transportation mode and would contribute to increased mobility throughout California. Figure 1-1 shows how this section would connect the San Joaquin Valley to the rest of the statewide HST System via Merced County, Madera County, and the northern part of the City of Fresno.

4.3.2 Need for the HST System Statewide and within the Central San Joaquin Valley Region

The need for an HST system exists statewide, with regional areas contributing to this need. Chapter 1 describes the need for the HST System and the Merced to Fresno Section in detail and the following is a summary. 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 demands. 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 that 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 and 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 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 those within the central part of the San Joaquin Valley region.

Geographically, the Merced to Fresno Section is located in the center of California. This region contributes significantly to the statewide need for a new intercity transportation service that will connect it with the major population and economic centers and to other regions of the state.

4.4 Alternatives

Three alternatives in addition to the No Project Alternative are the UPRR/SR 99 Alternative, the BNSF Alternative, and the Hybrid Alternative, which extend between Downtown Merced and Downtown Fresno. All three alternatives would include a station in Downtown Merced and Downtown Fresno. In addition, there are five potential HMF sites and various support facilities such as substations and HMFs. A brief description of the HST alternatives is provided below; Chapter 2, Alternatives, provides a detailed description of all project alternatives, including the No Project Alternative, and other project components and operational characteristics.

4.4.1 No Project Alternative

The No Project Alternative would not include the construction of the HST or any associated facilities, thus it would have no impact on any Section 4(f) or Section 6(f) resources. However, it would not address the state's purpose and need for the 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 does not meet the project purpose and need, it is neither feasible nor prudent, and is not discussed further as an avoidance alternative for any Section 4(f) or Section 6(f) resources.

4.4.2 UPRR/SR 99 Alternative

This section describes the UPRR/SR 99 Alternative, including the Chowchilla design options, wyes, and HST stations.

4.4.2.1 North-South Alignment

The north-south alignment of the UPRR/SR 99 Alternative would begin at the HST station in Downtown Merced, located on the west side of the UPRR right-of-way. South of the station and leaving Downtown Merced, the alternative would be at-grade and cross under SR 99. Approaching the City of Chowchilla, the UPRR/SR 99 Alternative has two design options: the East Chowchilla design option, which would pass Chowchilla on the east side of town, and the West Chowchilla design option, which would pass Chowchilla 3 to 4 miles west of the city before turning back to rejoin the UPRR/SR 99 transportation corridor. These design options would take the following routes:

- **West Chowchilla design option:** This design option would travel due south from Sandy Mush Road north of Chowchilla, following the west side of Road 11¾. The alignment would turn southeast toward the UPRR/SR 99 corridor south of Chowchilla. The West Chowchilla design option would cross over the UPRR and SR 99 east of the Fairmead city limits to again parallel the UPRR/SR 99 corridor. The West Chowchilla design option would result in a net decrease of approximately 13 miles of track for the HST System compared to the East Chowchilla design option and would remain outside the limits of the City of Chowchilla. The West Chowchilla design option connects to the HST sections to the west via the Ave 24 Wye, but not the Ave 21 Wye.

- **East Chowchilla design option:** This design option would transition from the west side of the UPRR/SR 99 corridor to an elevated structure as it crosses the UPRR and N Chowchilla Boulevard just north of Avenue 27, continuing on an elevated structure away from the UPRR corridor along the west side of and parallel to SR 99 to cross Berenda Slough. Toward the south side of Chowchilla, this design option would cross over SR 99 north of the SR 99/SR 152 interchange near Avenue 23½ south of Chowchilla. Continuing south on the east side of SR 99 and the UPRR corridor, this design option would remain elevated for 7.1 miles through the communities of Fairmead and Berenda until reaching the Dry Creek crossing. The East Chowchilla design option connects to the HST sections to the west via either the Ave 24 or Ave 21 wyes (described below).

The UPRR/SR 99 Alternative would continue toward Madera along the east side of the UPRR south of Dry Creek and remain on an elevated profile for 8.9 miles through Madera. After crossing over Cottonwood

Creek and Avenue 12, the HST alignment would transition to an at-grade profile and continue to be at-grade until north of the San Joaquin River. After the alternative crosses the San Joaquin River, it would rise over the UPRR on an elevated guideway, supported by straddle bents, before crossing over the existing Herndon Avenue and again descending into an at-grade profile and continuing west of and parallel to the UPRR right-of-way. After elevating to cross the UPRR on the southern bank of the San Joaquin River, south of Herndon Avenue, the alternative would transition from an elevated to an at-grade profile. Traveling south from Golden State Boulevard at-grade, the alternative would cross under the reconstructed Ashlan Avenue and Clinton Avenue overhead structures. Advancing south from Clinton Avenue between Clinton Avenue and Belmont Avenue, the HST guideway would run at-grade adjacent to the western boundary of the UPRR right-of-way and then enter the HST station in Downtown Fresno. The HST guideway would descend in a retained-cut to pass under the San Joaquin Railroad spur line and SR 180, transition back to at-grade before Stanislaus Street, and continue to be at-grade into the station. As part of a station design option, Tulare Street would become either an overpass or undercrossing at the station.

4.4.2.2 Wye Design Options

The following text describes the wye connection from the San Jose to Merced Section to the Merced to Fresno Section. There are two variations of the Ave 24 Wye for the UPRR/SR 99 Alternative because of the West Chowchilla design option. The Ave 21 Wye does not connect to the West Chowchilla design option and, therefore, does not have a variation.

Ave 24 Wye

The Ave 24 Wye design option would travel along the south side of eastbound Avenue 24 toward the UPRR/SR 99 Alternative and would begin diverging onto two sets of tracks west of Road 11 and west of the City of Chowchilla. One set of tracks would travel to the northeast of Road 12, joining the UPRR/SR 99 north-south alignment on the west side of the UPRR just north of Sandy Mush Road. The southbound HST guideway would continue east along Avenue 24, turning south near SR 233 southeast of Chowchilla, crossing SR 99 and the UPRR to connect to the UPRR/SR 99 Alternative on the east side of the UPRR near Avenue 21½. The Ave 24 Wye design would vary depending upon selection of the East or West Chowchilla design option. The north-south alignment of the West Chowchilla design option between Merced and Fresno diverges along Avenue 24 onto Road 12, on the north branch of the wye, allowing the HST alternative to avoid traveling through Chowchilla and to avoid constraining the city within the wye triangle.

Ave 21 Wye

The Ave 21 Wye would travel along the north side of Avenue 21. Just west of Road 16, the HST tracks would diverge north and south to connect to the UPRR/SR 99 Alternative, with the north leg of the wye joining the north-south alignment at Avenue 23½ and the south leg at Avenue 19½.

4.4.2.3 HST Stations

The Downtown Merced and Downtown Fresno station areas would each occupy several blocks, to include station plazas, drop-offs, a multimodal transit center, and parking structures. The areas would include the station platform and associated building and access structure, as well as lengths of platform tracks to accommodate local and express service at the stations. As currently proposed, both the Downtown Merced and Downtown Fresno stations would be at-grade, including all trackway and platforms, passenger services and concessions, and back-of-house functions.

Downtown Merced Station

The Downtown Merced Station would be between Martin Luther King Jr. Way to the northwest and G Street to the southeast. The station would be accessible from both sides of the UPRR, but the primary station house would front 16th Street. The major access points from SR 99 include V Street, R Street, Martin Luther King Jr. Way, and G Street. Primary access to the parking facility would be from West 15th Street and West 14th Street, just one block east of SR 99. The closest access to the parking facility from the SR 99 freeway would be R Street, which has a full interchange with the freeway. The site proposal includes a parking structure that would have the potential for up to 6 levels with a capacity of approximately 2,250 cars and an approximate height of 50 feet.

Downtown Fresno Station Alternatives

There are two station alternatives under consideration in Fresno: the Mariposa Street Station Alternative and the Kern Street Station Alternative.

Mariposa Street Station Alternative

The Mariposa Street Station Alternative is located in Downtown Fresno, less than 0.5 miles east of SR 99. The station would be centered on Mariposa Street and bordered by Fresno Street on the north, Tulare Street on the south, H Street on the east, and G Street on the west. The area around the station contains a mixture of land uses, with industrial uses located along the UPRR corridor closest to the station and commercial, civic, and residential uses farther away from the rail corridor. This alternative would be located next to the Southern Pacific Railroad Depot, a historic Queen Anne-style railroad depot built in 1889 that has been listed on the National Register of Historic Places (NRHP) since 1978.

The station building would be approximately 75,000 square feet, with a maximum height of approximately 64 feet. The two-level station would be at-grade; with passenger access provided both east and west of the HST guideway and the UPRR tracks, which would run parallel with one another adjacent to the station. The first level would contain the public concourse, passenger service areas, and station and operation offices. The second level would include the mezzanine, a pedestrian overcrossing above the HST guideway and the UPRR tracks, and an additional public concourse area. Entrances would be located at both G and H Streets. The eastern entrance would be at the intersection of H Street and Mariposa Street, with platform access provided via the pedestrian overcrossing. This entrance would provide a “front door” connection with Downtown Fresno on an axis that also includes the County Courthouse and City Hall to the east. The main western entrance would be located at G Street and Mariposa Street.

The majority of station facilities would be located east of the UPRR tracks. The station and associated facilities would occupy approximately 18.5 acres, including 13 acres dedicated to the station, short-term parking, and kiss-and-ride accommodations. A new intermodal facility, not a part of this proposed undertaking, would be located on the parcel bordered by Fresno Street to the north, Mariposa Street to the south, Broadway Street to the east, and H Street to the west (designated “Intermodal Transit Center” in Figure 2-41). Among other uses, the intermodal facility would accommodate the Greyhound facilities and services that would be relocated from their current location at the northwest corner of Tulare and H streets. The site proposal includes the potential for up to three parking structures occupying a total of 5.5 acres. Two of the three potential parking structures would each sit on 2 acres, and each would have a capacity of approximately 1,500 cars. The third parking structure would have a slightly smaller footprint (1.5 acres), with 5 levels and a capacity of approximately 1,100 cars. An additional 2-acre surface parking lot would be provided. The Authority would work with the City of Fresno and other interested parties to phase parking supply to support HST ridership demand and the demand for emerging uses in the area surrounding the station. Under this station alternative, the historic Southern Pacific Railroad depot and associated Pullman sheds would remain intact and could be used for station-related functions. spaces.

Kern Street Station Alternative

The Kern Street Station Alternative for the HST station is also situated in Downtown Fresno and would be centered on Kern Street between Tulare Street and Inyo Street. This station would include the same components and acreage as the Mariposa Street Station Alternative, but under the Kern Street Station Alternative, the station would not encroach on the historic Southern Pacific Railroad Depot just north of Tulare Street and would not require relocation of existing Greyhound facilities.

The station building would be approximately 75,000 square feet, with a maximum height of approximately 60 feet. The station building would have two levels housing the same facilities as the Mariposa Street Station Alternative (i.e., UPRR tracks, HST tracks, mezzanine, and station office). The approximately 18.5-acre site would include 13 acres dedicated to the station, bus transit center, surface parking lots, and kiss-and-ride accommodations. Two of the 3 potential parking structures would each sit on 2 acres and each would have a capacity of approximately 1,500 cars. The third structure would be slightly smaller in footprint (1.5 acres) and have a capacity of approximately 1,100 cars. Like the Mariposa Street Station Alternative, the majority of station facilities under the Kern Street Station Alternative would be sited east of the HST tracks.

4.4.3 BNSF Alternative

This section describes the BNSF Alternative, including the Le Grand design options and wyes. It does not include a discussion of the HST stations because the station descriptions are identical for each of the three HST alignment alternatives.

4.4.3.1 North-South Alignment

The north-south alignment of the BNSF Alternative would begin at the proposed Downtown Merced Station. This alternative would remain at-grade through Merced and would cross under SR 99 at the south end of the city. Just south of the interchange at SR 99 and E Childs Avenue, the BNSF Alternative would cross over SR 99 and UPRR as it begins to curve to the east, crossing over the E Mission Avenue interchange. It would then travel east to the vicinity of Le Grand, where it would turn south and travel adjacent to the BNSF tracks.

To minimize impacts on the natural environment and the community of Le Grand, the project design includes four design options:

- **Mission Ave design option:** This design option would turn east to travel along the north side of Mission Avenue at Le Grand and then would elevate through Le Grand adjacent to and along the west side of the BNSF corridor.
- **Mission Ave East of Le Grand design option:** This design option would vary from the Mission Ave design option by traveling approximately 1 mile farther east before turning southeast to cross Santa Fe Avenue and the BNSF tracks south of Mission Avenue. The HST alignment would parallel the BNSF for a half-mile to the east, avoiding the urban limits of Le Grand. This design option would cross Santa Fe Avenue and the BNSF tracks again approximately one-half mile north of Marguerite Road and would continue adjacent to the west side of the BNSF corridor.
- **Mariposa Way design option:** This design option would travel 1 mile farther southeast than the Mission Ave design option before crossing SR 99 near Vassar Road and turning east toward Le Grand along the south side of Mariposa Way. East of Simonson Road, the HST alignment would turn to the southeast. Just prior to Savana Road in Le Grand, the HST alignment would transition from at-grade to elevated to pass through Le Grand on a 1.7-mile-long guideway adjacent to and along the west side of the BNSF corridor.

- **Mariposa Way East of Le Grand design option:** This design option would vary from the Mariposa Way design option by traveling approximately 1 mile farther east before turning southeast to cross Santa Fe Avenue and the BNSF tracks less than one-half mile south of Mariposa Way. The HST alignment would parallel the BNSF to the east of the railway for a half-mile, avoiding the urban limits of Le Grand. This design option would cross Santa Fe Avenue and the BNSF again approximately a half-mile north of Marguerite Road and would continue adjacent to the west side of the BNSF corridor.

Continuing southeast along the west side of the BNSF, the HST alternative would begin to curve southeast just before Plainsburg Road through a predominantly rural and agricultural area. One mile south of Le Grand, the HST alignment would cross Deadman and Dutchman creeks. The HST alternative would deviate from the BNSF corridor just southeast of S White Rock Road, where it would remain at-grade for another 7 miles, except at the bridge crossings, and would continue on the west side of the BNSF corridor through the community of Sharon. The HST alignment would continue at-grade through the community of Kismet until crossing at Dry Creek. The BNSF Alternative would then continue at-grade through agricultural areas along the west side of the BNSF corridor through the community of Madera Acres north of the City of Madera. South of Avenue 15 east of Madera, the alignment would transition toward the UPRR corridor, following the east side of the UPRR corridor near Avenue 9 south of Madera, then continuing along nearly the same route as the UPRR/SR 99 Alternative over the San Joaquin River to enter the community of Herndon. After crossing the San Joaquin River, the alignment would be the same as for the UPRR/SR 99 Alternative.

4.4.3.2 Wye Design Options

The Ave 24 Wye and the Ave 21 Wye would be the same as described for the UPRR/SR 99 Alternative (East Chowchilla design option), except as noted below.

Ave 24 Wye

As with the UPRR/SR 99 Alternative, the Ave 24 Wye would follow along the south side of Avenue 24 and would begin diverging into two sets of tracks (i.e., four tracks) beginning west of Road 17. Two tracks would travel north near Road 20½, where they would join the north-south alignment of the BNSF Alternative on the west side of the BNSF corridor near Avenue 26½. The two southbound tracks would join the BNSF Alternative on the west side of the BNSF corridor south of Avenue 21.

Ave 21 Wye

As with the UPRR/SR 99 Alternative, the Ave 21 Wye would travel along the north side of Avenue 21. Two tracks would diverge, turning north and south to connect to the north-south alignment of the BNSF Alternative just west of Road 21. The north leg of the wye would join the north-south alignment just south of Avenue 24 and the south leg would join the north-south alignment just east of Frontage Road/Road 26 north of the community of Madera Acres.

