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

4.1 Introduction

This chapter provides the analysis to support the Federal Railroad Administration's (FRA's) determinations necessary to comply with the provisions of 49 United States Code (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]").

Under Section 4(f) an operating administration of the U.S. Department of Transportation may not approve a project that uses protected properties unless there are no prudent or feasible alternatives to such use, and the project includes all possible planning to minimize harm to such properties. Section 4(f) protected properties are publicly owned lands of a park, recreation area, or wildlife and waterfowl refuge, or lands 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. To demonstrate the FRA's compliance with Section 4(f), this chapter will:

- Describe the statutory requirements associated with Section 4(f).
- Identify the properties protected by Section 4(f) in the study area.
- Determine whether the Fresno to Bakersfield High-Speed Train Project would result in the use of those properties.
- Identify feasible and prudent alternatives, to the extent any exist, that would avoid or minimize use of the properties.
- Identify measures to minimize harm.
- Provide a least-harm analysis for project alternatives that would result in the use of Section 4(f) properties.

Section 6(f) properties are recreation resources created or improved with funds from the LWCF Act. Land purchased with these funds cannot be converted to a non-recreational use without coordination with the Department of the Interior, National Park Service (NPS) and mitigation that includes replacement of the quality and quantity of land used. Additional information on publicly owned parks, recreation lands, wildlife and waterfowl refuges, and historic sites is provided in Section 3.7, Biological Resources and Wetlands; Section 3.15, Parks, Recreation, and Open Space; Section 3.17, Cultural and Paleontological Resources; the *California High-Speed Train Fresno to Bakersfield Section: Supplemental Historic Property Survey Report* (Authority and FRA 2011a); the *California High-Speed Train Fresno to Bakersfield Section: Revised Supplemental Historic Property Survey Report* (Authority and FRA 2012); the *California High-Speed Train Fresno to Bakersfield Section: Second Supplemental Historic Property Survey Report* (Authority and FRA (2013) and the *California High-Speed Train Fresno to Bakersfield Section: Final Section 106 Findings of Effect* (Authority and FRA 2014).

This chapter describes the statutory requirements associated with Section 6(f), the methodology for identifying Section 6(f) properties, and makes an assessment of impacts on resources protected under Section 6(f).

As discussed in Section 3.1.5 and the Executive Summary, the analysis in this chapter includes revisions based on design refinements and analytical refinements. Gray shading is used as a guide to help the reader navigate the revisions.

4.1.1 Law, Regulations and Orders

4.1.1.1 Federal

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

Projects undertaken by an operating administration of the U.S. Department of Transportation (USDOT) or that may receive federal funding and/or discretionary approvals from such operating administration of USDOT must demonstrate compliance with Section 4(f). 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 on public or private land that are potentially eligible for listing or are listed on the National Register of Historic Places (NRHP) and are protected under Section 106 of the National Historic Preservation Act of 1966 (NHPA). FRA's Procedures for Considering Environmental Impacts (64 FR 25445, May 26, 1999) contains FRA processes and protocols for analyzing the potential use of Section 4(f) resources. In addition, although not subject to the Title 23 Section 774 regulations regarding Section 4(f) for highways and transit projects, the FRA uses these regulations and associated policy guidance as additional guidance when applying Section 4(f).

FRA may not approve the use of a Section 4(f) property, as described 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 consistent with the requirements of 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 prudent, the FRA may consider if the alternative will result in any of the following:

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

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

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

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

Section 6(f) of the Land and Water Conservation Fund Act (16 USC 460l-8(f) and 36 CFR Part 59.1)

State and local governments often obtain grants through the LWCF Act to acquire or make improvements to parks and recreation areas. Section 6(f) of the act prohibits the conversion of property acquired or developed with these grants to a non-recreational purpose without the approval of the U.S. Department of the Interior's (DOI's) NPS. Section 6(f) directs DOI to ensure that replacement lands of comparable value and function, or monetary compensation (used to enhance the remaining land), location, and usefulness are provided as conditions to such conversions.

4.1.2 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 alternative alignments, stations, and the heavy maintenance facility (HMF) site alternatives for the Fresno to Bakersfield Section of the HST System.

4.1.2.1 Public Park and Recreation Lands, Open Space, and Wildlife and Waterfowl Refuges

The study area for parks, recreational facilities, and open space is defined as 1,000 feet on either side of the alternative alignments and 0.5 mile around the HMF sites, station areas, and support facilities for the HST alternatives.

4.1.2.2 Historic properties

Because this project is a federal undertaking, it must also comply with the NHPA. The NHPA implementing regulations at 36 Code of Federal Regulations (CFR) 800.4(a)(1) require the establishment of an 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. Therefore, the APE serves as the study area for Section 4(f) historic properties that are potentially eligible for listing or are listed on the NRHP.

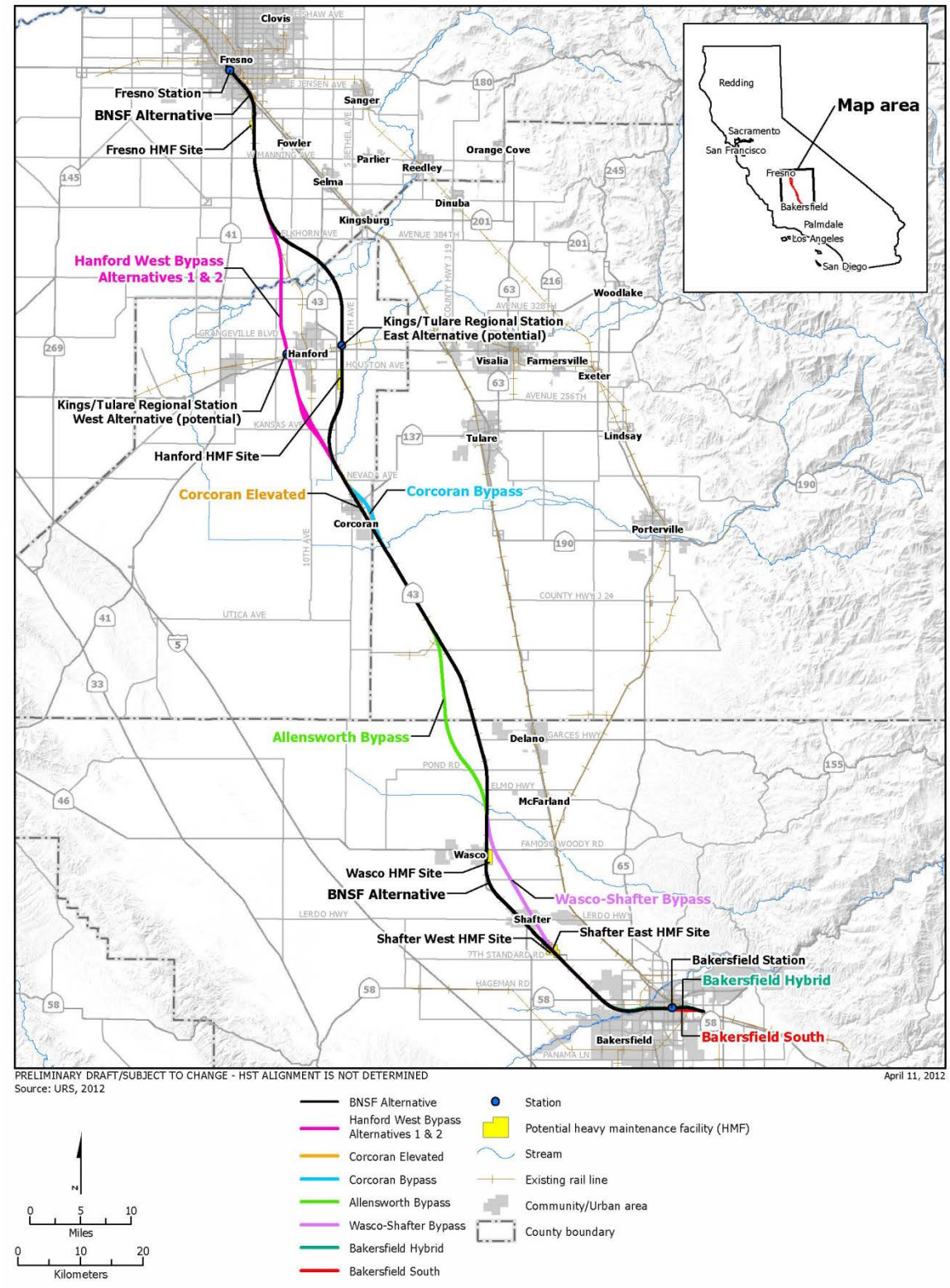

Figure 4-1
HST alternatives and HMF site alternatives

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 cultural resources survey was conducted. The APE is further defined in Section 3.17, Cultural and Paleontological Resources and includes:

- Properties within the proposed right-of-way.
- Properties where historic materials or associated landscape features would be demolished, moved, or altered by construction.
- Properties near the undertaking where railroad materials, features, and activities have not been part of their historic setting and where the introduction of visual or audible elements may affect the use or characteristics of those properties 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 or 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.

4.1.3 Section 4(f) Applicability

A park or recreation area qualifies for protection under Section 4(f) if it (1) is publicly owned at the time at which the "use" occurs; (2) is open to the general public for use as a park or recreational facility; and (3) is considered a significant resource by the authority with jurisdiction over the area.

A wildlife or waterfowl refuge qualifies for protection under Section 4(f) if it (1) is publicly owned at the time at which the "use" occurs; (2) is being used as a refuge; or (3) is considered a significant resource by the authority with jurisdiction.

A historic site eligible for, or listed in, the NRHP is protected under Section 4(f). Although the statutory requirements of Section 106 and Section 4(f) are similar, if a proposed action results in an "adverse effect" under Section 106, there will not automatically be a Section 4(f) "use." Therefore, the FRA completes a separate Section 4(f) analysis and determination, in addition to those completed in compliance with the Section 106 process of the NHPA.

For a property to be eligible for the NRHP, it must meet at least one of the four NRHP criteria (i.e., Criteria A–D) described below. The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and meet one or more of the following criteria:

- Criterion A: properties that are associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion B: properties that are associated with the lives of persons significant in our past;
- Criterion C: properties that embody distinctive characteristics of a type, period, or method of construction; or that represent the work of a master; or that possess high-artistic values; or that represent a significant and distinguishable entity whose components may lack individual distinction; or

- Criterion D: properties that have yielded, or may be likely to yield, information important in prehistory or history.

An archaeological resource that is eligible only under NRHP Criterion D, as defined above, is considered valuable only in terms of the data that can be recovered from it. For such resources (e.g., 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, as defined above, are considered to have value intrinsic to the resource's location. In other words, Section 4(f) does not apply to a site if it is important chiefly because of what can be learned by data recovery and therefore has minimal value for preservation in place.