4.4.4 Hybrid Alternative

This section describes the Hybrid Alternative, which generally follows the alignment of the UPRR/SR 99 Alternative in the north and the BNSF Alternative in the south. It does not include a discussion of the HST stations, because the station descriptions are identical for each of the three HST alignment alternatives.

4.4.4.1 North-South Alignment

From north to south, generally, the Hybrid Alternative would follow the UPRR/SR 99 alignment with either the West Chowchilla design option with the Ave 24 Wye or the East Chowchilla design option with the Ave 21 Wye. Approaching the Chowchilla city limits, the Hybrid Alternative would follow one of two options:

- In conjunction with the Ave 24 Wye, the HST alignment would veer due south from Sandy Mush Road along a curve and would continue at-grade for 4 miles parallel to and on the west side of Road 11¾. The Hybrid Alternative would then curve to a corridor on the south side of Avenue 24 and would travel parallel for the next 4.3 miles. Along this curve, the southbound HST track would become an elevated structure for approximately 9,000 feet to cross over the Ave 24 Wye connection tracks and Ash Slough, while the northbound HST track would remain at-grade. Continuing east on the south side of Avenue 24, the HST alignment would become identical to the Ave 24 Wye connection for the BNSF Alternative and would follow the alignment of the BNSF Alternative until Madera.

- In conjunction with the Ave 21 Wye connection, the HST alignment would transition from the west side of UPRR and SR 99 to an elevated structure as it crosses the UPRR and N Chowchilla Boulevard just north of Avenue 27, continuing on an elevated structure along the west side of and parallel to SR 99 away from the UPRR corridor while it crosses Berenda Slough. Toward the south side of Chowchilla, the alignment (with the Ave 21 Wye) would cross over SR 99 north of the SR 99/SR 152 interchange near Avenue 23½ south of Chowchilla. It would continue to follow along the east side of SR 99 until reaching Avenue 21, where it would curve east and run parallel to Avenue 21, briefly. The alignment would then follow a path similar to the Ave 21 Wye connection for the BNSF Alternative, but with a tighter 220 mph curve. The alternative would then follow the BNSF Alternative alignment until Madera.

Through Madera and until reaching the San Joaquin River, the Hybrid Alternative is the same as the BNSF Alternative. Once crossing the San Joaquin River, the alignment of the Hybrid Alternative becomes the same as for the UPRR/SR 99 Alternative.

4.4.4.2 Wye Design Options

The wye connections for the Hybrid Alternative follow Avenue 24 and Avenue 21, similar to those of the UPRR/SR 99 and BNSF alternatives.

Ave 24 Wye

The Ave 24 Wye is the same as the combination of the UPRR/SR 99 Alternative with the West Chowchilla design option, and the Ave 24 Wye for the BNSF Alternative.

Ave 21 Wye

The Ave 21 Wye is similar to the combination of the UPRR/SR 99 Alternative with the Ave 21 Wye on the northbound leg and the BNSF Alternative with the Ave 21 Wye on the southbound leg. However, the south leg under the Hybrid Alternative would follow a tighter, 220-mph curve than the BNSF Alternative, which follows a 250-mph curve.

4.4.5 Heavy Maintenance Facility Alternatives

The Authority has determined that an HST rail heavy-vehicle maintenance and layover facility would be sited in either the Merced to Fresno Section or the Fresno to Bakersfield Section of the California HST System. The HMF would be situated on a parcel of approximately 154 acres in proximity to the HST alignment. The HMF would also have connections to highways and utilities on a parcel zoned for heavy industrial activities.

The Authority is studying five HMF sites (see Figure 2-1) within the Merced to Fresno Section, one of which may be selected.

- **Castle Commerce Center HMF site** – A 370-acre site located 6 miles northwest of Merced, at the former Castle Air Force Base in northern unincorporated Merced County. It is adjacent to and on the east side of the BNSF mainline, 1.75 miles south of the UPRR mainline, off of Santa Fe Drive and Shuttle Road, 2.75 miles from the existing SR 99 interchange. The Castle Commerce Center HMF would be accessible by all HST alternatives.
- **Harris-DeJager HMF site** – A 401-acre site located north of Chowchilla adjacent to and on the west side of the UPRR corridor, along S Vista Road and near the SR 99 interchange under construction. The Harris-DeJager HMF would be accessible by the UPRR/SR 99 and Hybrid alternatives if coming from the Ave 21 Wye and with the UPRR/SR 99 Alternative with East Chowchilla design option and Ave 24 Wye.
- **Fagundes HMF site** – A 231-acre site, located 3 miles southwest of Chowchilla on the north side of SR 152, between Road 11 and Road 12. This HMF would be accessible by all HST alternatives with the Ave 24 Wye.
- **Gordon-Shaw HMF site** – A 364-acre site adjacent to and on the east side of the UPRR corridor, extending from north of Berenda Boulevard to Avenue 19. The Gordon-Shaw HMF would be accessible from the UPRR/SR 99 Alternative.
- **Kojima Development HMF site** – A 392-acre site on the west side of the BNSF corridor east of Chowchilla, located along Santa Fe Drive and Robertson Boulevard (Avenue 26). The Kojima Development HMF would be accessible by the BNSF Alternative with the Ave 21 Wye.

4.5 Section 4(f)/6(f) Properties (Parks, Wildlife Refuges, and Historic Sites)

This section discusses the park, recreation, open space, and wildlife refuge properties evaluated as Section 4(f) and Section 6(f) resources and the alternatives and project components that potentially use these properties. The project will have no Section 4(f) use if the property is not directly incorporated into the project or when the project's proximity impacts, such as noise, visual change, or minor access changes, do not substantially impair the features and attributes that qualify the site for protection under Section 4(f) during construction or operation. Such properties are listed in Table 4-2, but are not discussed in Section 4.5.1. See Section 3.15, Parks, Recreation, and Open Space, or Section 3.17, Cultural Resources, for more information regarding project effects on these properties. Section 6(f) is discussed in Section 4.11.

4.5.1 Parks, Recreation, and Open Space

The locations of park and recreation resources in the study area are shown on Figures 4-2 through 4-5. Table 4-2 describes potential uses of Section 4(f) parks and recreation resources associated with the HST alternatives.

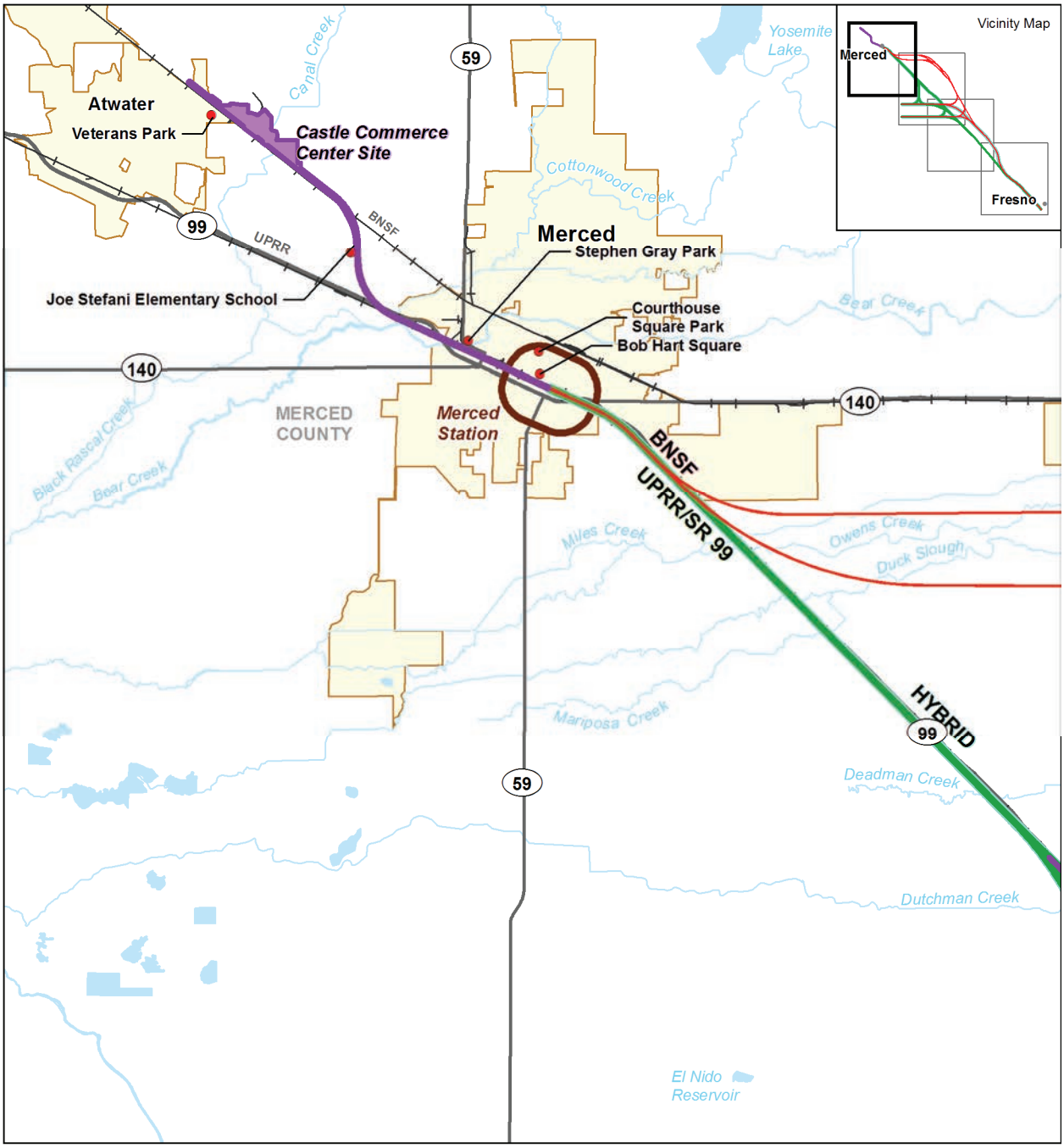
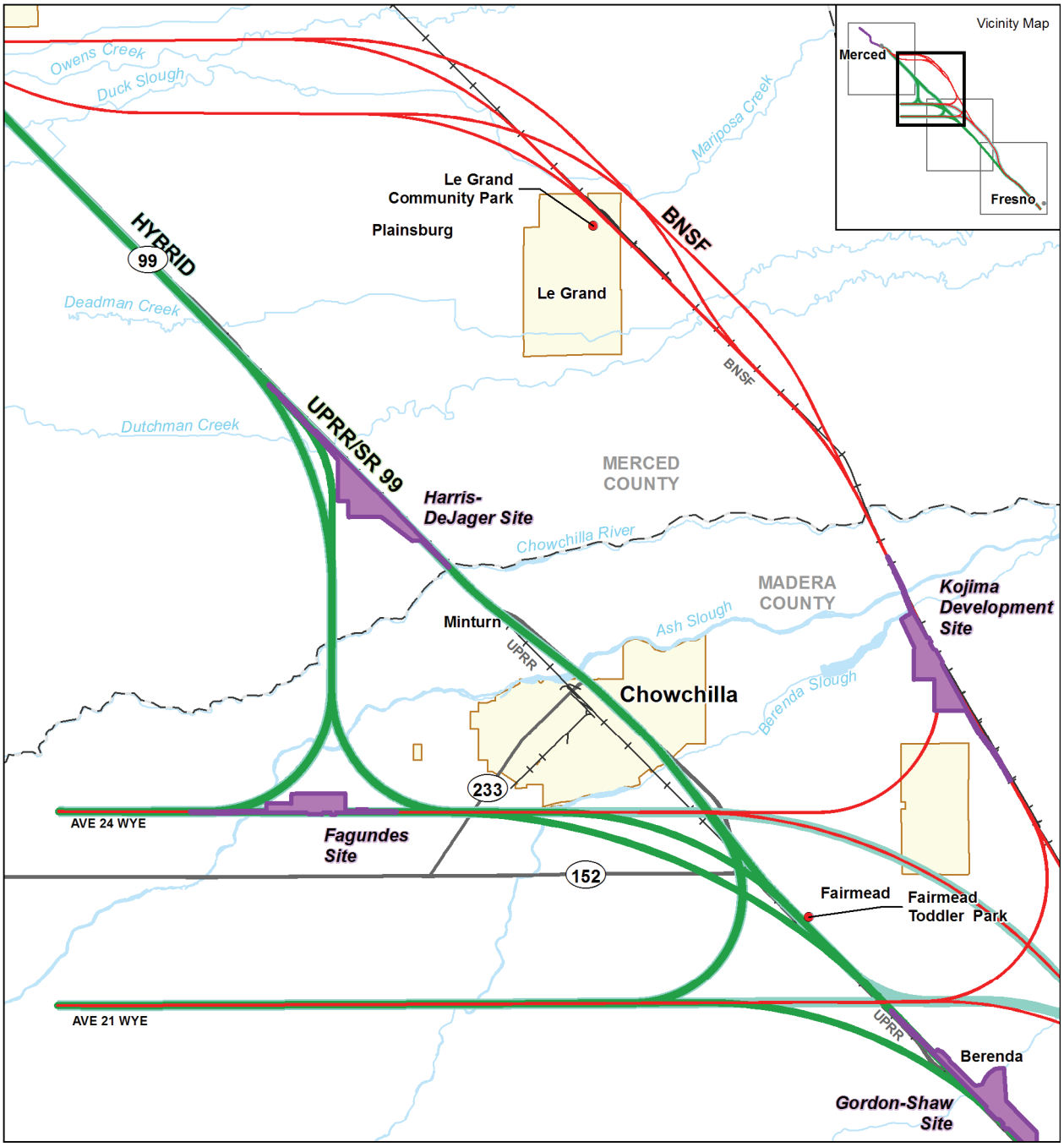


Figure 4-2
Park Properties in the Merced Project Vicinity



Source: City of Atwater (2000); City of Merced (1997, 2003, 2004); Merced County (1990). MF_EIS_PR_01-04_b Jun 03, 2011

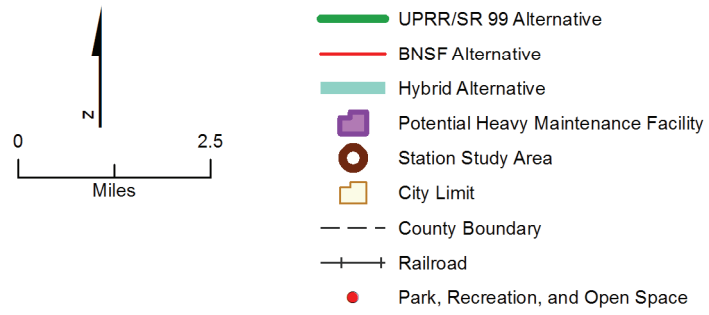


Figure 4-3
Park Properties in the Chowchilla Project Vicinity

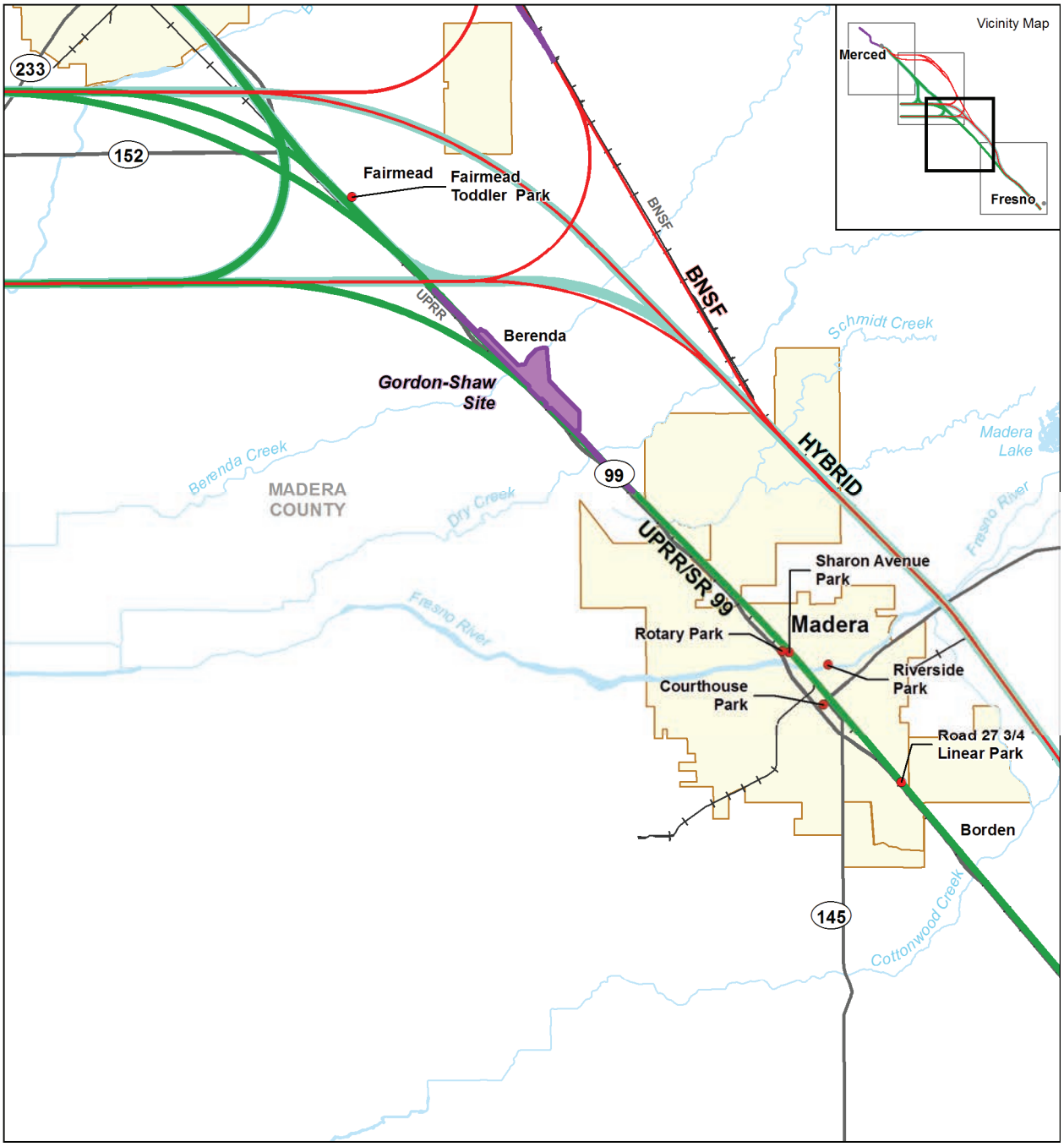


Figure 4-4
Park Properties in the Madera Project Vicinity

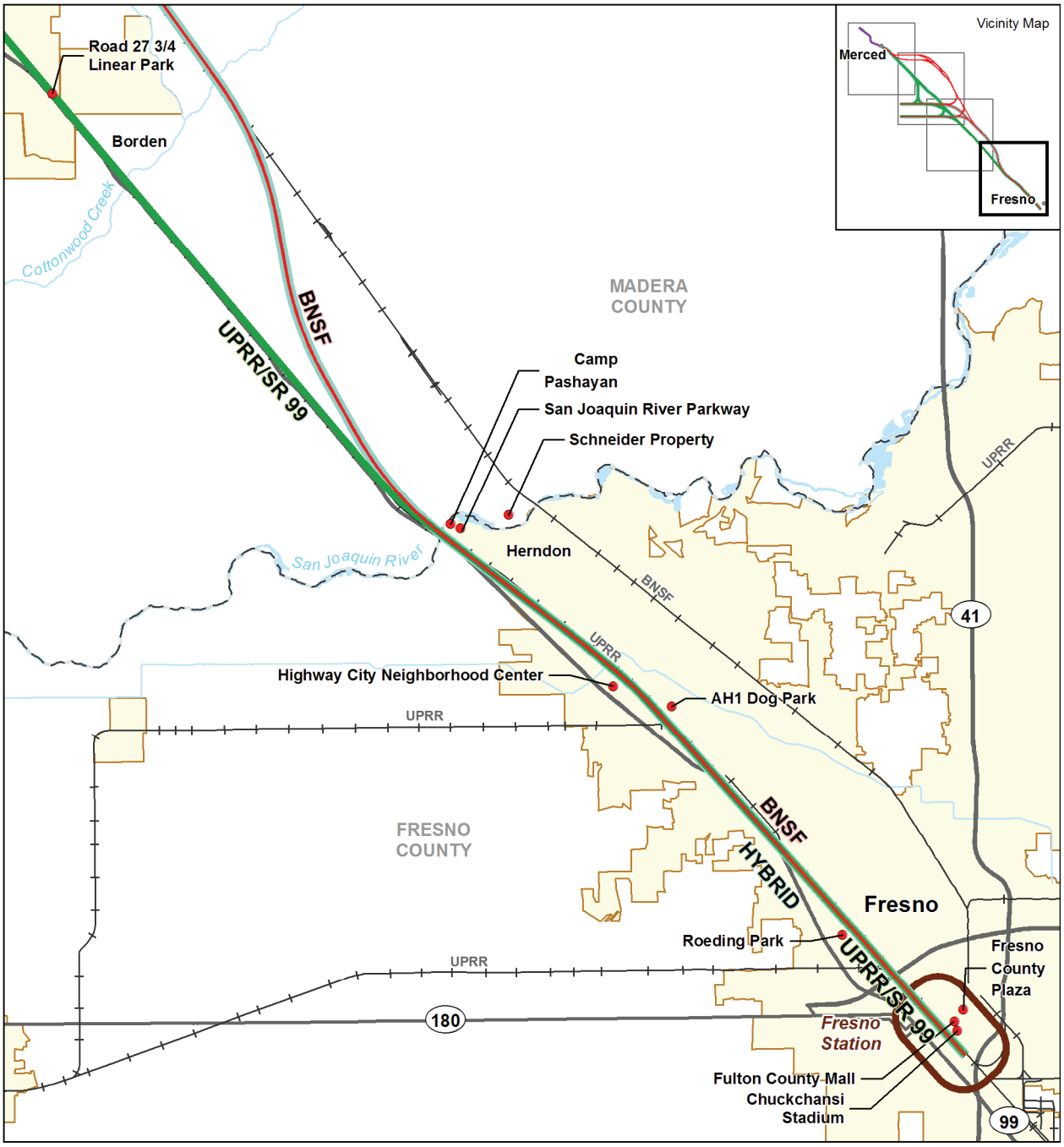


Figure 4-5
Park Properties in the Fresno Project Vicinity

Table 4-2
Park and Recreation Areas Evaluated for Section 4(f) Use

Property Name	Description	North-south Alignment	HMF	Distance from Project (feet)	Impact	Preliminary Section 4(f) Use Determination
North-South Alignment						
Veterans Park (associated with the Castle Commerce Center HMF)	Location: Atwater Size: 17.9 acres Features: Baseball, basketball, football/ soccer field, picnic and barbecue areas, playground equipment, and a BMX track. Castle Youth Center provides after-school programs in an 11,000-square-foot facility that includes a gymnasium.		Castle Commerce Center	300	None.	No Use
Joe Stefani Elementary School (associated with the guideway to the Castle Commerce Center HMF)	Location: Merced County Size: 14.5 acres Features: Baseball, basketball, football/ soccer field, playground equipment.		Castle Commerce Center	0 (from Castle Commerce Center HMF site access tracks)	Construction: temporary closure; noise, dust, and visual change. Project: acquisition of entire school property for the installation of access tracks. Property acquisition footprint: entire property.	Use
Stephen Gray Park (associated with the guideway to the Castle Commerce Center HMF)	Location: Merced Size: 2.5 acres Features: Basketball court, playground equipment, and picnic tables.		Castle Commerce Center	525 (from Castle Commerce Center HMF site guideway)	Construction: noise, dust, and visual change.	No Use
Le Grand Park	Location: Merced County Size: 1.0 acre Features: Benches, picnic tables, and barbecues.	BNSF Alternative		938	None.	No Use

Property Name	Description	North-south Alignment	HMF	Distance from Project (feet)	Impact	Preliminary Section 4(f) Use Determination
Fairmead Toddler Park	Location: Madera County Size: 0.2 acre Features: Playground equipment for toddlers.	UPRR/SR 99 Alternative; Hybrid Alternative		600	Construction: noise, dust, and visual change.	No Use
Rotary Park	Location: Madera Size: 9.7 acres Features: Softball field, soccer field, children's play area, and picnic sites, including a gated and covered picnic site.	UPRR/SR 99 Alternative		100	Construction: noise, dust, and visual change.	No Use
Sharon Avenue Linear Park	Location: Madera Size: 1.5 acres Features: Paved pathway and benches.	UPRR/SR 99 Alternative		30	Construction: temporary closure; temporary occupancy of 0.70 acre of park area; visual change from construction.	Use (temporary)
Riverside Park	Location: Madera Size: 3.3 acres Features: Paved pathway and benches.	UPRR/SR 99 Alternative		75	Construction: Temporary partial acquisition. Noise, dust, visual change, removal of trees and vegetation, and temporary access restrictions at western end of park would occur. Park would remain open during construction. Project: Permanent partial acquisition. Visual change: construct an elevated guideway over west end of park. Property acquisition footprint: 0.4 acre.	*de minimis*
Courthouse Park	Location: Madera County Size: 3.3 acres Features: Gazebos, picnic areas, war memorial, and artillery gun.	UPRR/SR 99 Alternative		300	Construction: noise, dust, and visual change.	No Use

Property Name	Description	North-south Alignment	HMF	Distance from Project (feet)	Impact	Preliminary Section 4(f) Use Determination
County Road 27¾ Linear Park	Location: Madera Size: 2.8 acres Features: Linear park with sidewalk and landscaping.	UPRR/SR 99 Alternative		0	Construction: temporary acquisition, park would be closed during construction. Project: permanent acquisition, alignment would be over the linear park with columns in the park. Property acquisition footprint: 1.0 acre.	Use
San Joaquin River Parkway Schneider Property	Location: Madera County Size: 47.1 acres Features: Open space acquired as part of San Joaquin River Parkway.	All HST alternatives and Gregg Substation		7,600 – within 900 feet of Gregg Substation	None.	No Use
Camp Pashayan	Location: Fresno Size: 31.0 acres Features: Part of the San Joaquin River Parkway. Picnic areas, fishing, boating access facilities, nature trails. Admission fee for vehicles.	All HST alternatives and Herndon Substation		50	Construction: temporary acquisition, visual change from construction equipment and the removal of vegetation would occur, temporary access restrictions between the existing UPRR corridor and HST construction area would occur, noise and dust could occur. Project: Permanent acquisition, alignment would be over the southern area of the park. Property acquisition footprint: All HST alternatives, 0.6 acre.	*de minimis*

Property Name	Description	North-south Alignment	HMF	Distance from Project (feet)	Impact	Preliminary Section 4(f) Use Determination
San Joaquin River Parkway	Location: Fresno Size: 11.0 acres Features: Part of the San Joaquin River Parkway owned by the San Joaquin River Parkway and Conservation Trust.	All HST alternatives		0 to 20	Construction: visual change from construction equipment and vegetation removal, noise, and dust could occur.	No Use
Highway City Neighbor-hood Center	Location: Fresno Size: 2.0 acres Features: Basketball court, playground, picnic tables and barbeques, programs and activities.	All HST alternatives		1,000	None.	No Use
Basin AH1 Dog Park	Location: Fresno Size: 1.5 acres Features: Open May through November; includes open space and wading pool for dogs.	All HST alternatives		800	None.	No Use
Roeding Regional Park	Location: Fresno Size: 159.0 acres Features: Tennis and handball courts, soccer field, dog park, play area, dance platform, World War II Memorial, and numerous barbecues and picnic tables. Picnic shelters available for rent, Storyland and Playland attractions, and boat rentals available on Lake Washington in the park (shallow cement pond). Vehicles required to pay a fee to park inside the park. Includes Fresno Chaffee Zoo, home to 125 species, and requires a paid admission. LWCF funding used	All HST alternatives		0 to 100	Construction: noise and dust. Project: noise, visual.	No Use

Property Name	Description	North-south Alignment	HMF	Distance from Project (feet)	Impact	Preliminary Section 4(f) Use Determination
	for park development.					
Downtown Merced Station						
Bob Hart Square	Location: Merced Size: 0.4 acre Features: Primarily paved plaza for public gatherings that includes a kiosk, clock, and benches.	All HST alternatives		1,100	Construction: noise, dust, and visual change could occur.	No Use
Courthouse Square Park	Location: Merced Size: 8.0 acres Features: Playground, picnic tables, barbeques, Merced County Museum, and library.	All HST alternatives		2,500	None.	No Use
Downtown Fresno Station						
Fresno County Plaza	Location: Fresno Size: 2.4 acres Features: Benches, ballroom for rent.	All HST alternatives		975	None.	No Use
Chuck-chansi Park	Location: Fresno Size: 11.0 acres Features: Baseball stadium and event center, 12,500-seat capacity.	All HST alternatives		70	Construction: Decreased accessibility due to the presence of construction equipment and construction; noise, dust, and visual change.	No Use
Fulton Mall	Location: Fresno Features: Public plaza.	All HST alternatives		450	Project: potential increase in visitors.	No Use

4.5.2 Cultural Resources

4.5.2.1 Archaeological Sites

There are 13 significant and/or potentially significant archaeological sites within the boundaries of the APE that are potentially eligible for listing on the NRHP. Known archaeological sites within the APE that could not be evaluated formally are presumed to be potentially eligible for the NRHP.

Table 4-3 describes archaeological sites associated with the HST alternatives. The table does not include stream, river, or slough crossings because a geo-archaeological assessment will be required to determine their potential to contain archaeological deposits.

Table 4-3
Archaeological Sites in Project APE Potentially Eligible for the National Register of Historic Places

Resource	Description	Eligibility for NRHP	Alternatives			
			UPRR/ SR 99	BNSF	Hybrid	HMF
P-24-001862	Prehistoric artifact scatter	Unevaluated; potentially eligible	X	X		Castle Commerce Center
P-24-001676, CA-MER-381/H*	Prehistoric artifact scatter/ Historic remains of the town Athlone	Eligible	X		X	
P-24-001686, CA-MER-383*	Prehistoric artifact habitation site with burials	Eligible	X		X	
P-20-002064, CA-MAD-2064H	Berenda Station	Unevaluated; potentially eligible	X (Ave 24 Wye)			
P-20-002122, CA-MAD-2121H	Artifact scatter assoc. with Chinese railroad camp	Unevaluated; potentially eligible	X			
HST-H-JL-01	Historic homestead with foundations, trash deposit and scatter	Unevaluated; potentially eligible	X (Ave 24 Wye)			
HST-H-JL-02	Historic trash scatter	Unevaluated; potentially eligible		X		
HST-H/P-TC-01	Historic foundations, trash deposit /Prehistoric artifact scatter	Unevaluated; potentially eligible	X		X	Castle Commerce Center
Reported burial ground	Prehistoric burial	Unevaluated; potentially eligible	X	X	X	
Reported village #1*	Prehistoric village	Unevaluated; potentially eligible	X	X	X	
Reported village #2*	Prehistoric village	Unevaluated; potentially eligible	X	X	X	

Resource	Description	Eligibility for NRHP	Alternatives			
			UPRR/ SR 99	BNSF	Hybrid	HMF
Prehistoric artifact finds (Kojima Development)	Prehistoric artifact scatter	Unevaluated: potentially eligible		X		Kojima Development
Rotary Park area, Madera	Prehistoric artifact find	Unevaluated: potentially eligible	X			

***** Indicates a site that is currently described to be adjacent to, but may be within, the APE.

Sources: Data provided by the Central California Information Center in 2009; data provided by the South San Joaquin Valley Information Center in 2009, 2010, and 2011.