4.1.4 Section 4(f) Use Definition

4.1.4.1 Permanent Use

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

4.1.4.2 Temporary Occupancy

A temporary occupancy 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 before project construction.
- There must be documented agreement of the appropriate officials having jurisdiction over the resource regarding the foregoing requirements.

4.1.4.3 Constructive Use

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

- Identifying the current activities, features, or attributes of the resource that may be sensitive to proximity impacts.

- Analyzing the potential proximity impacts on the resource.
- Consulting with the appropriate officials having jurisdiction over the resource.

It is important to note that erecting a structure over a Section 4(f) property, and thus requiring an air lease, does not, by itself, constitute a use, unless the effect constitutes a constructive use. Further, an indirect adverse effect under Section 106 of the National Historic Preservation Act to a historic property does not in and of itself result in a constructive use.

4.1.4.4 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 the FRA concludes the transportation project will not adversely affect the activities, features, and attributes qualifying the property for protection under Section 4(f) after mitigation. In addition, to make a *de minimis* impact determination there must be:
  - Public notice and opportunity for public review and comment.
  - Concurrence on the effect finding is received from the official(s) with jurisdiction over the property.
- For a historic site, a *de minimis* impact determination may be made if, in accordance with the Section 106 process of the NHPA, FRA determines that the transportation program or project will have no effect or no adverse effect on historic properties, FRA has received written concurrence from the official(s) with jurisdiction over the property, (e.g. the State Historic Preservation Officer [SHPO]) and has taken into account the views of consulting parties to the Section 106 process as required by 36 CFR Part 800.

4.2 Coordination

Consistent with 49 U.S.C. 303(b) and FRA's Environmental Procedures, copies of the Draft EIS, Supplemental Draft EIS, and this Final EIS have been provided to the Secretary of the Interior, the Secretary of Housing and Urban Development, and the Secretary of Agriculture as well as key state agencies. At key points during the EIR/EIS process, the Authority and FRA have consulted with the SHPO, local jurisdictions, the California Department of Fish and Wildlife (CDFW), and the Native American Heritage Commission and interested tribes to identify and assess impacts on Section 4(f) resources. The Authority has consulted with the agencies that have jurisdiction over the public park properties, including the California Department of Parks and Recreation, the U.S. Army Corps of Engineers (USACE), the U.S. Fish and Wildlife Service (USFWS), and the cities of Fresno, Corcoran, and Bakersfield, regarding potential park and National Wildlife Refuge impacts. The Authority also consulted with the CDFW regarding impacts on the Allensworth Ecological Reserve. Related coordination activities also occurred throughout the Section 106 of the NHPA and Tribal Consultation process. This coordination is summarized in Section 3.17, Cultural and Paleontological Resources.

A preliminary Section 4(f) evaluation was included in both the Draft EIR/EIS and the Revised DEIR/Supplemental DEIS. The Draft EIR/EIS was made available for public review during a 60-day comment period and the Revised DEIR/Supplemental DEIS was made available for public review during a 90-day comment period. FRA and the Authority received comments on the Section 4(f) analysis that were addressed, as appropriate, and reflected in this chapter or included in the response to comments in Volumes IV and V of this Final EIR/ EIS.

The Authority and FRA will continue to consult with affected 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. This is the final Section 4(f) evaluation, and the FRA's Section 4(f) determination will be part of its Record of Decision (ROD).

4.3 Purpose and Need

The purpose of the statewide HST System is to provide a reliable electric-powered high-speed train system that links the major metropolitan areas of the state and that delivers predictable and consistent travel times. An additional 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 occur in California intercity travel demand, in a manner sensitive to and protective of California's unique natural resources (Authority and FRA 2005).

The purpose of the Fresno to Bakersfield Section is to implement the California HST System between Fresno and Bakersfield to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit, and the highway network in the south San Joaquin Valley, and to connect the northern and southern portions of the system. For more information on the project objectives and/or the need for the HST System in California and in the southern San Joaquin Valley region, please refer to Chapter 1.0.

4.4 Alternatives

This section describes the project alternatives, beginning with the No Project Alternative and then the HST alternatives. The HST alternatives begin with a single continuous alignment, hereinafter termed the "BNSF Alternative." This alternative extends from the northern end of the Fresno station tracks near Amador Street to Oswell Street in Bakersfield. This alternative most closely follows the preferred alignment identified in the Record of Decision (ROD) for the Statewide Program EIR/EIS. Ten alternative alignments deviate from the BNSF Alternative for portions of the route. The Fresno to Bakersfield Section would include a station in Fresno, a Kings/Tulare Regional station in the Hanford area, and a station in Bakersfield. Station alternatives are described with their corresponding alignment alternative below. Additionally, five alternative sites are being considered for the HMF. The project alternatives for the Fresno to Bakersfield Section are described in more detail in Chapter 2, Alternatives, and are briefly summarized below. Figure 4-1 shows the locations of the project alternatives.

4.4.1 No Project Alternative

The No Project Alternative considers the effects of growth planned for the region as well as existing and planned improvements to the highway, aviation, conventional passenger rail, and freight rail systems in the Fresno to Bakersfield study area through the 2035 time horizon for the environmental analysis. It does 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 associated with the construction and operation of the HST; however, there could be impacts to Section 4(f) or Section 6(f) resources as a result of the existing and planned improvements associated with the No Project Alternative. Also, the No Project Alternative would not address the 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 BNSF Alternative

The BNSF Alternative would extend from Fresno to Bakersfield; it would run adjacent to the BNSF Railway line to the extent allowable by engineering constraints. The BNSF Alternative would cross through Fresno, Kings, Tulare, and Kern counties.

The BNSF Alternative would begin at the north end of the Fresno station tracks adjacent to the western side of the UPRR right-of-way in the vicinity of Amador Street. The alignment would run southeast through Fresno on the western side of the UPRR until reaching East Jensen Avenue. The alignment would then curve to the south to join the BNSF Railway right-of-way on its western side at East Malaga Avenue south of Fresno. The BNSF Alternative would continue south through Kings County passing east of the city of Hanford and through the eastern edge of the city of Corcoran. Continuing south into Tulare County, the alignment would be at-grade and adjacent to the BNSF right-of-way for approximately 22 miles. Finally, entering Kern County, this alternative would cross through the cities of Wasco, Shafter, and Bakersfield, generally following the BNSF right-of-way to its terminus at Oswell Street.

The BNSF Alternative would include stations in Fresno, a Kings/Tulare Regional station east of Hanford, and Bakersfield.

The Fresno Station would be centered on Mariposa Street bordered by Fresno Street on the north, Tulare Street on the south, H Street on the east, and G Street on the west. The Fresno Station would occupy approximately 20 acres and include a station building, a bus transit center, and parking facilities. Selection of the Fresno Station–Mariposa Alternative was included in the ROD for the Merced to Fresno Section signed on September 18, 2012.

The Kings/Tulare Regional Station–East Alternative would be located along the BNSF Alternative, east of SR 43 (Avenue 8) and north of the Central Valley Rail Line (San Joaquin Valley Railroad). The entire site would cover approximately 25 acres and include a station building, a bus transit center, and parking facilities.

The Bakersfield Station–North Alternative would be located along the BNSF Alternative at the corner of Truxtun and Union Avenue/SR 204, east of the existing Amtrak station. The station alternative would occupy approximately 20 acres and include a station building, a bus transit center, and parking facilities.

4.4.3 Hanford West Bypass 1 Alternative

The Hanford West Bypass 1 Alternative would parallel the BNSF Alternative from East Kamm Avenue to approximately East Elkhorn Avenue in Fresno County. At East Conejo Avenue where the BNSF Alternative crosses to the eastern side of the BNSF Railway tracks to pass the city of Hanford to the east, the Hanford West Bypass 1 Alternative continues south on the western side of the BNSF Railway tracks. The Hanford West Bypass 1 would diverge from the BNSF Railway corridor just south of East Elkhorn Avenue and ascend onto an elevated structure just south of East Harlan Avenue, crossing over the Kings River complex and Murphy Slough, and passing the community of Laton to the west. The Hanford West Bypass 1 Alternative would return to grade just north of Dover Avenue. The alignment would continue at-grade and would travel between the community of Armona to the west and the city of Hanford to the east on a southeasterly route toward the BNSF Railway corridor. This alternative would rejoin the BNSF Railway corridor on its western side at about Lansing Avenue. The alignment would then ascend onto another elevated structure, traveling over Cross Creek and aquatic features north of Corcoran. This alignment would return to grade just north of Nevada Avenue and would connect to the BNSF Alternative traveling through Corcoran at-grade, on the western side of the BNSF Railway corridor.

The Kings/Tulare Regional Station–West Alternative would be located along this alignment, at grade and east of 13th Avenue, between Lacey Boulevard and the SJVR railroad spur.

4.4.4 Hanford West Bypass 1 Modified Alternative

The Authority and FRA developed the Hanford West Bypass 1 Modified Alternative (referred to as the "Hanford West Avoidance Alternative" in the Revised DEIR/Supplemental DEIS) as an avoidance alternative, as described in more detail in Section 4.7, Avoidance Alternatives, below. This alternative would be the same as the Hanford West Bypass 1 Alternative from East Kamm Avenue to Flint Avenue. From there, where the Hanford West Bypass 1 Alternative continues on a more southeasterly route, the Hanford West Bypass 1 Modified Alternative would continue south and would roughly parallel the Hanford West Bypass 1 Alternative to the west until it converges with the Hanford West Bypass 1 Alternative just north of Jackson Avenue. This portion of the modified alignment would travel to the west of the Section 4(f) properties at 13148 Grangeville Boulevard and 9860 13th Avenue in Kings County by as much as 600 feet.

Hanford West Bypass 1 Modified Alternative would be below-grade between Grangeville Boulevard and Houston Avenue. The alignment would travel below-grade in the vicinity of the station in an open cut with side slopes as it transitions to a retained-cut profile. As the alignment transitions back to grade just north of Houston Avenue, the open-cut profile would be used once more. The Hanford West Bypass 1 Modified Alternative would then cross and roughly parallel the path of the Hanford West Bypass 1 Alternative to the east by as much as 1,000 feet until just south of Kansas Avenue.

Similar to Hanford West Bypass 1, the Hanford West Bypass 1 Modified Alternative would rejoin the BNSF Railway corridor along its western side at about Lansing Avenue. The alignment would continue on the western side of the BNSF Railway corridor and ascend onto an elevated structure, traveling over Cross Creek and special aquatic features that exist north of Corcoran. This alignment would return to grade just north of Nevada Avenue and would connect to the BNSF Alternative and travel through Corcoran at-grade, maintaining an alignment on the western side of the BNSF Railway corridor.

The Kings/Tulare Regional Station–West Alternative would be located along this alignment, below-grade and east of 13th Avenue, between Lacey Boulevard and the SJVR railroad spur.