4.5.2.2 Historical Resources

Tables 4-4 and 4-5 list resources identified as being listed on the NRHP, determined eligible for the NRHP, or recommended as eligible for the NRHP. Figure 4-6 shows the locations of the resources.

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

Resource Name	Address	County	Year Built	Current Status Code	HST Alternative
Forestiere Underground Gardens	5021 W Shaw Avenue	Fresno	1906	1S	UPRR/SR 99, BNSF, Hybrid
Weber Avenue Bridge (42C0071)	Weber and Belmont Avenues	Fresno	1925	2S2	UPRR/SR 99, BNSF, Hybrid
Southern Pacific Railroad Depot	1033 H Street	Fresno	1889	1S	Mariposa Street Station Alternative
Bank of America Building	947-951 F Street	Fresno	1908	2S2	UPRR/SR 99, BNSF, Hybrid

Code 1S: Individual property listed in the NRHP by the Keeper.

Code: 2S2: Individual property determined eligible for the NRHP by a consensus through Section 106 process.

Below are brief descriptions of the four properties that are listed in or determined eligible for listing in the National Register:

- Forestiere Underground Gardens – APN 510-23-303 (5021 W Shaw Avenue, Fresno). The Forestiere Underground Gardens were listed in the NRHP in 1977 (NPS #77000293) and were designated a California State Landmark (No. 916) in 1978.
- Weber Avenue Bridge – (No APN) (Fresno). This resource is the first vehicle bridge in California and one of the earliest in the United States to use prestressed concrete. Constructed in 1952, the bridge features a span of 66 feet. The bridge was determined eligible for listing on the NRHP through the 2006 Caltrans Bridge Survey under Criterion C in the area of engineering at the state level of

significance. The period of significance for the bridge is 1952. It is located within the APE for all three alternatives.

- Southern Pacific Railroad Depot – APN 467-030-03 (1033 H Street, Fresno). This building is a Queen Anne-style railroad depot built in 1889. The Southern Pacific Railroad Depot was listed in the NRHP in 1978. The building is significant under Criterion A for its contribution to the growth of Fresno from a barren plain into an agriculturally productive community and under Criterion C as an unusual departure from the traditional Southern Pacific architectural style. The boundary includes the property parcel limits.

- Bank of America Building – APN 467-074-01 (947-951 F Street, Fresno). This National Register-eligible building is an excellent example of early twentieth century commercial design with Mission Revival style elements. The building was built in 1908. The boundary includes the property parcel limits.

Table 4-5 lists the resources within the study area that are recommended for eligibility in the National Register.

Table 4-5
Resources Recommended Eligible for the National Register of Historic Places

Resource Name	Address	County	Year Built	Current Status Code[a]	HST Alignment
PG&E Building	560 W 15th St	Merced	1918-1920	3S	UPRR/SR 99, BNSF, Hybrid
Merced Southern Pacific Company Passenger Station	692 W 16th St	Merced	1926	3S	UPRR/SR 99, BNSF, Hybrid
KAMB (California Highway Patrol) Building	90 E 16th St	Merced	1933	3S	UPRR/SR 99, BNSF, Hybrid
Madera Southern Pacific Railroad Station	120 N E St	Madera	1927	3S	UPRR/SR 99
Valley Feed & Fuel Co.	121 Gateway Dr	Madera	Ca. 1920	3S	UPRR/SR 99
N/A	24302 Road 15	Madera	Ca. 1880	3S	UPRR/SR 99, BNSF, Hybrid
Califa Canal and Boyd Lateral	N/A	Madera	1950-1952	3S	UPRR/SR 99
Robertson Boulevard Tree Row	SR 233	Madera	1912	3S	UPRR/SR 99, BNSF, Hybrid
Roeding Park	890 W Belmont St	Fresno	1903	3D	UPRR/SR 99, BNSF, Hybrid

[a] Code 3D: Appears eligible for NRHP as a contributor to an NRHP-eligible district through survey evaluation.
Code 3S: Appears eligible for the NRHP as an individual property through survey evaluation.

Below are brief descriptions of the properties located in the study area that are recommended to be eligible for listing in the NRHP:

- PG&E Building (560 W 15th Street, Merced). This 1918-1920 building consists of the former San Joaquin Light & Power Corporation building. It was previously evaluated (but not concurred with) as meeting the criteria for listing on the NRHP under Criterion C for its architectural merit (as a notable example of "Spanish Colonial Revival"), at the local level of significance. The period of significance is 1918-1920. This evaluation found that it was also significant under Criterion A.

- Merced Southern Pacific Company Passenger Station (692 W 16th Street, Merced). This 1926 Neoclassical railroad station was previously evaluated (but not concurred with) as meeting the criteria for listing on the NRHP. It appears to meet the criteria for listing on the NRHP at the local level of significance. The building appears to be significant under Criterion A for its historical association with transportation history in Merced, as well as Criterion C for its architectural merit. The building remains in good condition and retains integrity from the previous evaluation, and thus formal concurrence with this finding will be sought for the purposes of this undertaking. The period of significance is 1926. The building is located adjacent to the alignment, which runs southwest of the resource. It is located within the APE for all three alternatives.

- KAMB (California Highway Patrol) Building (KMBR) (90 E 16th Street, Merced). This 1933 Spanish Colonial Revival building was previously evaluated (but not concurred with) as meeting the criteria for listing on the NRHP, at the local level of significance, under Criterion C for its architecture as an early example of a California Highway Patrol field station. The period of significance is 1933. The building is located adjacent to the alignment, which runs southwest of the resource. It is located within the APE for all three alternatives.

- Madera Southern Pacific Railroad (SPRR) Station – APN 007-101-016 (120 N E Street, Madera). This resource is an example of an early twentieth century railroad station, located along the UPRR/SR 99 Alternative in Downtown Madera. It appears to meet the criteria for listing on the NRHP at the local level of significance. The building appears to be significant under Criterion A for its historical association with transportation history in Madera, as well as Criterion C for its architectural merit as a good example of early twentieth century railroad station design. The building remains in good condition and retains integrity, and thus formal concurrence with this finding will be sought for the purposes of this undertaking. The period of significance is 1927. This building is located only in the UPRR/SR 99 Alternative.

- Valley Feed & Fuel Co. – APN 007-101-020 (121 S Gateway Drive, Madera). This resource consists of an early twentieth century grain mill, grain storage, and distribution facility, which retains integrity. The property appears to meet Criteria A and C of the NRHP. The boundary includes the property parcel limits.

- 24302 Road 15 – APN 026-233-011. This resource is a good example of a late nineteenth century Italianate-style vernacular residence. Characterized by its symmetrical form, including a square plan, low-pitched roof, and decorative elements, this is a rare example in the region, significant at the local and regional level. The boundary includes the property parcel limits.

- Califa Canal and Boyd Lateral – No APN (between Road 19, Avenue 21, and Avenue 22). This resource consists of a linear series of waterways providing irrigation to the surrounding farms. The canal runs approximately north to south, paralleling and to the west of Road 19. The Califa Canal was constructed in 1950, and the Boyd Lateral, a potential contributing element, was built in 1952. Both of these resources were previously determined eligible for the NRHP.

- Robertson Boulevard Tree Row (No APN). This resource extends 11 miles south from Downtown Chowchilla along SR 233 Southwest. The tree row consists of Canary Island palm and ornamental shade trees that Orlando Robertson, founder of Chowchilla, planted in 1912 as part of the development of the Chowchilla town center. The tree row is a California Point of Historical Interest. This resource appears to meet Criterion A for listing in the NRHP; therefore, formal concurrence with this finding will be sought for the purposes of this undertaking. The north and south ends of this resource fall within the footprint of the proposed wyes.

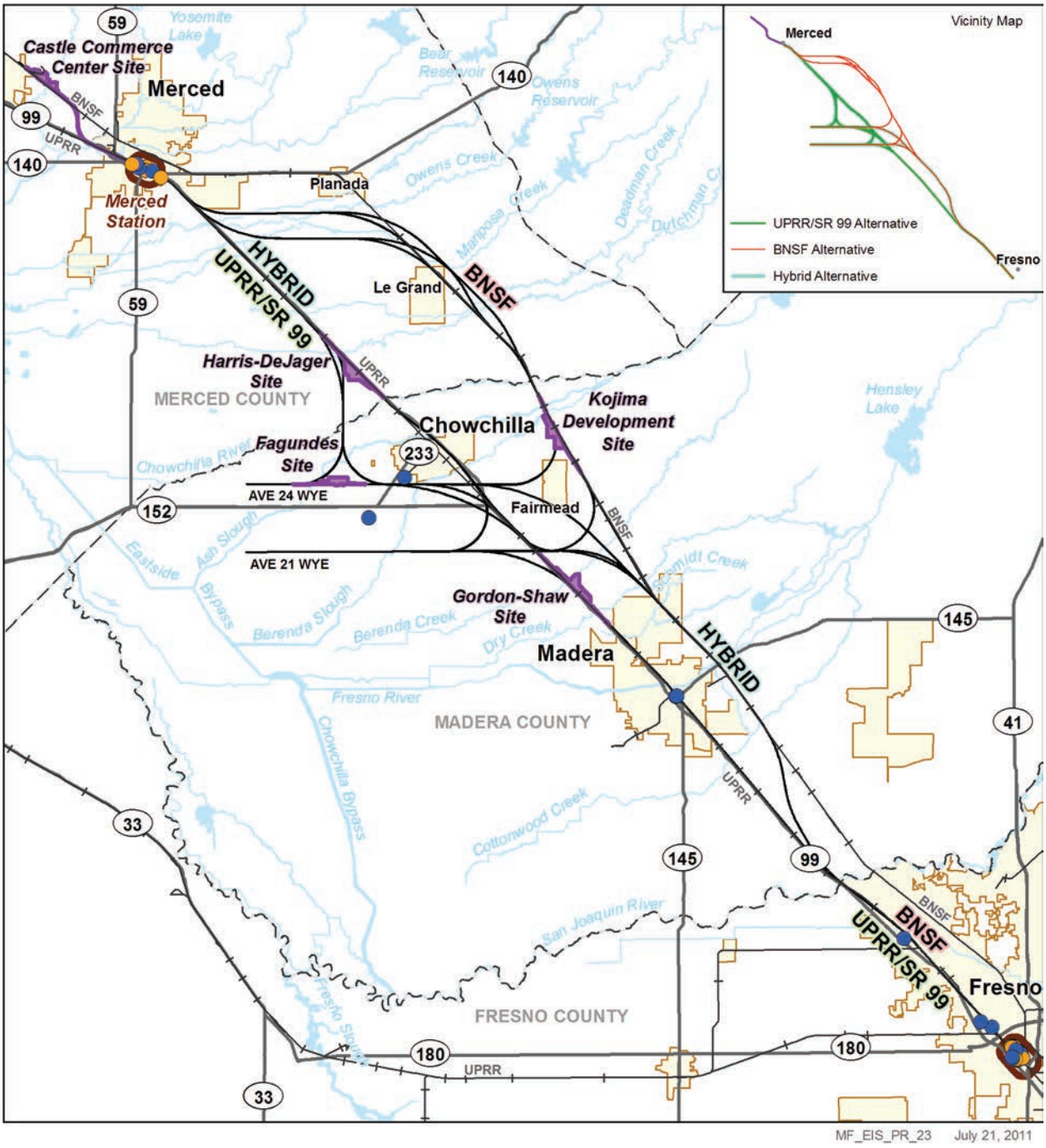


Figure 4-6
Historic and Archaeological Resources Listed or Eligible for Listing on the NRHP

- Roeding Park – APN 450-02-008 (890 W Belmont Street, Fresno). Roeding Park is a recreational facility for the City of Fresno, dating to the early twentieth century. The park was previously evaluated by Page and Turnball as part of the Roeding Park and Fresno Chaffee Zoo Facility Master Plans, SCH No. 2008031002 (City of Fresno 2011). The park appears to meet Criterion A for its association with important patterns in development in Fresno. The resource also appears to meet Criterion C(3) for its architectural, landscape, and design merit as a district. The SHPO has not yet made a determination that the park is eligible for the NRHP. Surveys conducted for this project indicate that little has changed since the previous evaluation, and thus formal concurrence will be sought for this undertaking. It is located within the APE for all three alternatives.

4.6 Preliminary Section 4(f) Use Assessment and Draft Determination

4.6.1 Park/Recreation Resources

Preliminary use assessment and determinations for respective park/recreation resources per HST alternatives are discussed in the following sections.

4.6.1.1 UPRR/SR 99 Alternative

The UPRR/SR 99 Alternative would potentially result in a Section 4(f) use of the following parks: Sharon Avenue Linear Park, Riverside Park, Rotary Park, County Road 27¾ Linear Park, Camp Pashayan, and Roeding Park.

Sharon Avenue Linear Park

Sharon Avenue Linear Park, shown in Figure 4-7, is 1.5 acres and consists of a paved pathway, benches, and landscaping along the east side of the UPRR corridor. The park is relatively urban in character and is used for pedestrian and bicycling connections from adjacent residential areas to nearby commercial areas.

Use Assessment: The UPRR/SR 99 Alternative would not permanently acquire land from Sharon Avenue Linear Park. However, the project would necessitate the temporary occupancy of approximately 0.7 acre of parkland during construction, thereby potentially resulting in a Section 4(f) temporary use. The entire park would be temporarily occupied and closed to the public during construction. A benefit of this alternative is that the area under the elevated tracks could potentially remain available for park use and will be coordinated with the FRA Office of Safety and the Department of Homeland Security.

Riverside Park

Riverside Park, shown in Figure 4-7, is 3.3 acres in size. The park follows the north side of the Fresno River in the City of Madera and contains a paved pathway and landscaping. The park is located in a relatively urban setting and is frequently used by pedestrians and bicyclists to connect from adjacent residential areas to nearby commercial areas.

Use Assessment: The HST project would permanently require approximately 0.4 acre for column placement and overhead easement for the elevated HST guideway (this acreage impact value reflects a "worst-case" scenario and includes the entire park area under the elevated guideway). The area of parkland to be purchased represents approximately 3% of the park's total area.

Although construction activities would necessitate temporarily occupying parkland for brief periods during project construction, this impact, and associated construction impacts such as noise and dust in adjacent areas of Riverside Park, would not adversely impair the protected activities, features, or attributes that qualify the property for protection under Section 4(f).

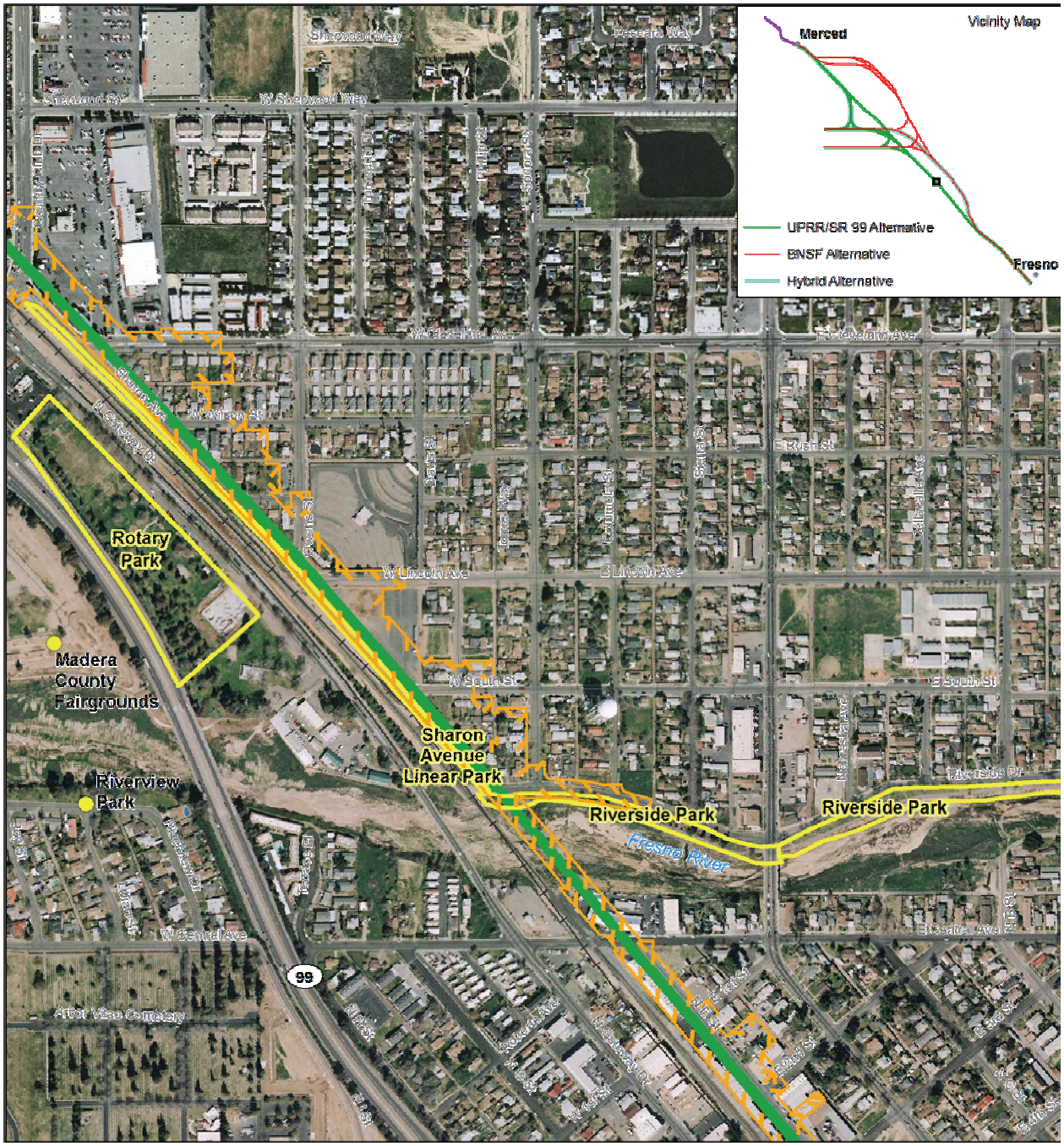


Figure 4-7
Rotary Park, Sharon Avenue Linear Park, and Riverside Park, City of Madera

The UPRR/SR 99 Alternative would require the removal of trees at the western edge of Riverside Park north of the Fresno River, reducing the visual buffer between the park and the adjacent UPRR right-of-way and proposed HST facility. Although the guideway would add an elevated visual feature, the alignment would be adjacent to the existing UPRR corridor and consistent with the suburban nature of the area and the corridor's transportation function. Removing homes along Sharon Avenue would also constitute a visual change, but the area beyond would remain residential in character.

Based on the minor nature of the impact on Riverside Park, the FRA has preliminarily determined that the UPRR/SR 99 Alternative impacts on Riverside Park in Madera would be *de minimis* in nature, as defined in 49 U.S.C. 303(d). The *de minimis* use determination includes measures to minimize harm, mitigation, or enhancement (49 U.S.C. Section 303(d)(1)(C)). Project mitigation actions at Riverside Park will include the installation of landscaping and lighting (to be done in consultation with the City of Madera). Although much of the park land could remain available for park use it would need to be coordinated with the FRA Office of Security and the Department of Homeland Security.

This preliminary determination is made pending concurrence from the City of Madera. The Authority and FRA will continue to coordinate with the City of Madera regarding this determination.

Rotary Park

Rotary Park, shown in Figure 4-7, is 9.7 acres in size and contains the following amenities: softball field, soccer field, children's play area, five picnic sites and one gated and covered picnic site (each picnic site contains barbecues and tables), restrooms, and onsite parking.

Use Assessment: The UPRR/SR 99 Alternative would not permanently require land from Rotary Park or necessitate the temporary occupancy of land at Rotary Park.

While the project would increase noise impacts on Rotary Park, based on the analysis for the *Merced to Fresno Section Noise and Vibration Technical Report* (Authority and FRA 2011d), after proposed mitigation measures, which were identified after taking measurements at the park location, there would be no residual noise impact at Rotary Park.

Based on the analysis for the *Merced to Fresno Section Aesthetics and Visual Quality Technical Report* (Authority and FRA 2011e), the elevated HST guideway (as seen in the view corridor where Rotary Park is located) would occupy the upper portion of the view to the northeast, but the entire structure would appear within and above the relatively wide transportation corridor. To the northeast, the elevated guideway would partially obscure views of the horizon. Trees along the eastern edge of the park would partially obstruct views of the elevated guideway and piers. Visual quality in this view would remain moderately low with the HST project. Despite the assumed importance of views from the park, the presence of the HST within the transportation corridor would not substantially alter the visual character in the area.

Therefore, because the UPRR/SR 99 Alternative would not require either permanent or temporary occupancy and would not substantially impair the protected activities, features, or attributes of the park, it would not result in a Section 4(f) use of Rotary Park.

County Road 27¾ Linear Park

County Road 27¾ Linear Park, shown on Figure 4-8, is 2.8 acres in size and is located between E Almond Avenue and County Road 28 in Madera. The park consists of a paved pathway and landscaping.

Use Assessment: The UPRR/SR 99 Alternative would necessitate the conversion of approximately 1 acre of parkland to transportation use to allow for the construction of elevated guideway. The area of parkland to be purchased represents approximately 70% of the park's total area (this acreage impact value reflects a "worst-case" scenario and includes the entire park area under the elevated guideway). In addition, construction of the project would necessitate the temporary occupancy of land at County Road 27¾ Linear Park and would require temporary closure of the park, for sporadic periods, during the

construction period. However, detours would be provided to maintain connectivity for users during construction. The parkland under the guideway would be restored after construction and could once again be available for park use (this would need to be coordinated with the FRA Office of Security and the Department of Homeland Security). The paved pathway is used by pedestrians and bicyclists and provides a connection between adjacent residential areas and nearby commercial areas.

Because the UPRR/SR 99 Alternative would require temporary park closure and permanent acquisition of a substantial portion of County Road 27¾ Linear Park, it would result in a Section 4(f) use.

Camp Pashayan

Camp Pashayan, shown in Figure 4-9, is 31 acres in size and is located in Fresno on the south side of the San Joaquin River. This public facility, which is part of the San Joaquin River Parkway, includes picnic areas, fishing and boating access, and nature trails. The California Department of Fish and Game owns the property, which is designated as an ecological reserve, and the San Joaquin River Parkway and Conservancy Trust manages the site.

Use Assessment: All three HST alternatives would require approximately 0.6 acre of parkland at Camp Pashayan in Fresno to install piers for elevating the guideway. The area of parkland to be purchased represents approximately 2% of the park's total area (this acreage impact value reflects a "worst-case" scenario and includes the entire park area under the elevated guideway).

The HST alternatives would result in a visual change to Camp Pashayan due to the removal of vegetation, which would decrease the visual buffer from the adjacent UPPR right-of-way (until replanted vegetation matures). The alignment would run approximately 60 feet above the park in this area and has been designed to be as close to the UPRR corridor as possible within the constraints of curve radii standards. The elevated guideway would constitute a visual change that would create additional shading due to the 50-foot width of the guideway. However, the guideway would be consistent in height and appearance with the existing bridges that cross the San Joaquin River, although it would be separated from the UPRR corridor by approximately 125 feet. The area between the HST and the UPRR elevated tracks does not contain active recreation facilities and could be available for use after construction (this would need to be coordinated with the FRA Office of Security and the Department of Homeland Security). Therefore, it is likely the project would have a *de minimis* Section 4(f) use of Camp Pashayan. This determination is made pending concurrence from the California Department of Fish and Game; the Authority and FRA will continue to coordinate regarding this determination.

All three HST alternatives would result in a potential Section 4(f) use of Camp Pashayan.

**Note: Camp Pashayan is owned by the State of California and is under the control and possession of the Department of Fish and Game. Because the Authority is also a state agency, the Authority can enter into an agreement with the Department of Fish and Game regarding the use, control, and possession of any portion of the property. In order to operate and maintain the HST facility (which would be an elevated structure crossing the property and supported by columns), the Authority may need to obtain easement rights in the property to construct the columns and the bridge structure (both air rights and surface rights) and to guarantee permanent access to the property to operate and maintain the facility. Any easement rights would be obtained through negotiation between the two agencies. The extent of the easement rights needed would be determined by Authority engineers.*

Roeding Park

Roeding Park, shown in Figure 4-10, is 159 acres in size and was established in the early twentieth century through a donation of land from the Roeding family. The park includes a variety of specimen trees cultivated by the Roeding family. Active recreation facilities include tennis and handball courts, a soccer field, dog park, play equipment, barbecues, and picnic tables and shelters. In addition, the park includes a Japanese-American World War II Memorial, the Fresno Chaffee Zoo, Playland, and Storyland. The impacted area includes large trees, a portion of the Japanese-American World War II Memorial, and a park drive.

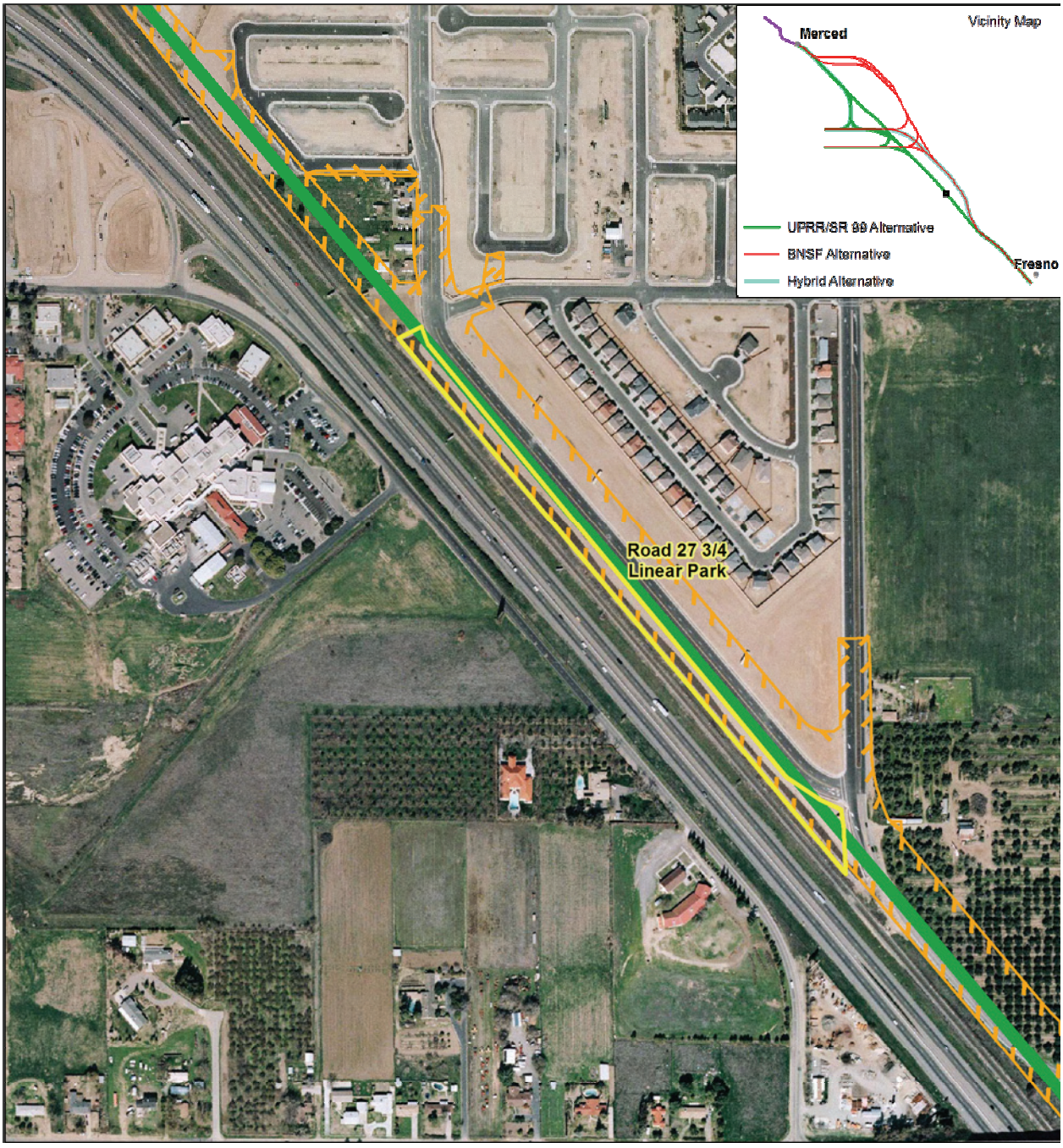


Figure 4-8
County Road 27¾ Linear Park,
City of Madera

Source: Fresno County (2000).

MF_EIS_PR_06 April 21, 2011

UPRR/SR 99, BNSF and Hybrid Alignment
Park
Property Acquisition Footprint

N
0 500
Feet

Figure 4-9
Camp Pashayan and San Joaquin River Parkway, City of Fresno

Figure 4-10
Roeding Park, City of Fresno

Use Assessment: The UPRR/SR 99 Alternative would not permanently acquire land from Roeding Park, and therefore no Section 4(f) permanent use would occur. In addition, the UPRR/SR 99 Alternative would not necessitate the temporary occupancy of land at Roeding Park, and therefore no Section 4(f) temporary use would occur.

The HST alignment would be constructed at-grade adjacent to the eastern boundary of Roeding Park. Along the southern portion of Roeding Park, the tracks would descend below ground into a retained cut to cross under SR 180. The proximity of the project to the park warrants a discussion of potential proximity impacts, which is provided below. The evaluation is preliminary because discussions with the City of Fresno are under way.

- *Access.* Access to the park via the existing access points would remain, so there would not be a use in this regard.
- *Visual.* As viewed from Roeding Park, trees along the eastern boundary of the park would partially block views of the HST at-grade guideway. Although the changes would not be easy to see, the character of the east part of the park would change because the guideway would be adjacent to the park. No impacts on the Fresno Chaffee Zoo or the Rotary Storyland and Playland, which are located inside Roeding Park approximately 1,000 feet from the HST alignment, are anticipated.
- *Noise Effects and Secondary Visual Impacts.* Section 3.3, Noise and Vibration, identifies a severe noise effect on Roeding Park. Section 3.15, Parks, Recreation, and Open Space, discusses that the Authority will address mitigation for this effect with the City of Fresno to determine if construction of a sound barrier is necessary and acceptable mitigation. Section 3.15, Parks, Recreation, and Open Space, provides a detailed discussion of the noise effects and potential visual effects of the sound barrier. A sound barrier would result in visual effects that could be reduced with aesthetic treatment. The sound barrier with aesthetic treatment would improve the visual quality and park's setting by blocking views of the existing transportation facilities outside the park that detract from its setting. Aesthetic treatment of the sound barrier would be selected with input from the community. Based upon the rating system used for the visual quality analysis in Section 3.16, Aesthetic and Visual Quality, the existing visual quality category of moderate would not change.