4.4.5 Hanford West Bypass 2 Alternative

The Hanford West Bypass 2 Alternative would be the same as the Hanford West Bypass 1 Alternative from East Kamm Avenue to just north of Jackson Avenue; at this location, the Hanford West Bypass 2 would curve west, away from the Hanford West Bypass 1. The Hanford West Bypass 2 Alternative would then continue over Kent Avenue, the BNSF Railway corridor, and Kansas Avenue on an elevated structure, returning to grade north of Lansing Avenue and continuing along the BNSF Railway corridor. Similar to the Hanford West Bypass 1 Alternative, Hanford West Bypass 2 would travel over Cross Creek and the aquatic features north of Corcoran and return to grade north of Nevada Avenue; however, the Hanford West Bypass 2 would be located on the eastern side of the BNSF Railway tracks to connect to either the Corcoran Elevated Alternative or the Corcoran Bypass Alternative, described below.

The Hanford West Bypass 2 Alternative includes the same at-grade design between Grangeville Boulevard and Houston Avenue as the Hanford West Bypass 1 Alternative, as well as the same at-grade Kings/Tulare Regional Station–West Alternative described for the Hanford West Bypass 1 Alternative.

4.4.6 Hanford West Bypass 2 Modified Alternative

The Authority and FRA developed the Hanford West Bypass 2 Modified Alternative as an avoidance alternative, as described in more detail in Section 4.7,Avoidance Alternatives, below. This alternative would be the same as the Hanford West Bypass 1 Modified Alternative from East Kamm Avenue to approximately Iona Avenue. In a manner similar to the route of the Hanford West Bypass 2 Alternative, the Hanford West Bypass 2 Modified Alternative would travel on an elevated structure over Kent Avenue, the BNSF Railway tracks, and Kansas Avenue, before returning to grade north of Lansing Avenue. This alternative would also travel over Cross Creek and the special aquatic features north of Corcoran, and return to grade north of Nevada Avenue. Like the Hanford West Bypass 2 Alternative, the Hanford West Bypass 2 Modified Alternative would connect with either the Corcoran Elevated or the Corcoran Bypass alternatives on the eastern side of the BNSF Railway railroad and SR 43.

The Hanford West Bypass 2 Modified Alternative includes the same below-grade design between Grangeville Boulevard and Houston Avenue as the Hanford West Bypass 1 Modified Alternative, and the same below-grade Kings/Tulare Regional Station–West Alternative described for the Hanford West Bypass 1 Modified Alternative.

4.4.7 Corcoran Elevated Alternative

The Corcoran Elevated Alternative would be the same as the corresponding section of the BNSF Alternative except that it would pass through the city of Corcoran on the east side of the BNSF Railway right-of-way on an elevated structure.

4.4.8 Corcoran Bypass Alternative

The Corcoran Bypass Alternative would parallel the BNSF Alternative from approximately Idaho Avenue south of Hanford to approximately Nevada Avenue north of Corcoran. The Corcoran Bypass Alternative would then diverge from the BNSF Alternative and swing east of Corcoran, rejoining the BNSF Railway route at Avenue 136. Similar to the corresponding section of the BNSF Alternative, the majority of the Corcoran Bypass Alternative would be at-grade. However, this alternative would be elevated over SR 43, the BNSF Railway, and the Tule River.

4.4.9 Allensworth Bypass Alternative

The Allensworth Bypass Alternative would diverge from the BNSF Alternative at Avenue 84 in Tulare County, run west of the BNSF Railway right-of-way and Allensworth State Historic Park, and rejoin the BNSF Alternative at Elmo Highway in Kern County. This alternative was developed to avoid Allensworth State Historic Park and the Allensworth Ecological Reserve. The Allensworth Bypass Alternative would be elevated over Deer Creek and the Stoil railroad spur. The majority of the alignment would pass through Tulare County at-grade.

4.4.10 Wasco-Shafter Bypass Alternative

The Wasco-Shafter Bypass Alternative would diverge from the BNSF Alternative between Taussig Avenue and Zachary Avenue, crossing over to the eastern side of the BNSF Railway tracks and bypassing Wasco and Shafter to the east. The Wasco-Shafter Bypass Alternative would rejoin the BNSF Alternative at Seventh Standard Road. This alternative would be at-grade except where it travels over Seventh Standard Road and the BNSF Railway to rejoin the BNSF Alternative.

4.4.11 Bakersfield South Alternative

The Bakersfield South Alternative would parallel the BNSF Alternative at varying distances to the north from the Rosedale Highway (SR 58) to Chester Avenue. The alternative would then curve south and parallel California Avenue. As with the corresponding segment of the BNSF Alternative, the Bakersfield South Alternative would begin at-grade but then be elevated starting at Palm Avenue through Bakersfield to its terminus at Oswell Street.

This alternative would include the Bakersfield Station–South Alternative, situated along Union and California avenues in Downtown Bakersfield, just south of the BNSF Alternative and the BNSF Railway right-of-way.

4.4.12 Bakersfield Hybrid Alternative

From Rosedale Highway (SR 58) in Bakersfield, the Bakersfield Hybrid Alternative would follow the Bakersfield South Alternative. At approximately A Street, the Bakersfield Hybrid Alternative would diverge from the Bakersfield South Alternative, cross over Chester Avenue and the BNSF ROW in a southeasterly direction, then curve back to the northeast to parallel the BNSF Railway tracks towards Kern Junction. After crossing Truxtun Avenue, the alignment would curve to the southeast to parallel the UPRR tracks and Edison Highway. As with the BNSF and Bakersfield South alternatives, the Bakersfield Hybrid Alternative would begin at-grade and become elevated starting at Country Breeze Place through Bakersfield to its terminus at Oswell Street.

This alternative would include the Bakersfield Station–Hybrid Alternative, located at the corner of Truxtun and Union Avenue/SR 204.

4.4.13 Heavy Maintenance Facility Site Alternatives

The Authority has determined that a HST heavy vehicle maintenance and layover facility (HMF) would be sited in either the Merced to Fresno Section or in the Fresno to Bakersfield Section of the California HST System. The HMF would be situated on an approximately 154-acre parcel close 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 Fresno to Bakersfield Section, one of which may be selected (see Figure 4-1).

- Fresno Works–Fresno HMF Site – An approximately 590-acre site located within the southern limits of the city of Fresno next to the BNSF Railway right-of-way between SR 99 and Adams Avenue.
- Kings County–Hanford HMF Site – An approximately 510-acre site located southeast of the city of Hanford adjacent to and east of SR 43, between Houston and Idaho avenues.
- Kern Council of Governments (COG)–Wasco HMF Site – An approximately 420-acre site located east of Wasco between SR 46 and Filburn Street.
- Kern COG–Shafter East HMF Site – An approximately 490-acre site located in the city of Shafter on the eastern side of the BNSF Railway right-of-way between Burbank Street and 7th Standard Road.
- Kern COG–Shafter West HMF Site – An approximately 480-acre site located in the city of Shafter on the western side of the BNSF Railway right-of-way between Burbank Street and 7th Standard Road.

4.5 Section 4(f) Applicability Analysis

Section 4.5.1 identifies those park, recreation, open space, and wildlife and waterfowl refuge properties that meet the criteria for protection as Section 4(f) resources. Section 4.5.2 identifies cultural resources that meet the criteria for protection as Section 4(f) resources. All Section 4(f) resources are shown on Figures 4-2 through 4-6, and Tables 4-1 and 4-2 provide information about the attributes of each of the properties that either have proximity impacts that could result in the potential for a Section 4(f) use (parks, recreation areas, open space, and wildlife and waterfowl refuges) or are located in the cultural resources APE.

4.5.1 Parks, Recreation, Open Space, and Wildlife and Waterfowl Refuges

Section 3.15, Parks, Recreation, and Open Space provides a description of each park, recreation, and open space area in the project study area; however, not all of these facilitates meet the requirements to qualify for protection under Section 4(f). The locations of parks, recreation and open space resources; and wildlife refuges in the study area are shown on Figures 4-2 through 4-6. No waterfowl refuges exist within the study area. Data collection to identify potential Section 4(f) resources consisted of a review of the plans and policies listed in Table 3.15-1 of the EIR/EIS Section 3.15 (Parks, Recreation, and Open Space), consultation with officials with jurisdiction over resources, field reviews, public input, and the use of GIS data banks. The cities and counties provided the boundaries for parks and recreation resources located within the study area in GIS data format and in adopted plans.

Table 4-1, and the following text, describes Section 4(f) Parks, Recreation, Open Space, and Wildlife and Waterfowl refuge properties that have the potential to incur a Section 4(f) use, or are located in close enough proximity to the alignment alternatives that discussion of proximity impacts is warranted.

Father Stephen Wyatt Park

Size and Location

Father Stephen Wyatt Park, shown on Figure 4-3, is 1 acre in size and is located at 954 Flory Avenue in Corcoran. The park is located east of and adjacent to the BNSF railroad tracks.

Ownership

Father Stephen Wyatt Park is owned and maintained by the City of Corcoran.

Usage of Park (Intended; Actual/Current; Planned)

The park is intended to be used as a public recreational facility and offers a playground area, a covered arbor, picnic tables, benches, and an unlighted softball field. The park does not provide any vehicular access; parking is available on side streets adjacent to the park. Pedestrian access is available on all sides of the park; the park boundaries are not fenced. Based on field reviews, actual park usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

The park is directly adjacent to an active railroad corridor and currently experiences noise and visual impacts associated with that corridor as a result of existing freight and passenger (Amtrak) traffic.

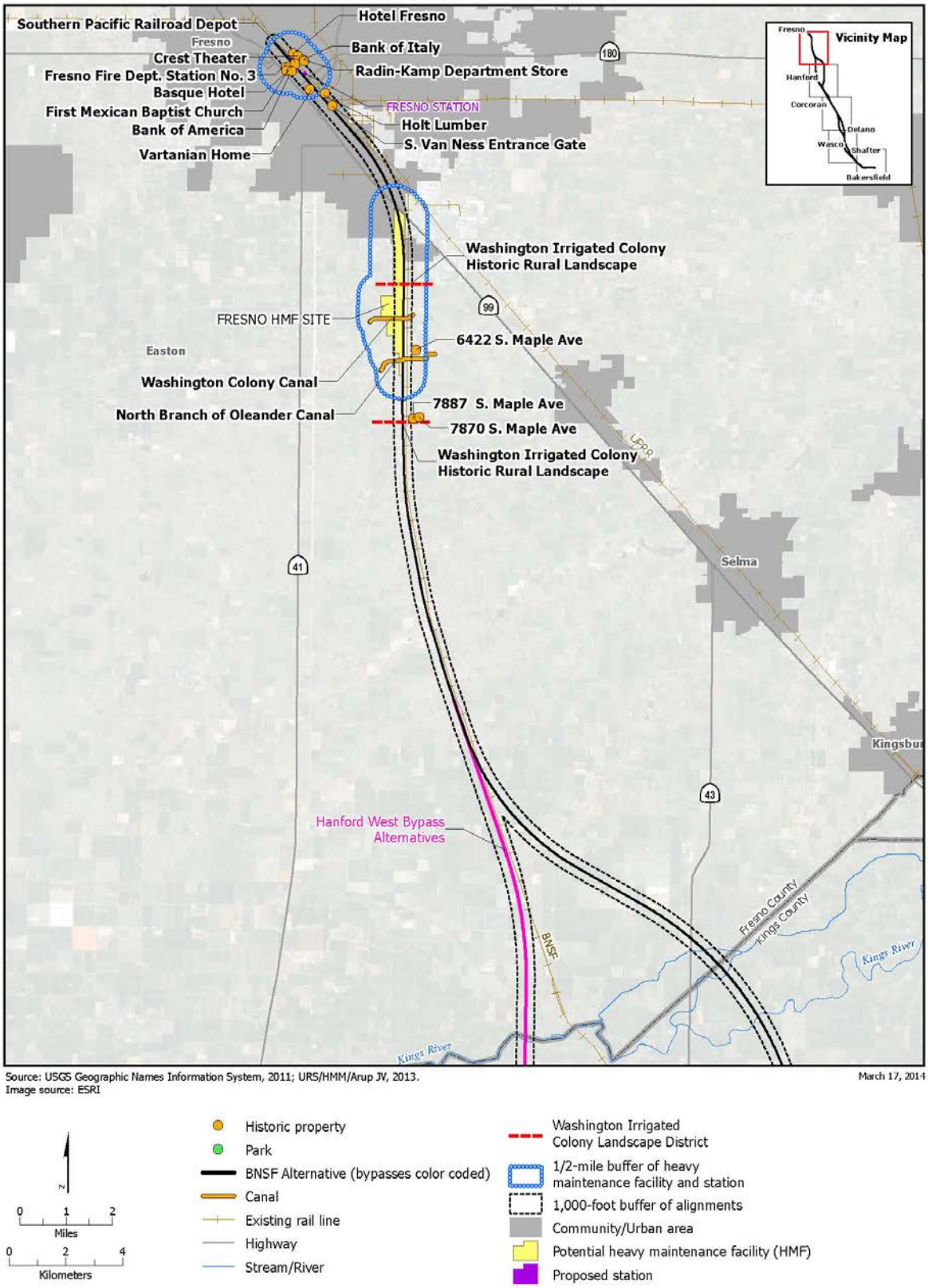

Figure 4-2
Fresno area: Section 4(f) properties within the project study area

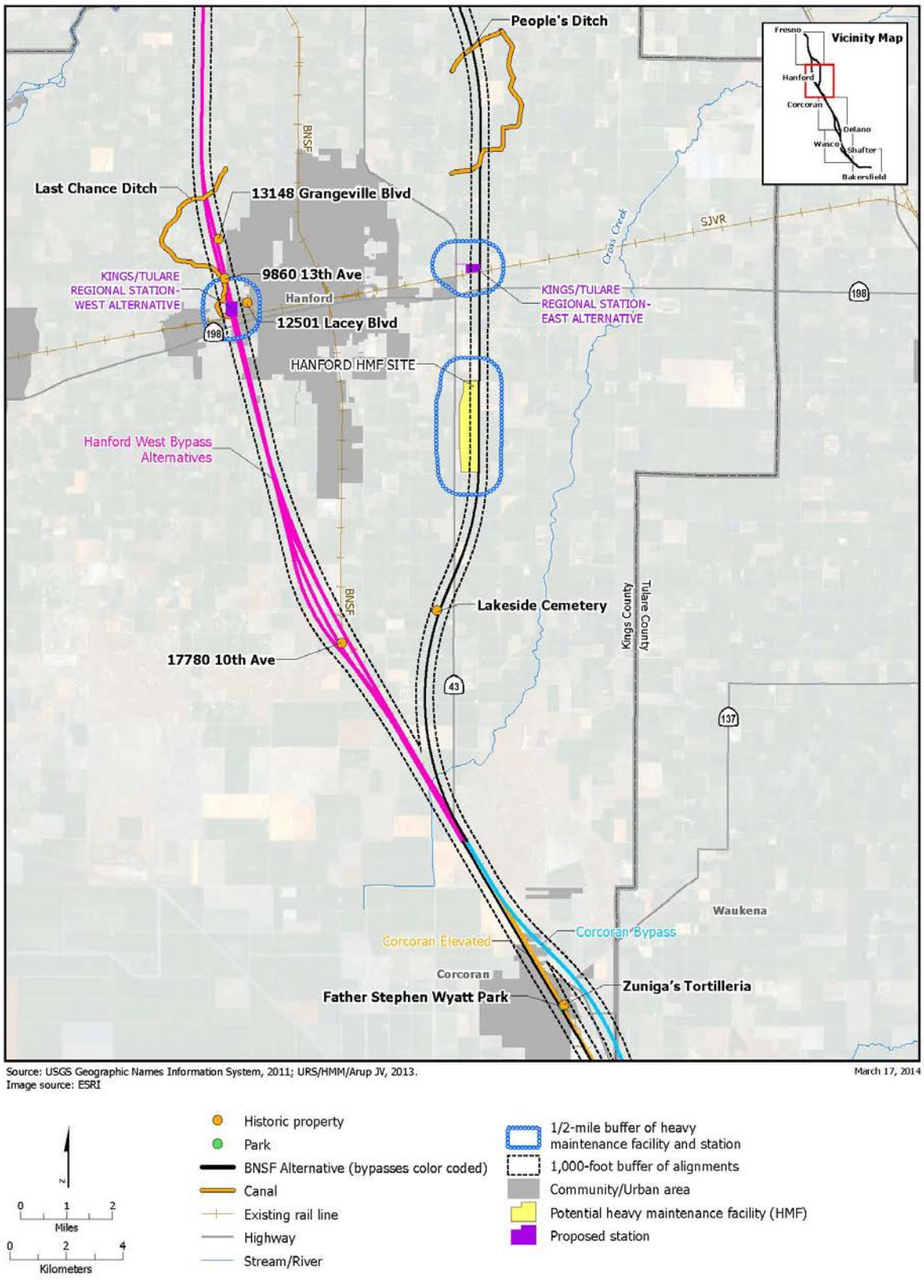

Figure 4-3
Hanford area: Section 4(f) properties within the project study area

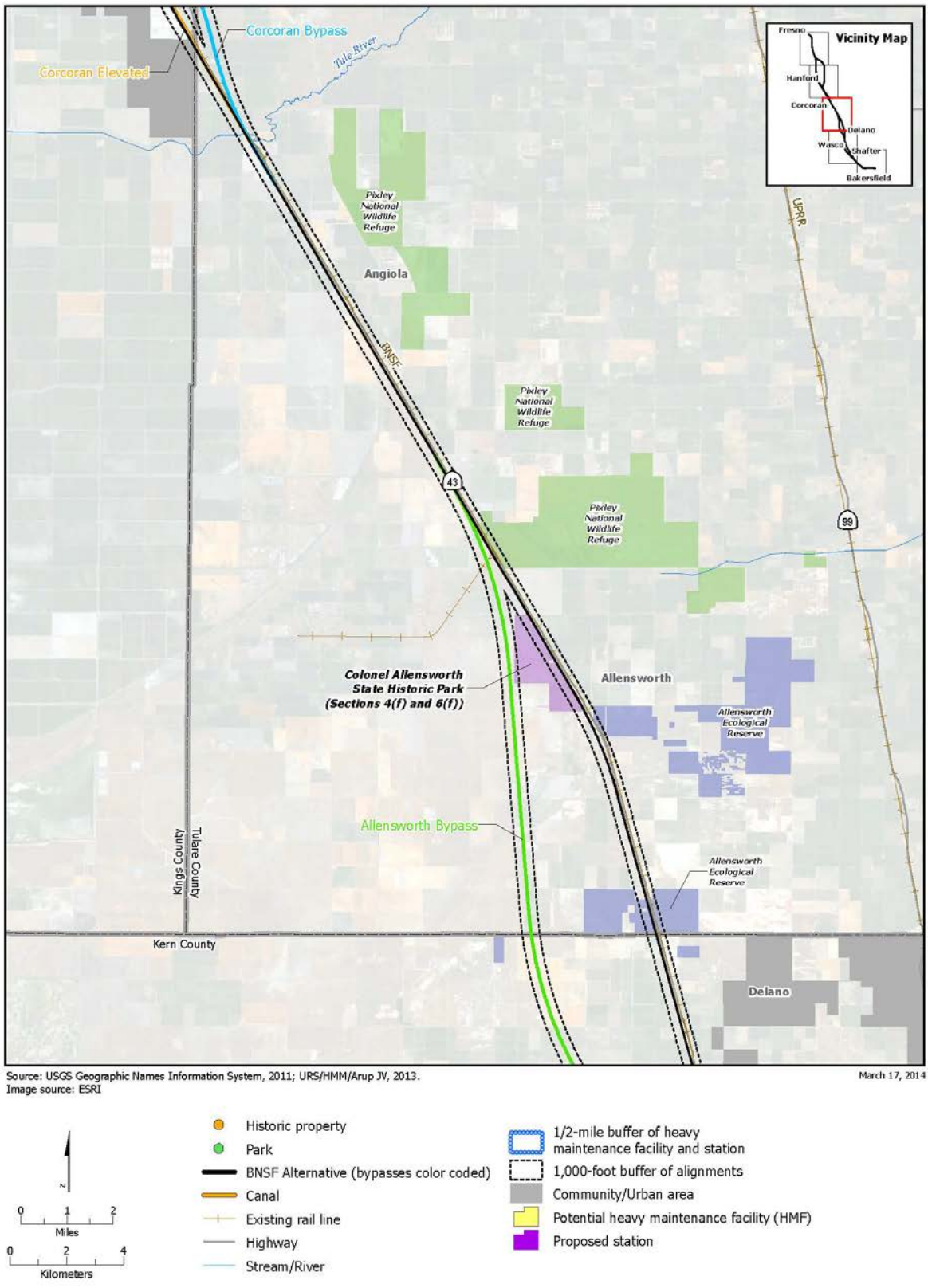

Figure 4-4
Corcoran area: Section 4(f) and 6(f) properties within the project study area