Based on the above discussion, it is preliminarily determined that the project would not result in a use of Roeding Park.

4.6.1.2 BNSF Alternative

The BNSF Alternative would have the same potential Section 4(f) use impacts (*de minimis*) on Camp Pashayan as would occur under the UPRR/SR 99 Alternative. The BNSF Alternative would not result in any Section 4(f) use of Sharon Avenue Linear Park, Riverside Park, or County Road 27¾ Linear Park.

4.6.1.3 Hybrid Alternative

The Hybrid Alternative would have the same potential Section 4(f) use impacts (*de minimis*) on Camp Pashayan as would occur under the UPRR/SR 99 Alternative. The Hybrid Alternative would not result in any Section 4(f) use of Sharon Avenue Linear Park, Riverside Park, or County Road 27¾ Linear Park.

4.6.1.4 Castle Commerce Center HMF Site

The construction of the access tracks to the Castle Commerce Center HMF site would result in the use of one Section 4(f) park resource: the Joe Stefani Elementary School.

Joe Stefani Elementary School

The Joe Stefani Elementary School property (shown in Figure 4-11) is 14.5 acres in size and is located in unincorporated Merced County, approximately 1 mile west of the city limits of Merced. The park amenities at Joe Stefani Elementary School include baseball fields, multi-purpose grass ballfields (i.e., football, soccer, and general purpose), basketball courts, and a playground. The property is owned and

Figure 4-11
Joe Stefani Elementary School,
Merced County

maintained by the Merced City School District. According to the Merced City School District and Merced County, the park amenities at the school property are considered, and function as, a significant public park and recreation resource.

Because the Joe Stefani Elementary School serves significant public recreational purposes and is open to the public for such purposes, the school qualifies as a protected Section 4(f) property.

Use Assessment: The construction of the access tracks to the Castle Commerce Center HMF site would necessitate the acquisition of the entire Joe Stefani Elementary School, resulting in a permanent Section 4(f) use.

4.6.2 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to consider a project's effect on cultural resources in much the same way as Section 4(f). The most important connection between the two statutes is that the Section 106 process is generally the method by which a cultural resource's significance is determined under Section 4(f).

The results of the Section 106 process determine whether Section 4(f) applies to historic properties. The results of the Section 106 analysis 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 of them measures impacts on cultural resources. Whereas Section 106 is concerned with "adverse effects," Section 4(f) is concerned with "use" of protected properties.

4.6.2.1 Archaeological Sites

Archaeologically sensitive areas have been identified within the APE; these areas are described in Section 3.17, Cultural and Paleontological Resources.

The Final Section 4(f) use determinations will be dependent upon the results of NRHP eligibility determinations. For Cultural Resources, such eligibility determinations will require a survey, which will be completed once property access is obtained through owner permission or purchase of property for the preferred alternative. The Authority will evaluate design modifications to avoid ground disturbance at the location of any archaeologically sensitive areas. If the areas cannot be avoided, the Authority will conduct archaeological data recovery for the purposes of site identification and significance evaluation according to a plan prepared in accordance with the Programmatic Agreement for Section 106 to determine if the sites are eligible for the NRHP. If they are determined eligible for the NRHP, the Authority will mitigate impacts through archaeological data recovery as described in Section 3.17, Cultural and Paleontological Resources.

The Authority has not subjected all portions of the HST alternatives to intensive archaeological cultural resource surveys. Consequently, the Authority and FRA cannot determine potential effects on presently unidentified cultural sites, features, artifacts, or other sensitive properties within the HST alternatives. In accordance with the Programmatic Agreement, the Authority will conduct intensive surveys prior to project-related ground-disturbing activities to comply with the identification provisions of Section 106. Previously undocumented archaeological materials may be present on documented significant sites and sensitive landforms, and could be inadvertently discovered or damaged through project ground-disturbing activities. Section 3.17, Cultural and Paleontological Resources, describes measures to address unidentified archaeological resources.

If archaeological resources are encountered inadvertently during construction and are determined to be eligible for the NRHP and warrant preservation in place, the FRA will expedite preparation of separate Section 4(f) evaluations for such resources.

4.6.2.2 Historic Resources

Based on the analysis conducted for Cultural and Paleontological Resources (see Section 3.17), the following NRHP-listed or eligible historic sites would be directly adversely affected under Section 106 by one or more HST alternative and have also been preliminarily determined to incur Section 4(f) uses as well because these sites would have property acquired by the project.

The UPRR/SR 99, BNSF, and Hybrid alternatives would all have Section 4(f) uses of the following historic resources:

- A portion of Robertson Blvd. Tree Row is in the direct path of both the Ave 24 and Ave 21 wyes for all three HST alternatives and construction would result in the physical demolition, destruction, damage, or substantial alteration of this linear resource between the two wyes. This would be a permanent use under Section 4(f).
- Forestiere Underground Gardens (5021 W Shaw Avenue) in Fresno would incur a small property acquisition along the edge of the property as a result of roadway improvements associated with all HST alternatives. Their construction would result in the physical destruction, damage, or alteration of the resource. This would be a permanent use under Section 4(f).
- The Weber Avenue Bridge in Fresno is in the direct path of all HST alternatives, which share a common alignment in this location. Their construction would result in the physical destruction, damage, or alteration of the resource. This would be a permanent use under Section 4(f).

Only the UPRR/SR 99 Alternative would result in a Section 4(f) use of the SPRR Station (120 N E Street, Madera). This historic station is in the direct path of this alternative, and its construction would result in the physical destruction, damage, or alteration of the resource. This would be a permanent use under Section 4(f).

Preliminary 4(f) Use Determinations at Historic Sites with Indirect Adverse Effects under Section 106

Southern Pacific Railroad Depot (Fresno)

No HST alternative would result in a permanent Section 4(f) use of property from the SPRR Depot site in Fresno. However, based on Section 106 analysis done for Cultural and Paleontological Resources (see Section 3.17), all HST alternatives and the Mariposa Street Station Alternative would result in a Section 106 indirect adverse effect on the SPRR Depot because the new station would change the character of the SPRR Depot's use. The property's setting, feeling, and association that contribute to its historic significance and the operation would introduce a visual impact that reduces the integrity of the property's significant historic features and historical use.

With respect to a Section 4(f) use, it is not evident that the HST alternatives (and the Mariposa Street Station Alternative) would result in a use of the SPRR Depot. The intent of the HST project is that the new HST station would be built in front of the historic SPRR Depot station and would be designed not to detract from the historic depot's architectural style. Moreover, by locating a railroad station at this location, the site's significance with respect to railroad transportation could be bolstered because, as a rail hub, it contributed to Fresno's growth. Because the noise levels associated with the HST project would not increase substantially to interfere with site's use, the aesthetic features would not be diminished, and there would be no restrictions in access, it is concluded that there would be no Section 4(f) use of the SPRR Depot in Fresno associated with the HST alternatives or the Mariposa Street Station Alternative.

Bank of America (Fresno)

No HST alternative would result in a permanent Section 4(f) use of property from the Bank of America site in Fresno. However, based on Section 106 analysis done for Cultural and Paleontological Resources

(see Section 3.17), all HST alternatives and the Mariposa Street Station Alternative would result in a Section 106 indirect adverse effect on the Bank of America site because it is located adjacent to roadway changes associated with the project.

With respect to a Section 4(f) use, it is not evident that the HST alternatives would result in a use of the Bank of America site. Because the noise levels associated with the HST project would not increase substantially to interfere with the site's use, the aesthetic features would not be diminished, and there would be no restrictions in access, it is concluded that there would likely be no Section 4(f) use of the SPRR Depot in Fresno associated with the HST alternatives.

Roeding Park (Historic)

Roeding Park is recommended for eligibility for listing on the National Register of Historic Places. Roeding Park Historic District was recommended eligible by Page & Turnbull as part of the Roeding Park and Fresno Chaffee Zoo Facility Master Plans (SCH No. 2008031002, City of Fresno 2011). The Authority reevaluated this document as part of the current HST project and concurs with this recommendation. The FRA and State Historic Preservation Officer (SHPO) will review the status of Roeding Park under Section 106 of the National Historic Preservation Act. Because discussions with the City of Fresno and the SHPO are underway, this analysis is considered preliminary. At this time, the FRA and SHPO have not agreed on a determination that Roeding Park is eligible for the NRHP. However, a preliminary Section 4(f) use evaluation is provided here in the event that this site is determined eligible.

The UPRR/SR 99 Alternative would not permanently acquire property from the Roeding Park site, and therefore no Section 4(f) permanent use would occur. In addition, the UPRR/SR 99 Alternative would not necessitate the temporary occupancy of property from the Roeding Park site, and therefore no Section 4(f) temporary use would occur.

The HST alignment would be constructed at-grade adjacent to the eastern boundary of Roeding Park. Along the southern portion of Roeding Park, the tracks would descend below ground into a retained cut to cross under SR 180.The proximity of the project to this historic resource warrants a discussion of potential proximity impacts based on the preliminary Section 106 findings; this discussion follows. As discussed above, discussions with the City of Fresno and SHPO are under way and, therefore, this analysis is considered preliminary.

In accordance with the Criteria of Adverse Effect defined in 36 CFR 800.5, an "adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association." Application of the criteria of adverse effect is largely an assessment of an undertaking's impacts on the historic integrity of a historic property and how an undertaking will affect those features of a historic property that contribute to its eligibility for listing in the NRHP.

The assessment of effects must follow the directions stated in 36 CFR 800.5(a)(2), as shown in Table 4-6.

Table 4-6
Examples of Adverse Effects Provided in 36 CFR 800.5(a)(2)

Adverse effects on historic properties include, but are not limited to:	
(i)	Physical destruction of or damage to all or part of the property;
(ii)	Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;
(iii)	Removal of the property from its historic location;
(iv)	Change of the character of the property's use or of physical features within the property's setting that contributes to its historic significance;
(v)	Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
(vi)	Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and
(vii)	Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Visual Quality. As viewed from Roeding Park, trees along the eastern boundary of the park would partially block views of the HST at-grade guideway. Although the changes would not be easy to see, the character of the east part of the park would change because the guideway would be adjacent to the park. No impacts on the Fresno Chaffee Zoo or the Rotary Storyland and Playland, which are located inside Roeding Park approximately 1,000 feet from the HST alignment, are anticipated.

Noise Effects and Secondary Impacts on Visual Quality. As discussed in Section 3.3, Noise and Vibration, noise levels from the HST would be severe and an adverse effect would occur under Criterion (v) for "the introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features." Section 3.15, Parks, Recreation and Open Space, provides a detailed discussion of the noise effects and potential visual effects of the sound barrier. A sound barrier with aesthetic treatment would improve the visual quality and park's setting by blocking views of the existing transportation facilities outside the park that detract from its setting. Aesthetic treatment of the sound barrier would be selected with input from the community. Based upon the rating system used for the visual quality analysis in Section 3.16, Aesthetic and Visual Quality, the existing visual quality category of moderate would not change.

Based on the above discussion, it is preliminarily determined that the project would not result in a use of the Roeding Park site.

Summary of Preliminary Section 4(f) Use Determinations of Historic Resources

A summary of Section 4(f) uses of NRHP-listed or eligible historic resources, per alternative, is provided in the following sections.

UPRR/SR 99 Alternative

The following NRHP-listed or eligible historic resources would incur a Section 4(f) use under the UPRR/SR 99 Alternative:

- Robertson Blvd. Tree Row (#18), Madera

- Madera SPRR Station, Madera
- Forestiere Underground Gardens, 5021 W Shaw Avenue, Fresno
- Weber Avenue Bridge, Fresno

BNSF Alternative

The following NRHP-listed or eligible historic resources would incur a Section 4(f) use under the BNSF Alternative:

- Robertson Blvd. Tree Row (#18), Madera
- Forestiere Underground Gardens, 5021 W Shaw Avenue, Fresno
- Weber Avenue Bridge, Fresno

Hybrid Alternative

The following NRHP-listed or eligible historic resources would incur a Section 4(f) use under the Hybrid Alternative:

- Robertson Blvd. Tree Row (#18), Madera
- Forestiere Underground Gardens, 5021 W Shaw Avenue, Fresno
- Weber Avenue Bridge, Fresno

4.7 Preliminary Section 4(f) *de minimis* Findings

As previously shown in Table 4-2 and described above, FRA has determined that project impacts on Riverside Park in Madera and Camp Pashayan in Fresno would be *de minimis* use as defined in 49 U.S.C. 303(d). The *de minimis* impact determination includes measures to minimize harm, mitigation, or enhancement (49 U.S.C. 303(d)(1)(C)). These measures, listed in Table 4-7, would be incorporated into the project design. With these measures, the Authority and FRA have preliminarily determined that the project would not adversely affect the activities, features, or attributes of the resource. Regarding this determination, the Authority and FRA will continue to coordinate with the City of Madera and the Chowchilla Water District.

4.8 Avoidance Alternatives

Section 4(f) requires the selection of an alternative that avoids the use of Section 4(f) property if that alternative is deemed feasible and prudent. The purpose and need statement of the HST Merced to Fresno Section Project EIR/EIS tiers off two previously prepared and approved program EIR/EIS documents: the 2005 *Final Program EIR/EIS for the Proposed California High-Speed Train System EIR/EIS* (Statewide Program EIR/EIS) (Authority and FRA 2005) and the 2008 *Bay Area to Central Valley HST Final Program EIR/EIS* (Bay Area to Central Valley Program EIR/EIS) (Authority and FRA 2010).

The alternatives evaluation process conducted as part of the HST project for the Merced to Fresno Section concluded that there was no feasible and prudent HST alternative within the study area that would address the project purpose and need without using Section 4(f) property. The reason for this finding is that all HST alternatives were designed to follow existing railroad corridors (to the extent allowed by design speeds). Locating the HST alignment along these corridors is an objective of the project intended to minimize impacts on the natural and human environment. Any alternative that did not follow these or other transportation corridors would substantially increase the number of displacements, overall community disruption, adverse impacts on natural environment resources, and adverse social and economic impacts, and could compromise the project in light of the project's purpose and need; therefore, such an alternative would be considered not be prudent because such an alternative would involve multiple impact factors which cumulatively cause unique problems or impacts of extraordinary magnitude.

The No Project Alternative would not include the construction of the HST or any associated facilities, and would thus have no impact on any Section 4(f) or Section 6(f) resources. However, it would not address

the state's purpose and need for the 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 does not meet the project purpose and need, it is neither feasible nor prudent, and is not discussed further as an avoidance alternative for any Section 4(f) or Section 6(f) resources.

4.8.1 Individual Resource Avoidance Assessments

To estimate the effects of relocating alternatives to avoid impacts on resources, an area approximately 1 mile on each side of the resource would be affected to allow for the gradual transition in alignment needed to maintain design speeds.

All HST alternatives would have a Section 4(f) use of Camp Pashayan (impacts on Camp Pashayan have been preliminary determined to be *de minimis*). The UPRR/SR 99 Alternative would have a Section 4(f) use of Sharon Avenue Linear Park, County Road 27¾ Linear Park, and Riverside Park (impacts on Riverside Park have been preliminarily determined to be *de minimis*). The construction of the access tracks to the Castle Commerce Center HMF site would result in a Section 4(f) use of Joe Stefani Elementary School. The UPRR/SR 99 Alternative would have a Section 4(f) use of the Madera SPRR Station.