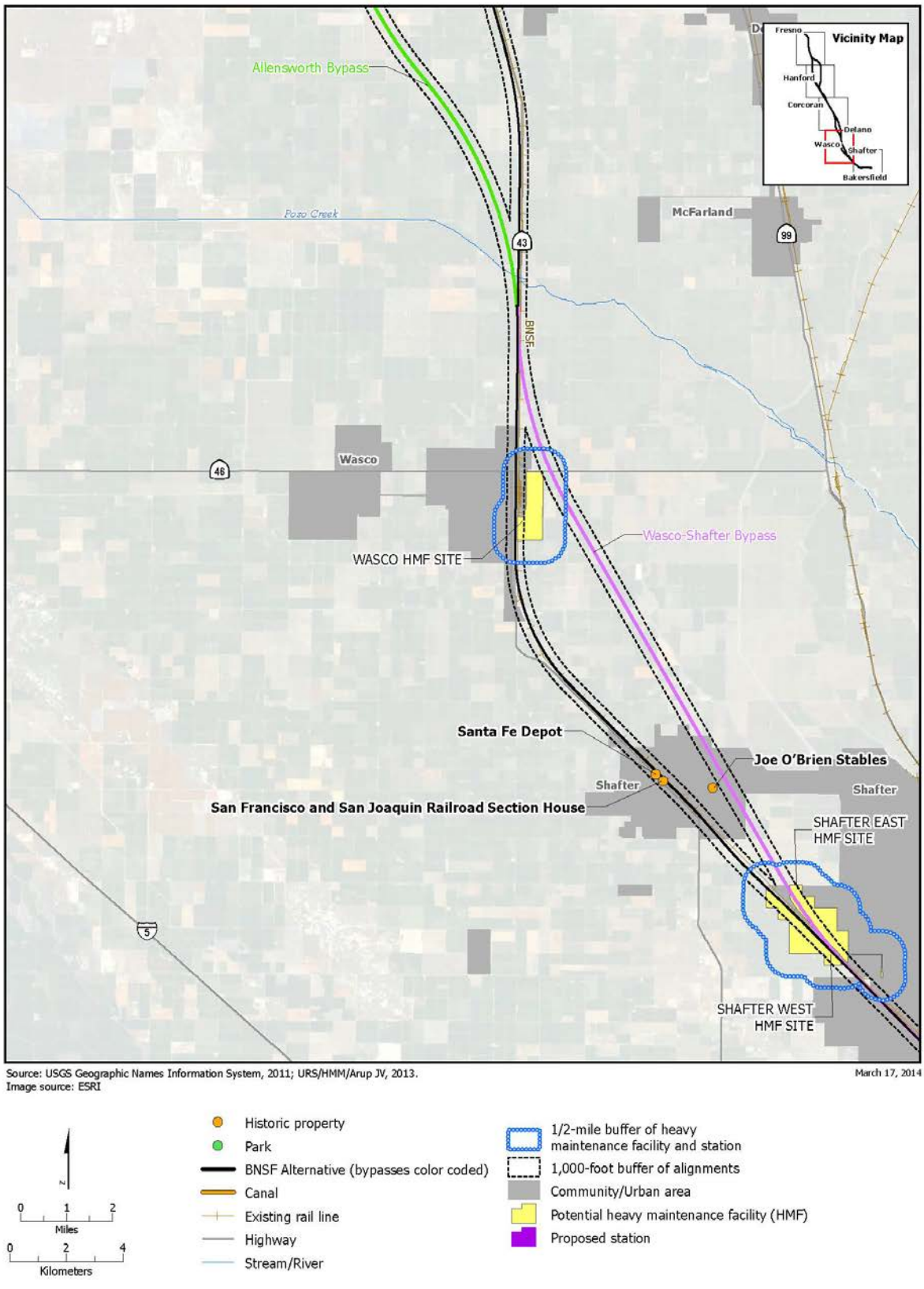

Figure 4-5
Wasco-Shafter area: Section 4(f) properties within the project study area

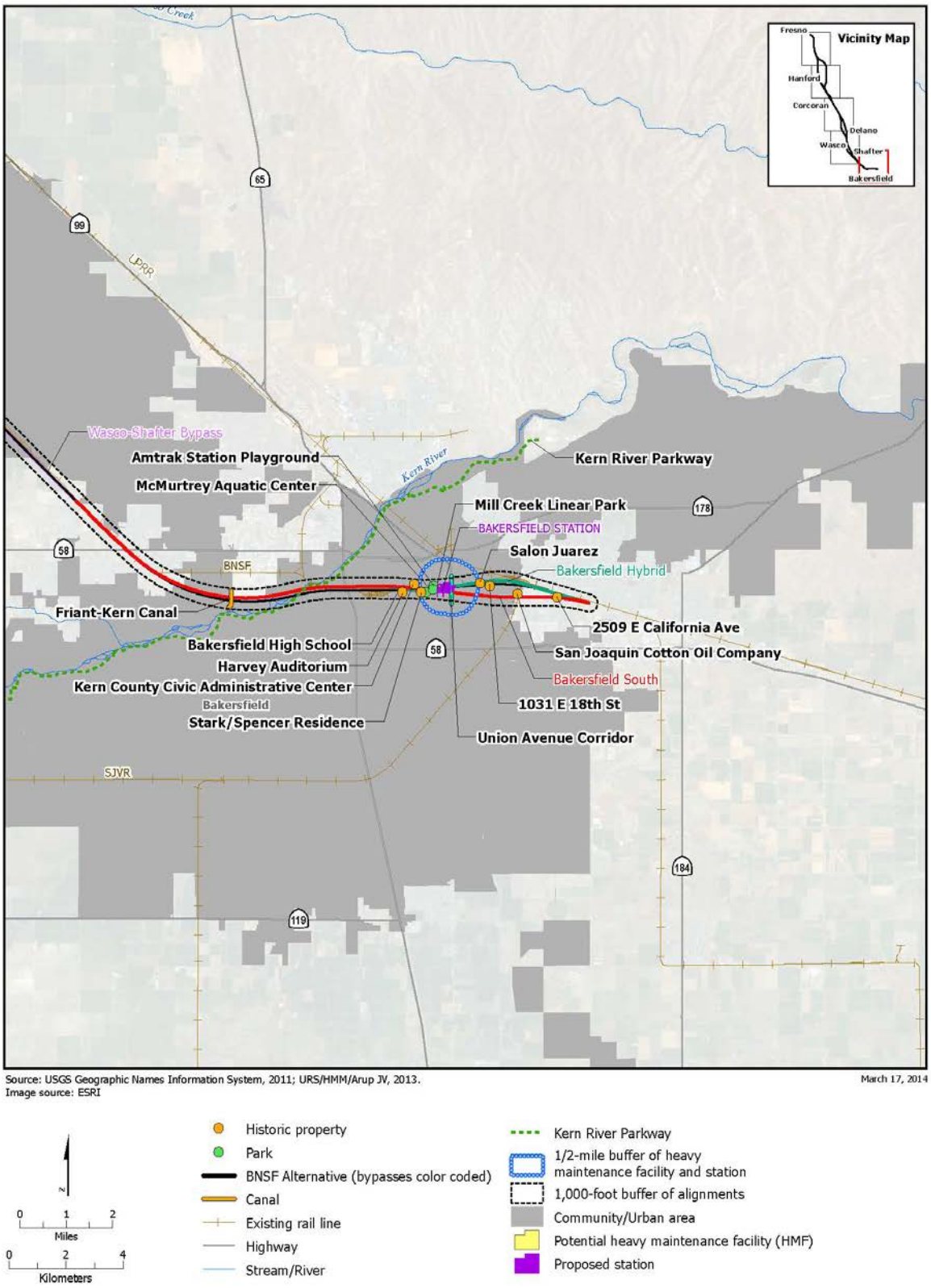

Figure 4-6
Bakersfield area: Section 4(f) properties within the project study area

Table 4-1
Park, Recreation, Open Space, and Wildlife and Waterfowl Refuges Evaluated for Section 4(f) Use

Property Name	Description	Official with Jurisdiction	Alternative Alignment	Distance from Project Footprint (feet)
Father Stephen Wyatt Park	Location: Corcoran Size: 1 acre Features: playground, covered arbor, picnic tables and benches, unlighted softball field	City of Corcoran Department of Public Works	BNSF, Corcoran Elevated	BNSF: 218 Corcoran Elevated: 230
Colonel Allensworth State Historic Park	Location: Tulare County Size: 924 acres Features: visitor's center, exhibits and programs, guided tours, picnic areas, and tent and recreational vehicle campsites	State of California Department of Parks and Recreation	BNSF	BNSF: 0
Allensworth Ecological Reserve	Location: Tulare County Size: 5,224 acres Features: trails and wildlife-viewing areas	State of California Department of Parks and Recreation	BNSF	BNSF: 0
McMurtrey Aquatic Park	Location: Bakersfield Size: 1.2 acres Features: outdoor swimming pools, water spray park, water slide, snack bar, picnic area, privately-operated ice rink	City of Bakersfield, Department of Recreation and Parks	BNSF, Bakersfield South, Bakersfield Hybrid	BNSF: 37 Bakersfield South: 140 Bakersfield Hybrid: 121
Kern River Parkway	Location: Bakersfield Size: 1,138 acres Features: small community parks adjacent to the Kern River connected by a bike path	City of Bakersfield, Department of Recreation and Parks	BNSF, Bakersfield South, Bakersfield Hybrid	BNSF, Bakersfield South, Bakersfield Hybrid: 0
Mill Creek Linear Park	Location: Bakersfield Size: 8 acres Features: 1.5-mile-long community park with pedestrian path and benches	City of Bakersfield, Department of Recreation and Parks/Kern Delta Water District	BNSF, Bakersfield South, Bakersfield Hybrid	BNSF, Bakersfield South, Bakersfield Hybrid: 0
Amtrak Station Playground	Location: Bakersfield Size: 0.5 acre Features: Tot lot with playground equipment	City of Bakersfield, Department of Recreation and Parks	BNSF, Bakersfield South, Bakersfield Hybrid	BNSF: 77 Bakersfield South: 300 Bakersfield Hybrid: 260

Acronyms:
HST = high-speed train
SR = state route

Table 4-2
Resources Listed in, or Determined or Recommended Eligible for, the National Register of Historic Places

Resource Name	Address	County	Year Built	Current Status Code	HST Alternative in which property is located in APE
Hotel Fresno	1257 Broadway	Fresno	1912	2S2	BNSF, Fresno Station-Mariposa, Fresno Station-Kern
Crest Theater	1160 Broadway Plaza	Fresno	1948	2S2	Fresno Station – Mariposa
Fresno Fire Department Station No. 3	1406–1430 Fresno St	Fresno	1939	3S2	BNSF, Fresno Station-Mariposa, Fresno Station-Kern
Basque Hotel/EA Walrond Building	1102 F St	Fresno	1922	2S2	BNSF, Fresno Station-Mariposa
Bank of Italy	1015 Fulton Mall	Fresno	1918	1S	BNSF
First Mexican Baptist Church	1061 E St	Fresno	1924–1929	2S	Fresno Station-Mariposa, Fresno Station-Kern
Southern Pacific Railroad Depot	1033 H St	Fresno	1889	1S	BNSF, Fresno Station–Mariposa, Fresno Station–Kern
Bank of America	947–951 F St	Fresno	1908	2S	BNSF
Radin-Kamp Department Store	959 Fulton Mall	Fresno	1924–1925	2S	BNSF
Azteca Theater	836-840 Fresno St	Fresno	1950	2S2	Fresno Station-Kern
Vartanian Home	362 F St	Fresno	circa 1895	2S2	BNSF
Holt Lumber	1916 S. Cherry Ave	Fresno	1920	2S2	BNSF
South Van Ness Entrance Gate	2208 S. Van Ness Ave	Fresno	1920s	2S2	BNSF
Washington Irrigated Colony Historic Rural Landscape	Rural Fresno County	Fresno	1878–1910	2D	BNSF, Fresno Works HMF
Washington Colony Canal (Not Eligible Individually; Contributing Element to the Washington Irrigated Colony Historic Rural Landscape)	Rural Fresno County	Fresno	1878–1880	2D2	BNSF, Fresno Works HMF
6422 S. Maple Ave (Eligible Individually and as Contributing Element to the Washington Irrigated Colony Historic Rural Landscape)	6422 S. Maple Ave	Fresno	1908	2D2	BNSF, Fresno Works HMF