Table 4-7
De Minimis Impacts - Measures to Minimize Harm and Mitigation for Section 4(f) Park and Recreation Areas in the Merced to Fresno Section HST Study Area

Name and Key Functions, Attributes, and Activities	*De Minimis* Measure	
	Measures to Minimize Harm	**Potential Mitigation/Enhancements**
Riverside Park, City of Madera Sidewalk and landscaped area along the Fresno River used for passive recreation and pedestrian connections between residential and commercial areas (3.3 acres)	Minimization: During final design, efforts will be made to minimize the number of columns in the park. Sound-attenuating measures along the guideway to minimize noise. Area under the guideway could be available for recreational use (this would need to be coordinated with the FRA Office of Security and the Department of Homeland Security).	The Authority will implement the following: • Use construction BMPs to control dust and noise (see Section 3.3, Air Quality and Global Climate Change, and Section 3.4, Noise and Vibration). • Screen stockpiled material and construction excavations through the use of temporary construction barriers and other screens, where they are exposed to park users. Restore areas affected by construction to preconstruction conditions with landscaping immediately after construction. Use native plant materials for revegetation where appropriate. • Work with the City of Madera to keep the park open to bicycle, pedestrian, and automotive traffic during construction by providing detours to maintain connectivity if construction requires temporary closures. Coordinate construction activities to avoid scheduled weekend activities when appropriate, provide clear signage and direction for alternative access routes and access points, and coordinate with local groups and jurisdictions using a variety of media to communicate the construction schedule. • Coordinate with the City of Madera regarding compensation for acquisition of property through direct purchase, purchase and development of replacement park property, or enhancement of existing facility. • Coordinate with the City of Madera to plan for using the

Name and Key Functions, Attributes, and Activities	*De Minimis* Measure	
	Measures to Minimize Harm	**Potential Mitigation/Enhancements**
		area under the elevated tracks as available parkland (this would need to be coordinated with the FRA Office of Security and the Department of Homeland Security). • Work with the City of Madera to prepare final design documents that minimize the visual impacts of the proposed HST alignment and stations. This could include decorative barriers, landscaping, architectural lighting, or other acceptable design features.
Camp Pashayan	Construction: temporary acquisition, visual change from construction equipment and the removal of vegetation, temporary access restrictions between the existing UPRR corridor and HST construction area; noise and dust. Project: Permanent acquisition, distance between UPRR and HST may effectively separate the area from remainder of property from use. Property acquisition footprint: All HST alternatives, 0.60 acre	The Authority will implement the following: • Screen stockpiled material and construction excavations through the use of temporary construction barriers and other screens, where they are exposed to park users. • Restore impacted portions of the property after construction. Use native plant materials for revegetation where appropriate. • Use construction BMPs to control dust, visual change, and noise (see Section 3.3, Air Quality and Global Climate Change; Section 3.4, Noise and Vibration; and Section 3.16, Aesthetics and Visual Quality). • Coordinate construction activities to avoid scheduled weekend activities when appropriate. • Coordinate with the CDFG regarding compensation for acquisition of property through direct purchase, purchase and development of replacement park property, or enhancement of existing facility. • Coordinate with the CDFG to plan for using the area under the elevated tracks as available parkland (this would need to be coordinated with the FRA Office of Security and the Department of Homeland Security).

4.8.1.1 Sharon Avenue Linear Park

The UPRR/SR 99 Alternative alignment would result in a Section 4(f) temporary use of Sharon Avenue Linear Park. This use could be avoided by moving the UPRR/SR 99 Alternative alignment to the east or west to avoid incorporating parkland. However, performing such an alignment shift would result in substantial new impacts. Moving the UPRR/ SR 99 Alternative to the west would necessitate the conversion of a substantial portion of parkland at Rotary Park, which is a 9.7-acre park providing a softball field, soccer field, children's play area, and picnic sites. Moving the UPRR/SR 99 Alternative to the east would increase residential impacts by approximately 10 to 15 homes and would result in narrow properties between the UPRR and the HST that might be more difficult to develop. In addition, relocating the alignment to the east would place the HST at the edge of the downtown core, displacing approximately 20 commercial structures, some with more than one commercial use, whereas the current alignment would displace less intensely developed, largely industrial properties on the opposite side of the UPRR.

4.8.1.2 County Road 27¾ Linear Park

The UPRR/SR 99 Alternative alignment would use County Road 27¾ Linear Park. This use could be avoided by moving the UPRR/SR 99 Alternative alignment to the east. However, performing such an alignment shift would result in substantial new impacts. Moving the UPRR/SR 99 Alternative to the east would increase residential acquisitions by approximately eight homes and encroach on a new subdivision's stormwater pond. The HST alignment would be shifted adjacent to 15 homes that are currently buffered by vacant lots. Shifting to the east also would increase impacts on agricultural properties to the south by crossing those properties approximately 50 feet farther east from the property line.

4.8.1.3 Joe Stefani Elementary School

Joe Stefani Elementary School, which would be subject to a permanent Section 4(f) use associated with the construction of the Castle Commerce Center HMF site alternative, could feasibly and prudently be avoided by selecting a different HMF site alternative rather than the Castle Commerce Center HMF site. (If the Castle Commerce Center HMF site alternative is not selected as part of the HST project, there would be no need to build the access tracks and, subsequently, no impact on the school property.)

Another means of avoiding the school property would be to realign the guideway between the Downtown Merced Station and the Castle Commerce Center HMF site to avoid impacting the school (the existing proposed access track alignment was designed to provide the most efficient connection from the Downtown Merced Station to the HMF site). However, realigning the access tracks either east or west to avoid the school would likely not be prudent because it would result in substantial displacements of residences that are located in the neighborhoods both east and west of the school site (the current alignment of the access tracks was designed to avoid such residential impacts).

4.8.1.4 Madera Southern Pacific Railroad Station

The Madera SPRR Station falls within the right-of-way of the UPRR/SR 99 Alternative, but the BNSF and Hybrid alternatives would avoid the building. This historic station could additionally be avoided by moving the alignment to the west side of the existing UPRR tracks, which would have the consequence of directly affecting the southeast end of Rotary Park to the north. However, performing such an alignment shift would result in substantial new impacts. Shifting the alignment to the east would increase residential acquisition by approximately 15 homes. In addition, relocating the alignment to the east would place the HST at the edge of the downtown core, displacing approximately 20 commercial buildings, some with more than one commercial use, whereas the current alignment would displace less intensely developed, largely industrial properties on the opposite side of the UPRR. In summary, an alternative which moved the HST alignment to the west side of the existing UPRR tracks would result in additional Section 4(f), residential, commercial, sensitive habitat, and agriculture impacts, and would result in unacceptable operational problems in light of the project's purpose to provide a reliable high-speed, electric-powered train system.

4.9 Measures to Minimize Harm

Table 4-8 lists preliminary proposed measures to minimize harm, as required by 49 U.S.C. 303(c)(2), that could be incorporated into the HST project to address potential HST impacts on Section 4(f) resources. No measures to minimize harm are discussed for Joe Stefani Elementary School, because construction of the Castle Commerce Center HMF site alternative would necessitate the acquisition of the entire school property; however, this use could be feasibly and prudently avoided, as described in Section 4.8.1.3.

Table 4-8
Measures to Minimize Harm

Impact	Measures to Minimize Harm
Sharon Avenue Linear Park – UPRR/SR 99 Alternative	
Construction: temporary closure, visual change from construction.	Implement the following: • Use construction BMPs to control dust and noise (see Section 3.3, Air Quality and Global Climate Change; Section 3.4, Noise and Vibration). • Screen stockpiled material and construction excavations through the use of temporary construction barriers and other screens, where they are exposed to park users. Restore areas affected by construction to preconstruction conditions with landscaping immediately after construction. Use native plant materials for revegetation where appropriate. • Work with the City of Madera to keep the park open to bicycle and pedestrian traffic during construction by providing detours to maintain connectivity if construction requires temporary closures. Coordinate construction activities to avoid scheduled weekend activities when appropriate, provide clear signage and direction for alternative access routes and access points, and coordinate with local groups and jurisdictions using a variety of media to communicate the construction schedule. • Extend Sharon Avenue Linear Park to the east under the elevated guideway to the relocated Sharon Avenue and install landscaping and lighting in consultation with the City of Madera, and design columns consistent with Crime Prevention through Environmental Design principles where appropriate to improve safety of park area under the guideway. • Work with the City of Madera to prepare final design documents that minimize the visual impacts of the proposed HST alignment. This could include decorative barriers, landscaping, architectural lighting, or other acceptable design features.
County Road 27¾ Linear Park – UPRR/SR 99 Alternative	
Construction: temporary acquisition, park would be closed during construction. Project: permanent acquisition, alignment would be over the linear park with columns in the park. Property acquisition footprint: 1 acre	Implement the following: • Use construction BMPs to control dust and noise (see Section 3.3, Air Quality and Global Climate Change; Section 3.4, Noise and Vibration). • Where exposed to park users, screen stockpiled material and construction excavations through the use of temporary construction barriers and other screens. Restore areas affected by construction to preconstruction conditions with landscaping immediately after construction. Use native plant materials for revegetation where appropriate. • Work with the City of Madera to keep the park open to bicycle and pedestrian traffic during construction by providing detours to maintain connectivity if construction requires temporary closures. Coordinate construction activities to avoid scheduled weekend activities when appropriate, provide clear signage and direction for alternative access routes and access points, and coordinate with local groups and jurisdictions using a variety of media to communicate the construction schedule. • Coordinate with the City of Madera regarding compensation for acquisition of property through direct purchase, purchase and development of replacement park property, or enhancement of the existing facility. • Coordinate with the City of Madera to plan for using the area under the elevated tracks as available parkland (this would need to be coordinated with the FRA Office of Security and the Department of Homeland Security).

Impact	Measures to Minimize Harm
	• Work with the City of Madera to prepare final design documents that minimize the visual impacts of the proposed HST alignment. This could include decorative barriers, landscaping, architectural lighting, or other acceptable design features.
Roeding Park – All HST Alternatives	
Project: operational noise and visual impacts.	The Authority will work with the City of Fresno as the resource owner to address potential noise and/or visual impacts. It is possible that the City of Fresno may accept the noise impacts and then no further mitigation would be utilized. Construct a sound barrier approximately 2,800 feet in length. It is assumed that a sound barrier would be 10 to 14 feet tall and have aesthetic treatment. A 10 foot high sound barrier would reduce noise to 64 dBA at 250 ft inside the park and residual noise effects would occur. A 14 foot high sound barrier would reduce noise effects to within 1 db of no impact. The sound barrier with aesthetic treatment would improve the visual quality and park's setting by blocking views of the existing transportation facilities outside the park that detract from its setting. Aesthetic treatment of the sound barrier would be selected with input from the community.
All Section 4(f) Historic Architectural Resources	
Hist-MM#1: Avoid adverse vibration effects.	Develop construction methods to avoid indirect adverse effects or indirect substantial adverse change to any historic properties from noise or vibration caused by construction activities. Vibration from impact pile-driving during construction could cause the physical destruction, damage, or alteration of historic properties or historical resources if the pile-driving is within 80 to 140 feet of the building. Because pile-driving could cause adverse effects or substantial adverse changes, alternative construction methods causing less than 0.12 peak particle velocity per inch per second measured at the receptor would be developed for construction activities near historic properties or historical resources, if they are determined to be extremely susceptible to vibration damage. The development of alternative construction methods at these locations would avoid adverse effects on historic properties.
Hist-MM#2: Develop Protection and Stabilization Measures	Identify historic properties/historical resources that would require protection and/or stabilization prior to the start of construction of the project. Properties subject to this mitigation activity include any properties physically affected, and/or relocated, and/or in close enough proximity to require protection. Through this mitigation, adverse effects on historic properties/historical resources would be either avoided entirely or minimized to the extent possible. This mitigation would be developed in consultation with the landowner or land-owning agencies. Measures would include, but are not necessarily limited to, the following: vibration monitoring of construction in the vicinity of historic properties; cordoning off resources from construction activities such as traffic, equipment storage, and personnel; shielding resources from dust or debris; stabilization of buildings adjacent to construction; for buildings that are to be moved, stabilization before, during, and after relocation; and protection of buildings and structures during storage at a new site and during subsequent rehabilitation.
Hist-MM#3: Minimization through Relocation of Historic Structures	Identify historic properties/historical resources that would be relocated to help avoid destruction and minimize the direct adverse effect of their physical damage or alteration. The planning for relocation and implementation of relocation would take place prior to construction. The relocation of the historic properties/historical resources would take into account the historic site and layout (i.e., the orientation of the buildings to the cardinal directions), as well as their potential re-use. All structures would be thoroughly recorded in a Historic Structure Report (see **Hist-MM#7** below), and the relocation plan would provide for stabilization of the structures before, during, and after the move.

Impact	Measures to Minimize Harm
Hist-MM#4: Prepare and Submit NRHP Nominations.	Identify specific historic properties/historical resources for nomination to the NRHP Program of the NPS. Current photographs of the property used in the nomination(s) would be made prior to the start of project construction. The nomination document may also use other current and/or historic images prepared as part of other mitigation activities.
Hist-MM#5: Prepare and Submit California Register of Historic Resources (CRHR) Nominations.	Identify specific historical resources for nomination to the CRHR Program at the State Office of Historic Preservation. Current photographs of the resource used in the nomination(s) would be made prior to the start of construction. The nomination document may also use current and/or historic images prepared as part of other mitigation activities.
Hist-MM#6: Prepare and Submit Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/Historic American Landscape Survey (HALS) Documentation.	Historic properties/historical resources that would be physically altered, damaged, relocated, or destroyed by the project may be documented in compliance with the HABS/HAER/HALS programs. Prior to the start of construction, in consultation with the Western Regional Office of the NPS, Oakland, California, large-format (4 x 5 inch, or larger, negative-size) black and white photographs would be taken of these historic properties/historical resources showing them in context, along with details of character-defining features. The photographs would be processed for archival permanence in accordance with HABS/HAER/HALS photographic specifications. Each view would be fully captioned, and if necessary, perspective corrected. Oblique aerial photography would be considered as a photographic recordation option in these coordination efforts. The recordation would follow the NPS HABS/HAER/HALS guidelines; the report format, views, and other documentation details would be coordinated with the NPS. It is anticipated that the recordation of historic properties would be completed to Level II HABS written data standards, and would include archival and digital reproduction of historic images, plans, and drawings, if available. Copies of the documentation would be offered to the appropriate local governments, historical societies and agencies, and libraries. The documentation would also be offered in printed and electronic form to any repository or organization upon which SHPO, the Authority, and local agency with jurisdiction over the property, through consultation, may agree. The electronic copy of the report may also be placed on an agency or organization's web site.
Hist-MM#7: Prepare Historic Structure Reports	Identify historic properties/historical resources that would be physically altered, damaged, or relocated that would be subject to a Historic Structure Report (HSR). The HSR would be prepared prior to the start of construction. The HSR would follow the general guidelines for such reports as described in the California Office of Historic Preservation (OHP) publication, *Historic Structure Report Format* (OHP n.d.). The scope of each HSR would be developed in consultation with the land-owning agencies, and copies of the reports would be provided to the same. The HSR would include, if appropriate, documentation of existing landscaping. The HSRs may be used in the ongoing planning process and re-use of the properties, and may be coordinated with the other mitigation documentation activities, such as HABS/HAER records.
Hist-MM#8: Prepare Interpretive Exhibits	Some historic properties/historical resources may be identified in the BETP for historic interpretation. Interpretive exhibits would provide information regarding the specific historic property or historical resource. The interpretive exhibits would utilize images, narrative history, drawings, or other material produced for the mitigation described above, including the HABS/HAER reports, NRHP and CRHR nominations, or other archival sources. The interpretive exhibits may be in the form of, but are not necessarily limited to, interpretive display panels and/or printed material for dissemination to the public. The interpretive exhibits may be installed at local libraries, historical societies, or public buildings. All historic properties/historical resources demolished by the project would be the subject of informative permanent metal plaques that will be installed at the site of