Table 4-2
Resources Listed in, or Determined or Recommended Eligible for, the National Register of Historic Places

Resource Name	Address	County	Year Built	Current Status Code	HST Alternative in which property is located in APE
7870 S. Maple Ave (Not Eligible Individually; Contributing Element to the Washington Irrigated Colony Historic Rural Landscape)	7870 S. Maple Ave	Fresno	1911	3D	BNSF
7887 S. Maple Ave (Not Eligible Individually; Contributing Element to the Washington Irrigated Colony Historic Rural Landscape)	7887 S. Maple Ave	Fresno	1900	2D2	BNSF
North Branch of Oleander Canal (Not Eligible Individually; Contributing Element to the Washington Irrigated Colony Historic Rural Landscape)	Rural Fresno County	Fresno	1880s	2D2	BNSF, Fresno Works HMF
Peoples Ditch	Rural Kings County	Kings	1873–1878	2S2	BNSF
Last Chance Ditch	Rural Kings County	Kings	1873–1874	3S2	Hanford West Bypass 1 and Bypass 2, Kings/Tulare Regional Station West
13148 Grangeville Blvd	13148 Grangeville Blvd	Kings	1914-1919	3S2	Hanford West Bypass 1 and Bypass 2
9860 13th Ave	9860 13th Ave	Kings	1881	3S2	Hanford West Bypass 1 and Bypass 2, Kings/Tulare Station East and West
12501 Lacey Blvd	12501 Lacey Blvd	Kings	1935	3S2	Hanford West Bypass 1 and Bypass 2, Kings/Tulare Regional Station East and West
17780 10th Ave	17780 10th Ave	Kings	1920	3S	Hanford West Bypass 2
Lakeside Cemetery	Rural Kings County	Kings	1870s	2S2	BNSF
Zuniga's Tortilleria	901 Flory Ave	Kings	1950	2S2	BNSF, Corcoran Elevated
Allensworth Historic District (also known as Allensworth State Park)	4129 Grant Dr.	Tulare	1908–1912	1D	BNSF

Table 4-2
Resources Listed in, or Determined or Recommended Eligible for, the National Register of Historic Places

Resource Name	Address	County	Year Built	Current Status Code	HST Alternative in which property is located in APE
Santa Fe Depot	150–200 Central Valley Highway	Kern	1917	1S	BNSF
San Francisco and San Joaquin Valley Railroad Section House	434 Central Valley Highway	Kern	1898	2S2	BNSF
Joe O'Brien Stables	1320 E. Lerdo Hwy	Kern	1956	2S2	Wasco-Shafter Bypass
Friant-Kern Canal	Rural Kern County	Kern	1945–1951	2S2	BNSF, Bakersfield South, Bakersfield Hybrid
Harvey Auditorium, Bakersfield High School	1241 G St	Kern	1948	2S2	BNSF, Bakersfield Hybrid,
Kern County Civic Administrative Center	1315–1415 Truxtun Ave	Kern	1956-1959	2S2	BNSF, Bakersfield Hybrid, Bakersfield South
Stark/Spencer Residence	1321 N St	Kern	1898	2S2	BNSF, Bakersfield Hybrid, Bakersfield South
Union Avenue Corridor	Portions of SR 204	Kern	1933	2S2	BNSF, Bakersfield Hybrid, Bakersfield South; Bakersfield Station North/South/Hybrid
Salon Juarez	815 E 18th St	Kern	1912, 1947-1948	2S2	BNSF, Bakersfield Hybrid
1031 E. 18th St	1031 E 18th St	Kern	1900	2S2	BNSF, Bakersfield Hybrid, Bakersfield South
San Joaquin Cotton Oil Company	1660 E. California Ave	Kern	1920s	2S2	BNSF, Bakersfield Hybrid, Bakersfield South
2509 E. California Avenue	2509 E. California Ave	Kern	1898	2S2	BNSF, Bakersfield Hybrid, Bakersfield South

Code 1D: District listed in the NRHP
Code 1S: Individual property listed in the NRHP
Code 2D: District determined eligible for the NRHP through Section 106 process
Code 2D2: Individual property determined eligible for NRHP as a contributor to an NRHP-eligible district
Code 2S2: Individual property determined eligible for the NRHP through Section 106 process
Code 3S: Recommended eligible for listing in the NRHP as an individual property through survey evaluation
Code 3D: Appears eligible for listing as a contributor to an NRHP-eligible district

Colonel Allensworth State Historic Park

Size and Location

Colonel Allensworth State Historic Park, shown on Figure 4-4, is 240 acres and is located in rural Tulare County.

Ownership

Colonel Allensworth State Historic Park is owned and maintained by the State of California Department of Parks and Recreation.

Usage of Park (Intended; Actual/Current; Planned)

The park is intended to be used as a public recreational facility with a visitor center, exhibits and programs, guided tours, picnic areas, and 15 tent and RV campsites. Vehicular access is available at multiple points extending from Grant Road directly to the east of the park. Due to its isolated and rural location, the park does not provide convenient pedestrian access. Based on field reviews, actual park usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

The property is a historically representative assemblage of buildings highlighting the county's agricultural history. Its undeveloped setting enhances its value as a historic and recreational facility for park users, making it more sensitive to noise and visual intrusion than recreational facilities in more developed or urbanized areas.

Allensworth Ecological Reserve

Size and Location

Allensworth Ecological Reserve, shown on Figure 4-4, is in rural Tulare and Kern counties and consists of 5,224 acres. The reserve is a series of noncontiguous parcels, many of which are not located in proximity to any of the alignment alternatives.

Ownership

Allensworth Ecological Reserve is owned and maintained by the State of California Department of Fish and Wildlife.

Usage of Park (Intended; Actual/Current; Planned)

The reserve provides protection for rare, threatened, and endangered native plants, wildlife, and aquatic species, and important terrestrial and aquatic habitat. The park offers public wildlife viewing from areas accessible through a gate located along SR 99, at locations located outside the study area of any of the project alignment alternatives. Based on meetings with CDFW, usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

Examples of special-status species known to be at this location are the San Joaquin kit fox, Tipton kangaroo rat, blunt-nosed leopard lizard, and golden eagle. The facility's value lies in its ability to provide habitat to special-status species rather than in its use as a public recreational facility. Linear transportation features, including SR 43 and the BNSF Railway, currently bisect some parcels of the reserve. There are no developed facilities within the reserve.

McMurtrey Aquatic Center

Size and Location

The McMurtrey Aquatic Center, shown on Figure 4-6, is a 1.2-acre aquatic center in Bakersfield.

Ownership

McMurtrey Aquatic Center is owned and maintained by the City of Bakersfield.

Usage of Park (Intended; Actual/Current; Planned)

The center is intended to be used for aquatic recreation, and contains an outdoor recreation pool, a separate 50-meter competition swimming pool, a water spray park, a water slide, a snack bar, and picnic facilities. The park has numerous pedestrian access points on its north, west, and south sides; parking lots and on-street parking are available on the north, west, and south sides of the facility. Parking for patrons of the aquatic center and an adjacent privately operated ice rink is provided by a dedicated 230-space parking lot owned by the City of Bakersfield located across the street from the Aquatic Center and 24 dedicated on-street spaces.

Fees at the McMurtrey Aquatic Center are $3.00 per visit or $80.00 for a 30-visit pass ($90.00 for non-residents). The center can also be rented on weekends during the months of June through August at a fee of $375 for up to 200 people and $400 for 201 to 400 people. Based on a site visit, actual park usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

None.

Kern River Parkway

Size and Location

Kern River Parkway, shown on Figure 4-6, is a 1,138-acre linear park located along the Kern River in Bakersfield.

Ownership

Kern River Parkway is owned and maintained by the City of Bakersfield.

Usage of Park (Intended; Actual/Current; Planned)

The parkway begins at the mouth of Kern Canyon and extends west to Interstate 5. The parkway consists of small, developed parks containing amenities such as trails, picnic areas, horseshoe pits, and play fields, and is separated by undeveloped land owned both by the City of Bakersfield and private parties. A bike path runs the length of the parkway. The parkway is intended to be used as a recreational facility and a flood control feature. The parkway is accessible through multiple access points along its length. Based on a review of plans, aerials, and field observations, actual usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

The portion of the parkway within the study area is in Bakersfield and therefore is subject to noise associated with urbanized areas (e.g., existing transportation facilities). Urbanized features, such as buildings and transportation corridors, are currently visible from within the park. Numerous roadway and rail bridges currently span the parkway in close proximity to the study area.

Mill Creek Linear Park

Size and Location

Mill Creek Linear Park, shown on Figure 4-6, is a discontinuous 8-acre, 1.5-mile-long linear park along the banks of the Kern Island canal in Bakersfield. The Mill Creek Linear Park runs between California Avenue and the BNSF right-of-way where it connects by way of sidewalk to another discontinuous parcel of the Linear Park to the north of the BNSF right-of-way.

Ownership

Mill Creek Linear Park is on several parcels; in the project vicinity, the park is on lands owned by the Kern Delta Water District, the City of Bakersfield, and the BNSF Railway. The Park is maintained by the City of Bakersfield. The FRA and the Authority are continuing to coordinate with the City of Bakersfield to clarify whether the Kern Delta Water District is a public entity. However, for purposes of this analysis, it is assumed they are a public entity.

Usage of Park (Intended; Actual/Current; Planned)

The park's pedestrian pathway is paved with benches lining the pathway. The pathway is used for pedestrian recreation, with access available throughout its 1.5 mile length. Based on a review of plans and aerials, and field observations, park usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

The park is in an urbanized area of Bakersfield and is currently subject to noise associated with developed areas (e.g., existing transportation facilities). Urbanized features, such as buildings and transportation corridors, are visible from within the park. The pathway is adjacent to buildings and residential communities in Bakersfield that further reduce the noise and visual sensitivity of the facility.

Amtrak Station Playground

Size and Location

The Amtrak Station Playground, shown on Figure 4-6, is a 0.5-acre park adjacent to the Amtrak Station in Bakersfield. It is bordered on the west by Q Street and on the south by the BNSF Railway line right-of-way.

Ownership

The Amtrak Station Playground is owned, operated, and maintained by the City of Bakersfield.

Usage of Park (Intended; Actual/Current; Planned)

The Amtrak Station Playground consists of a small play structure (tot lot) and grass area; the playground is used for passive recreation. Access to the playground is provided through the Amtrak Station driveways and parking lot. A review of the plans and aerials and field observations indicates that park usage is consistent with its intended use.

Unusual Characteristics Reducing or Enhancing Park Value

The Amtrak Station Playground is in an urbanized area of Bakersfield and is currently subject to noise associated with developed areas (e.g., the immediately adjacent in-use railway). Urbanized features, such as buildings and transportation corridors, are visible from within the playground. The playground is adjacent to buildings in Bakersfield that further reduce the noise and visual sensitivity of the facility.

4.5.2 Cultural Resources

For purposes of identifying cultural resources potentially protected under Section 4(f), the study area is the same as the APE, which is defined in Section 3.17, Cultural and Paleontological Resources. Within the archaeological and historic property APEs, background research and the field survey revealed 37 historic properties listed or eligible for listing in the NRHP that qualify as Section 4(f) resources; these properties are shown on Figures 4-2 through 4-6. There are no

known archaeological resources in the study area that qualify as Section 4(f) resources. Table 4-2 describes resources listed in, or determined or recommended to be eligible for, the NRHP that are located within the cultural resources APE (defined in Section 3.17, Cultural and Paleontological Resources). The APE that the resource is within is identified in Table 4-2.

Section 4(f) historic properties were evaluated by (1) identifying if the project would permanently incorporate land from the property and (2) reviewing the effects on the property as documented during the Section 106 of the NHPA process. If an alternative would permanently incorporate land from the property or result in an adverse temporary occupancy (i.e., does not meet the criteria of Section 4.1.4.2) and would also result in an "adverse effect," this impact would constitute a Section 4(f) use. If the project would permanently incorporate land from the property or result in an adverse temporary occupancy and have "no adverse effect," the impact was evaluated to determine if it would be *de minimis* to the resource. However, there were no historic resources identified with a no adverse effect determination that had a Section 4(f) *de minimis* impact based on a permanent incorporation or adverse temporary occupancy of the historic resource. Therefore, only properties that incur an adverse effect (direct or indirect) and therefore have potential to incur a Section 4(f) use are discussed further in Section 4.6.2, Cultural Resources.

Below are brief descriptions of the properties in the study area that are listed, or have been determined eligible for listing, in the NRHP, and are therefore protected under Section 4(f):

- Hotel Fresno – Assessor's Parcel Number (APN) 466-214-01 (1257 Broadway). The Hotel Fresno is a seven-story steel-frame and concrete-block Classical Revival style building constructed in 1912. The building has been determined eligible for listing in the NRHP under Criterion A for its association with Fresno social life and the local community from 1912 to 1960; and under Criterion C for its Classical Revival architectural style, as the first high-rise building in Fresno, and as an early and important example of the Central Valley work of prominent California architect Edward T. Foulkes.

- Crest Theater – APN 466-212-12 (1160 Broadway Plaza). The Crest Theater is a tall, two-story, reinforced-concrete building constructed in 1948. The building has been determined eligible for listing in the NRHP under Criterion C, at the local level, as an important example of Moderne style architecture that includes a neon marquee and decorated ticket booth.

- Fresno Fire Department Station Number 3 – APN 467-065-08T (1406–1430 Fresno Street). This property includes the main two story Moderne style fire house, as well as a secondary one story shop building that has a similar style Moderne façade. The station was completed in 1939. The buildings have been determined eligible for listing in the NRHP under Criteria A and C because the property is a significant example of a Works Progress Administration project in Fresno, and it is a significant local example of Streamline Moderne architectural style. The property also includes a training tower built in 1952 that is not NRHP eligible.

- Basque Hotel/EA Walrond Building – APN 467-062-08 (1102 F Street). The Basque Hotel is a two-story, L-shaped brick building constructed in 1922. The building has been determined eligible for the NRHP under Criterion A for its significant role in the Basque community in Fresno from the 1920s to the 1960s as a place for Basque immigrants to congregate and maintain their cultural tradition.

- Bank of Italy – APN 466-213-07 (1015 Fulton Mall). The Bank of Italy building is an eight-story, Italian Renaissance Revival building constructed in 1918 with an ornate terra-cotta and brick exterior. This property is listed in the NRHP under Criterion C as "one of the two most significant commercial buildings in the downtown area," and is an example of the Italian Renaissance Revival and early skyscraper development.

- First Mexican Baptist Church – APN 467-103-01 (1061 E Street). This two-story brick building was built between 1924 and 1929, and was later reinforced in the 1960s. It has a restrained Mission Revival design that features a stepped parapet and three-story bell tower. It has been determined eligible for listing in the NRHP under Criteria A and C for its association with early 20th century Mexican-American local community events and as a good local example of this architectural style.

- Southern Pacific Railroad Depot – APN 467-03-031-ST (1033 H Street). The Fresno Southern Pacific Railroad Depot property contains two buildings: a depot and a Pullman Shed. The depot is a one-and-a-half-story, brick Queen Anne-style building constructed in 1889. The depot is listed in the NRHP. The depot is significant at the local level under Criterion A for its association with the contribution of the Southern Pacific Railroad to the development of Fresno, and under Criterion C as an important example of the Queen Anne architectural style, as evidence by its prominent rounded turret, flared roof line, arched windows, and eave brackets. The Pullman Shed is a reinforced concrete shallow gable roof structure with open-sided walls with levers built to cover sleeping cars as they awaited connection with long-distance trains passing through Fresno. The shed is a contributing element of the depot property. The Pullman Shed is eligible at the local level under Criterion A for its association with early twentieth-century passenger rail service in Fresno, and under Criterion C for its rare construction type. The Pullman Shed has also recently been added to the Fresno Local Register.

- Bank of America – APN 467-07-401 (947–951 F Street). This two-story commercial building constructed around 1908 has a stucco exterior, corner tower, and Mission Revival detailing. The building has been determined eligible for listing in the NRHP under Criterion A as Fresno's first Japanese-owned lending institution and offered a valuable service to Fresno's Japanese community with a period of significance from 1908-1925, and under Criteria C for its restrained expression of the Spanish Mission Revival style.

- Radin-Kamp Department Store – APN 468-281-01 (959 Fulton Mall). This four-story reinforced-concrete commercial building completed in 1925 has brick exterior facing and terracotta Beaux Arts details at the frieze and cornice. The building has been determined eligible for listing in the NRHP under Criterion C as an important local example of early-twentieth-century commercial architecture.

- Azteca Theatre – APN: 467-072-06 (836-840 F Street). The Azteca Theatre is an Art Deco-style theatre constructed circa 1950. This building has been determined eligible for listing in the NRHP under Criterion B at the local level for its association with Arturo Tirado, an important community leader and civic activist in Fresno's Hispanic community. Arturo Tirado operated this building as the city's only Spanish-language movie theater in the 1950s and 1960s and used the theater for cultural and social activism.

- Vartanian Home – APN 467-092-34 (362 F Street). This farm complex was constructed circa 1895 and consists of a Queen Anne-style residence, barn, hexagonal tank house, and outhouse. The farmstead has been determined eligible for listing in the NRHP under Criterion C on the local level as an important example of Queen Anne architecture and as an example of an intact nineteenth-century farm complex reflecting the importance of agriculture to the development of Fresno.

- Holt Lumber – APN 467-020-13 (1916 South Cherry Avenue). This one-story, brick Italian Renaissance Revival office building with classically influenced trim was constructed circa 1920. It has been determined eligible for listing in the NRHP under Criterion C as a distinctive example of an early-twentieth-century Italian Renaissance commercial building.

- South Van Ness Entrance Gate – No APN (2208 South Van Ness Avenue). Constructed in the 1920s, the South Van Ness Entrance Gate is a piece of community boosterism in the form of an arched truss with a sheet metal sign adorning a historic Fresno entry point. The structure has been determined eligible for the NRHP at the local level under Criterion A for its importance within the context of early-twentieth-century transportation in Fresno, and under Criterion C for its significance as an early roadside sign in Fresno.

- Washington Irrigated Colony Historic Rural Landscape – No APN (Rural Fresno County). The Washington Irrigated Colony has been determined eligible for listing in the NRHP under Criteria A and C as a rural historic landscape district with a period of significance from 1878 to 1910. The district is significant for its association with pioneering settlement patterns and irrigated agriculture (Criterion A), as well as for the architecture of some of its contributing elements (Criterion C). Contributors to the district include 6,520 acres within the district boundaries (planted in raisin grapes, historic fruit and nut trees, oranges and onions; dairy and pastureland; eucalyptus groves; tule ponds; minor remaining street trees); 55 farmsteads; approximately 22 linear miles of open earthen canals; and the north-south and the east-west grid platted for the colony. Most of the landscape district is outside the APE for this project; however, three contributing farmsteads (6422, 7870, and 7887 South Maple Avenue) and two irrigation canals (Washington Colony Canal and North Branch of Oleander Canal) are located in the APE. Of the five contributing properties (three farmsteads and two irrigation canals), only the farmstead at 6422 South Maple Avenue is individually eligible for the NRHP. Each of these contributing properties is described below.

  - Washington Colony Canal – No APN (Rural Fresno County). The Washington Colony Canal is a dirt-lined irrigation canal constructed between about 1878 and 1880 as an integral part of the Washington Irrigated Colony. The canal has been determined eligible for the NRHP as a contributor to the Washington Irrigated Colony Historic Rural Landscape under Criteria A and C for its role in providing agricultural water for the settlement and development of the Washington Colony and for its design, which is a good example of a pioneer era canal.

  - 6422 South Maple Avenue – APN 334-25-016. This farmstead, constructed circa 1908 during the development of the historically significant Washington Irrigated Colony, has been determined eligible for listing in the NRHP as a contributing element of the Washington Irrigated Colony Historic Rural Landscape. The property is both a contributor to the eligible district and individually eligible for listing on the NRHP under Criteria A and C. Together with 54 other farmsteads the building is significant for its association with the founding and settlement of the Washington Irrigated Colony. Individually it is a significant example of rural architecture in the Queen Anne style characterized by its residence and water tower, with decorative shingles, bay windows, and elaborate trim.

  - 7870 South Maple Avenue – APN 335-11-011. This farmstead is eligible for listing in the NRHP as a contributing element of the Washington Irrigated Colony Rural Historic Landscape. The property was built in 1911 at the close of the period of initial settlement of this significant colony and is a contributor to the eligible district under NRHP Criteria A and C for its association with the founding and settlement of the Washington Irrigated Colony. Together with the other 54 period farmsteads and its Neoclassical architectural style, it is an important component illustrating the initial settlement of the colony.