Impact	Measures to Minimize Harm
	the demolished historic property, or at nearby public locations. The plaques would provide a brief history of the property, its engineering/architectural features and characteristics, and the reasons for and date of its demolition.
Hist-MM#9: Plan Repair of Inadvertent Damage	The project would provide a plan for the repair of inadvertent damage to historic properties/historical resources. The plan would be developed prior to construction so damage resulting from the project to any of the historic properties/historical resources near construction activities would be repaired in accordance with the Secretary of the Interior's Standards for Rehabilitation. The HSR and/or HABS/HAER recordation would photographically document the condition of historic properties/historical resources prior to the start of construction to establish the baseline condition for assessing damage. A copy of this photographic documentation would be provided to the landowner or land-owning agencies. Prior to implementation, provide the plans for any repairs to historic properties for SHPO review and comment to ensure conformance with the Secretary of the Interior's Standards for Rehabilitation (NPS 1995).
All Section 4(f) Archaeological Resources	
Arch-MM#1: Conduct Archaeological Training	Prior to ground-disturbing activities within the project alternatives, a qualified professional archaeologist would develop a training program and printed material to be presented to construction personnel. The purpose of this training and accompanying materials would be to familiarize construction personnel with the relevant legal (NEPA/CEQA) context for cultural resources of the project and with the types of cultural sites, features, and artifacts that could be uncovered during construction activities. These training sessions would be conducted prior to commencing construction within discrete portions of the project alternatives or as needed because construction personnel crews and supervisors may change.
Arch-MM#2: Data Recovery as Required by the Draft Programmatic Agreement	If it is infeasible to avoid impacts on archaeological sites that have been determined to be eligible for listing on the NRHP, additional research including, but not necessarily limited to, archaeological excavation will be conducted [CCR Section 15126.4 (b)(3)(C)] prior to ground-disturbing activities. This work would be conducted by a qualified archaeologist and would include preparation of a research design; additional archival and historical research; archaeological excavation; analysis of artifacts, features, and other attributes of the resource; and preparation of a technical report documenting the methods and results of the investigation in accordance with the California Office of Historic Preservation's *Guidelines for Archaeological Research Design* (California Office of Historic Preservation 1991). The purpose of this work is to recover a sufficient quantity of data to compensate for damage to or destruction of the resource. The procedures to be employed in this data recovery program would be determined in consultation with responsible agencies, including SHPO, and interested parties, as appropriate. Where necessary, Native American input and consultation will be carried out.
Arch-MM#3: Plan an Intentional Site Burial or Avoidance for Preservation in Place	Resources may be avoided through project design. If project engineering concludes that avoidance is not feasible, a process to determine whether the site can be preserved through intentional site burial would be considered. When complete avoidance is not possible, preservation in place is the preferred form of mitigation for a "historical resource of an archaeological nature" because it retains the relationships between artifact and context, and may avoid conflicts with groups associated with the site (PRC 15126.4[b][3][A]). To avoid or cap a site, it would be necessary to conduct test excavations to determine the vertical and horizontal extent of the identified resources. Therefore, if excavations have not yet been conducted for the purposes of evaluating the sites for eligibility in accordance with the Section 106 Programmatic Agreement, a qualified archaeologist would be contracted with to conduct a formal excavation of the site to delineate the site boundaries as well as determine the site's eligibility for the CRHR or NRHP. If avoidance is feasible, the resource boundary information would

Impact	Measures to Minimize Harm
	be placed on construction drawings to facilitate the avoidance of adverse effects. During construction, the contracted archaeologist would cordon off the site and conduct monitoring of the construction activity in the vicinity of the sensitive area to ensure inadvertent impacts are avoided. If avoidance through project design is not feasible, consideration would be given to intentional site burial. The contracted archaeologist would, in addition to the formal delineation of the site boundaries, prepare and implement a design plan to dictate the conditions of the intentional site burial according to the recommendations discussed in the *National Park Service Technical Brief Number 5, Intentional Site Burial: A Technique to Protect Against National or Mechanical Loss* (NPS 1991). Among the requirements of an effective capping, the mechanical process of burying the site must be designed in a manner that protects the site matrix during the placement process and during the operation of the HST. Preconstruction testing can be used to determine the construction equipment and fill-material load limits that are allowable without causing compression or warpage of the artifact and feature components of the site. If the preconstruction testing determines that compression or warpage of the site is probable and this mitigation would not effectively reduce the effects of the project to less-than-significant levels, additional mitigation, such as data recovery (**Arch-MM#2**), would be necessary. Furthermore, if it is determined that the engineering requirements of the construction and operation of the HST at the location of the site prohibit the effective avoidance of the site, or if the surrounding conditions prohibit the protection or preservation of the archaeological components, the mitigation of data recovery would be the only feasible mitigation (see **Arch-MM#2**). In addition, provisions would be made with the contracted archaeologist to monitor the site after the burial process is completed.
Arch-MM#4: Halt Work in the Event of an Archaeological Discovery	If any prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources would halt, and the project proponent would consult with a qualified archaeologist to assess the significance of the find, according to CEQA Guidelines Section 15064.5, and any work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out. If any find is determined to be significant, the project proponent and the archaeologist would meet to determine the appropriate avoidance measures or other appropriate mitigation. All significant cultural materials recovered would be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. In considering any suggested mitigation proposed by the consulting archaeologist to mitigate impacts on historical resources or unique archaeological resources, determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If in consultation with the consulting archaeologist, it is determined that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, the following actions will be followed: • Redesign the project to avoid any adverse effect on the significant archaeological resource. • Implement **Arch-MM#3**, Intentional Site Burial for Site Preservation. • Implement an archaeological data recovery program (ADRP) (unless the archaeologist determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible). If the circumstances

Impact	Measures to Minimize Harm
	warrant an ADRP, such a program will be conducted. Together with a project archaeologist, determine the scope of the ADRP. The archaeologist would prepare a draft ADRP. The ADRP would identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. That is, the ADRP would identify the scientific/historical research questions that are applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods would not be applied to portions of the archaeological resources if nondestructive methods are practical.

4.10 Preliminary Section 4(f) Least Harm Analysis

Considering the foregoing discussion of the HST project's potential use of Section 4(f) properties, there would be no prudent avoidance alternatives to the use of land from one park property: Camp Pashayan. If the UPRR/SR 99 Alternative were selected, there would be no prudent avoidance alternative to the use of land from two additional park properties: Sharon Avenue Linear Park and County Road 27¾ Linear Park in Madera. There would be a prudent avoidance alternative to the use of land from the Joe Stefani Elementary School (with the construction of the Castle Commerce Center HMF site under any of the HST alternatives). As described, the project includes all possible planning identified to date to minimize harm to Section 4(f) properties resulting from use, as required by 49 U.S.C. 303(c)(2).

The UPRR/SR 99 Alternative would potentially have a Section 4(f) *de minimis* use of Riverside Park and Camp Pashayan (according to 49 U.S.C. Section 303(d)). Measures to minimize harm, such as avoidance, minimization, mitigation, and enhancement measures, will be incorporated into the HST project based on consultation with the agencies with jurisdiction. FRA has coordinated with these agencies prior in making its preliminary *de minimis* determination and will continue to consult with the agencies to seek their concurrence on the determination after publication of the Project EIR/EIS and review of public comment.

Table 4-9 provides a comparative assessment of the three HST alternatives in terms of the least harm analysis factors listed above.

Table 4-9
Preliminary Least Harm Analysis[a]

Factor 1: "The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)"; and **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."**
The UPRR/SR 99 Alternative would result in the use of nine Section 4(f) resources. The BNSF Alternative would result in the use of five Section 4(f) resources. The Hybrid Alternative would result in the use of five Section 4(f) resources. There is no differentiation among the three HST alternatives with regard to Factors 1 and 2 for the following Section 4(f) resources: • Joe Stefani Elementary School (Section 4(f) use would occur only if the Castle Commerce Center HMF site is selected; impact would be due to the construction of the guideway to the Castle Commerce Center HMF) [permanent use] • Camp Pashayan [*de minimis*] • Robertson Blvd Tree Row (historic) [permanent use] • Forestiere Underground Gardens (historic) [permanent use] • Weber Avenue Bridge (historic) [permanent use] • In addition to the park resources noted above for all HST alternatives, the UPRR/SR 99 Alternative would have a Section 4(f) use at three additional parks: Sharon Avenue Linear Park [temporary use]; County Road 27¾ Linear Park [permanent use]; and Riverside Park [*de minimis*]. • In addition to the historic resources noted above for all HST alternatives, the UPRR/SR 99 Alternative would result in a Section 4(f) use at one additional historic resource – the SPRR Station in Madera [permanent use]. By virtue of having the most Section 4(f) uses (in comparison to the BNSF and Hybrid alternatives), the UPRR/SR 99 Alternative would have the greatest relative net harm under Factors 1 and 2. The BNSF and Hybrid alternatives would equally cause the least harm under Factors 1 and 2.
Factor 3: "The relative significance of each Section 4(f) property"; and **Factor 4: "The views of the official(s) with jurisdiction over each Section 4(f) property."**
Each public Section 4(f) resource discussed in this Draft Section 4(f) Evaluation is considered "significant" to its jurisdictional owner; these resources would not be protected under Section 4(f) if a jurisdiction did not consider a particular resource "significant." Of the public Section 4(f) resources incurring uses as a result of the HST alternatives, there are only three where a least harm differentiation comparison can be made (Sharon Avenue Linear Park, Riverside Park, and County Road 27¾ Linear Park), and these resources only incur Section 4(f) uses under the UPRR/SR 99 Alternative. Each of the other public Section 4(f) resources incurs similar Section 4(f) uses under all HST alternatives. Based on the above discussion, the BNSF and Hybrid alternatives would equally cause the least harm under Factors 3 and 4, while the UPRR/SR 99 Alternative would have the greatest relative net harm under Factors 3 and 4.

Factor 5: "The degree to which each alternative meets the purpose and need for the project."

The purpose of the Merced to Fresno Section HST project is to implement the Merced to Fresno Section of the HST System to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit systems, and the highway network in the southern San Joaquin Valley, and to connect the northern and southern portions of the system. The objectives and policies for the proposed HST system are as follows:

- Provide intercity travel capacity to supplement critically overused interstate highways and commercial airports.
- Meet future intercity travel demand that will be unmet by present transportation systems, and increase capacity for intercity mobility.
- Maximize intermodal transportation opportunities by locating stations to connect with local transit systems, airports, and highways.
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel.
- Provide a sustainable reduction in travel time between major urban centers.
- Increase the efficiency of the intercity transportation system.
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible.
- Develop a practical and economically viable transportation system that can be implemented in phases by 2020 and generate revenues in excess of operations and maintenance costs.
- Provide intercity travel in a manner sensitive to and protective of the region's natural and agricultural resources and reducing emissions and vehicle miles traveled for intercity trips.

The degree to which the HST alternatives would meet the project purpose, objectives, and needs is a consideration that must include a comprehensive determination of all subject areas assessed in the Merced to Fresno Section Project EIR/EIS. Therefore, the ultimate response to Factor 5 relies upon the aforementioned consideration/determination process, which has not yet taken place, given that a preferred alternative is not being proffered by this Project EIR/EIS (a preferred alternative will be identified in the Final Project EIR/EIS).

Based on a summary review of the Project EIR/EIS, the UPRR/SR 99 Alternative appears likely to be the least harm alternative with respect to Factor 5 because, of the three HST alternatives, it would best meet the aforementioned objectives of the project by maximizing the length of the corridor that follows existing transportation corridors so as to minimize impacts on other resources, including biological resources and agricultural operations.

Factor 6: "After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)."
A response to address the "magnitude of any adverse impacts to resources not protected by Section 4(f)" ultimately requires a totality of impacts consideration that takes into account the entire spectrum of natural and human resources addressed in this Project EIR/EIS. This consideration is the task of decision-makers examining the various technical reports contained in this Project EIR/EIS. As noted in the discussion under Factor 5, this consideration/determination process has not yet taken place, given that the preferred alternative is not being proffered in this Project EIR/EIS. Based on a summary review of the Project EIR/EIS, the UPRR/SR 99 and Hybrid alternatives would equally cause the least harm with respect to Factor 6 because, of the three HST alternatives, they would have the least adverse impacts with respect to non-Section 4(f) resources, including noise, biological resources, and agricultural operations. The BNSF Alternative would have the most acres of residential impact and the most acres of impact on sensitive habitat areas that may support threatened and endangered species, is the longest, and would involve the most crossings of SR 99 and UPRR. The UPRR/SR 99 Alternative would have the most noise impacts because it would pass through developed areas of Madera and Chowchilla. Because more of their length would not follow existing transportation corridors, the BNSF and Hybrid alternatives would bisect somewhat more farmland than the UPRR/SR 99 Alternative, potentially creating greater hardships on farming.
Factor 7: "Substantial differences in costs among the alternatives."
The respective HST alternative capital cost estimates are as follows:[b] • UPRR/SR 99 Alternative: $4,732,000 – $6,044,000 • BNSF Alternative: $4,194,000 – $4,732,000 • Hybrid Alternative: $3,120,000 The Hybrid Alternative would be the least costly HST alternative and would, therefore, be the least harm alternative with respect to Factor 7. Whether the comparative difference in cost between the three alternatives could be considered "substantial" depends on the design options chosen within the alternative.
[a] The seven factors listed in this table correspond with 23 CFR 774.3(c)(1)(i) through (vii). [b] Cost ranges are provided where construction costs would differ according to the design options selected.

Based on the preliminary least harm analysis contained in Table 4-9, the Hybrid Alternative would likely have the least harm and the UPRR/SR99 Alternative would likely have the greatest harm when considering the seven comparative evaluation factors. The Authority and FRA will include a final Section 4(f) determination in the Final Project EIR/EIS based on further design information and coordination with the agencies of jurisdiction as well as a review of public comments.

4.11 Section 6(f)

Section 6(f)(3) of the LWCF Act requires that no property acquired or developed with LWCF assistance will 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 to ensure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location (pursuant to 36 CFR 59).

Prerequisites for conversion approval as provided in 36 CFR Part 59.3 are as follows:

- All practical alternatives to the proposed conversion have been evaluated as discussed above in Section 4.7.
- The fair market value of the property to be converted has been established, and the property proposed for substitution is of at least equal fair market value as established by an approved appraisal.

- The property proposed for replacement is of reasonably equivalent usefulness and location as that being converted.
- The property proposed for substitution meets the eligibility requirements for LWCF-assisted acquisition.
- In the case of assisted sites that are partially rather than wholly converted, the impact of the converted portion on the remainder will be considered. If such a conversion is approved, the unconverted area must remain recreationally viable or must also be replaced.
- All necessary coordination with other federal agencies has been satisfactorily accomplished.
- The guidelines for environmental evaluation have been satisfactorily completed and considered by the NPS during its review of the proposed Section 6(f)(3) action. In cases where the proposed conversion arises from another federal action, final review of the proposal will not occur until the NPS regional office is assured that all environmental review requirements related to the other action have been met.
- State intergovernmental clearinghouse review procedures have been adhered to if the proposed conversion and substitution constitute significant changes to the original LWCF project.
- The proposed conversion and substitution are in accord with the Statewide Comprehensive Outdoor Recreation Plan and/or equivalent recreation plans.
- Roeding Park is the only Section 6(f) resource in the study area. The HST project would not convert any parkland from Roeding Park.