  - 7887 South Maple Avenue – APN 335-11-042. This farmstead has been determined eligible for listing in the NRHP as a contributing element of the Washington Irrigated Colony Rural Historic Landscape. The property was built circa 1900 during the period of initial settlement of this significant colony and is a contributor to the eligible district under NRHP Criteria A and C for its association with the founding and settlement of the

Washington Irrigated Colony. Together with the other 54 period farmsteads, the rural Folk Victorian architecture, with its simple plan, is an important component illustrating the settlement of the colony.

  - North Branch of Oleander Canal – No APN (Rural Fresno County). The North Branch of the Oleander Canal is a dirt-lined irrigation canal constructed in the 1880s as an integral part of the historically significant Washington Irrigated Colony. A previous survey identified the canal as eligible for the NRHP as a contributor to the Washington Irrigated Colony Historic Rural Landscape, and it has been determined eligible under Criteria A for its association with the settlement and agricultural development of the Washington Colony and under Criterion C and for its design, which is a good example of a pioneer era canal.

- Last Chance Ditch – No APN (Rural Kings County). This property is an earth-lined irrigation canal that diverts water from the Kings River and was initially constructed by the Last Chance Water Ditch Company in 1873 and 1874. Running south through the area west of Hanford, the main ditch is about 6.5 miles long before it splits into three branches that continue another 5 or 6 miles. A roughly 0.7-mile segment of the main ditch, and an approximately 2.4-mile section of the ditch's eastern branch are within the APE for this project. The Last Chance Ditch at these locations has been determined eligible for NRHP under Criterion A for its important association with the successful agricultural settlement pattern in the Mussel Slough region in the 1870s that developed and endured through the establishment of a secure irrigation water supply delivered by Last Chance Ditch and the other local pioneering canal systems. The property is also important for its association with the events that led to the Mussel Slough Tragedy in 1880, a well-known deadly conflict that arose during land disputes between San Joaquin Valley farmers/settlers and the Southern Pacific Railroad at the time.

- 13148 Grangeville Boulevard – APN 910-002-0000. This large two-story rural residence has an attached water tank house, and was constructed between 1914 and 1919. This property has been determined eligible for listing in the NRHP under Criterion C as an important local example of Foursquare design with Colonial Revival stylistic elements. The property is also significant for its attached tank house, which illustrates an important early twentieth century transitional method of construction for rural residential water supply that also provided additional interior space connected with the main residence.

- 9860 13th Avenue – APN 9070018000. This farm complex consists of a two-story Queen Anne-style residence, remains of a tank house, and some small outbuildings. The house was constructed about 1881 and has been determined eligible for listing in the NRHP under Criterion A for its association with the pioneering agricultural settlement of the Mussel Slough area that developed and endured through the establishment of a secure irrigation water supply delivered by Last Chance Ditch and the other local pioneering canal systems. It is also eligible under Criterion C as a significant local example of folk Queen Anne style architecture.

- 12501 Lacey Boulevard – APN 018102111000. This farm complex consists of a one-story adobe residence and several outbuildings. The residence, built in 1935, was designed and built by the owners from adobe bricks manufactured on site, during the early period of a mid-twentieth century revival of adobe residential construction. The property has been determined eligible for listing in the NRHP under Criterion C for the architectural significance of the residence, which is an important local example of vernacular Adobe Ranch Style that is distinctive for its owner/builder design.

- Peoples Ditch – No APN (Rural Kings County). This property is an earth-lined irrigation canal with several branches constructed by local farmers between 1873 and 1878, with an

aggregate length of the main channel and branches totaling 37 miles. The canal enabled significant agricultural development through the Mussel Slough area. An approximately 1.4-mile segment of the main ditch and an approximately 4-mile section of its east branch intersect the APE for the BNSF Alternative. These segments have been determined eligible for listing in the NRHP at the state level of significance under Criterion A because of the canal's important association with the successful agricultural settlement pattern in the Mussel Slough region in the 1870s that developed and endured through the establishment of a secure irrigation water supply delivered by this and the other local pioneering canal systems. The canal is also important for its association with the events that led to the Mussel Slough Tragedy in 1880, a well-known deadly conflict that arose during land disputes between San Joaquin Valley farmers/settlers and the Southern Pacific Railroad at the time. There are portions of the canal located in the APE for the Hanford West Bypass alternatives; however these segments do not retain integrity, are not eligible for listing in the NRHP, and therefore do not receive protection under Section 4(f).

- 17780 10th Avenue – APN: 028220018000. This Craftsman Bungalow residence is located in Guernsey, in unincorporated Kings County. The house features an attached water tank house, and the farmstead includes a detached garage and shed also constructed in about 1920. This property is eligible for listing in the NRHP under Criterion C for its design that includes an attached tank house, which illustrates an important early twentieth century transitional method of construction for rural residential water supply that also provided additional interior space connected with the main residence.

- Lakeside Cemetery – APN 028-20-200-4000 (Kent Avenue, Rural Kings County). This historic property is a 1.5-acre rural cemetery located approximately 7 miles south of Hanford, and features masonry and concrete grave markers, lawn, and shade trees. Established in the 1870s, as the first cemetery in the region serving pioneer families, the cemetery has been determined eligible for the NRHP under Criterion A for its association with the early settlement of the area south of Hanford that would become the Lakeside District and it meets the NRHP "Criteria Consideration D for Cemeteries" for its important association with pioneer settlement period in this portion of Kings County. The cemetery meets Criteria Consideration D because of its age and its association with the founding of the Lakeside District, which was a locally significant pioneer community. This cemetery, therefore, meets the Criteria Consideration D requirement for its association with the historically important settlement of the district.

- Zuniga's Tortilleria – APN: 030-184-010-000 (901 Flory Avenue). Zuniga's Tortilleria is a one-story concrete-block building constructed circa 1950. The building has been determined eligible for the NRHP. It is eligible under Criterion A at the local level for its important association with cultural practices of Corcoran's Mexican-American residents. The building reflects the cultural role of Latina women in domestic areas like tortilla production and the opportunities it represented to entrepreneurial women like Carmen Zuniga to establish their own businesses within the cultural fabric of their community. As such it illustrates aspects of the Mexican-American culture and a rare example of a Latina run business from the mid-twentieth century.

- Allensworth Historic District – APNs 331-100-030, 331-130-003, 331-141-004, 331-151-011, 331-161-020, 333-350-041 (4129 Grant Drive). The Allensworth Historic District, also known as Colonel Allensworth State Historic Park, encompasses about 60 acres, which include approximately 20 historic-era, reconstructed buildings and contemporary park administration buildings. As the only town in California that was founded, financed, and governed by African-Americans, the historic district is listed in the NRHP and is significant under Criterion A in the context of agriculture, education, politics, religion, military, literature, and social history. The district is also significant under Criterion B for its association with the town's

founder, Lieutenant Colonel Allen Allensworth. Contributing elements of the historic district include the elementary school, Colonel Allensworth's residence, Grosse's Drugstore, the railroad ticket office, and Singleton's General Store and Post Office.

- Santa Fe Depot – APN 027-03-008 (150–200 Central Valley Highway). The Santa Fe Passenger and Freight Depot in Shafter is a two-story, wood-frame railroad depot constructed in 1917 using standard railroad plans. The building is listed in the NRHP under Criterion C as an example of a standard combination frame depot that incorporates freight, passenger, and express services that were once common in small Central Valley railroad towns.

- San Francisco and San Joaquin Valley Railroad Section House – APN 027-07-028 (434 Central Valley Highway). This building is a small, wood-frame, folk-style residence with Craftsman details, constructed in 1898. It was one of the first buildings constructed in Shafter and it is associated with the construction of the San Francisco and San Joaquin Valley railroad, which is important as the railroad that was established in the 1890s to break the Southern Pacific Railroad's monopoly in the San Joaquin Valley. The building has been determined eligible for the NRHP under Criterion A for its association with the founding of Shafter. Additionally, the building is eligible under Criterion C as an example of a section house built by the San Francisco and San Joaquin Valley Railway.

- Joe O'Brien Stables – APN 089-090-29 (1320 East Lerdo Highway). This property consists of a horse track, a stables area with five buildings, and a residential area with two houses, two detached garages, and a storage building, all of which were constructed circa 1956. The stables complex has been determined eligible for the NRHP under Criterion B for its association with famous and highly successful harness racer Joe O'Brien. The property served as his training base during this period of prominence in the late 1950s.

- Friant-Kern Canal – No APN, (Kern County). The Friant-Kern Canal is a 152-mile gravity-fed earth- and concrete-lined canal built between 1945 and 1951 that terminates at the Kern River northwest of Bakersfield. An approximately 1,100-foot section of the canal intersects the APE. The canal has been determined eligible for listing in the NRHP under Criterion A at the state level of significance for its importance as a key component of California's Central Valley Project (CVP), facilitating expansion of irrigated lands on the east side of the central-southern reaches of the Central Valley that developed into some of country's top producing agricultural counties.

- Harvey Auditorium – APN 004-05-201 (1241 G Street). Bakersfield High School's Harvey Auditorium is a Streamline Moderne-style concrete theater completed in 1948 with smooth rounded corners and decorative horizontal and vertical bands. The building has been determined eligible for the NRHP under Criterion C as a significant example of local master architect Charles Biggar, who designed several important Bakersfield buildings, including the NRHP listed Bakersfield Californian Building and the First Baptist Church. The auditorium represents his later work in the Streamline Moderne style.

- Kern County Civic Administrative Center – APN 006-29-001 (1315-1415 Truxtun Avenue). This property consists of a large county government complex with four buildings in a U-shaped layout built between 1956 and 1959 in the International Style. The complex has been determined eligible for listing in the NRHP at the local level under Criterion A as one of the key projects in the redevelopment of Bakersfield and Kern County following the devastating earthquakes that hit the area in the summer of 1952. It is also eligible under Criterion C for its architectural design in the International Style, highlighted by the design's use of unifying architectural elements and materials, such as aluminum-frame windows to provide a cohesive design among four buildings. The design, as four closely placed buildings, was among the

significant seismic-safety features included in response to the disaster. Also, a recent National Park Service special resource study and environmental assessment prepared in 2011 identified a component of the complex, the Kern County Superior Court, as potentially eligible under Criteria A and B for its association with the farm labor movement led by Cesar Chavez. Specifically, the courts building is associated with the 1968 hunger strike and protests held here during litigation related to the Delano grape boycott and strike, and for the ruling in favor of the farm workers that represented a turning point in the movement.

- Stark/Spencer Residence – APN 006-430-02 (1321 N Street). This two-story wood-frame residence was constructed in 1898 in the Queen Anne and Eastlake styles characterized by decorative shingles, delicate spindle woodwork, complex roofline, and distinctive porches. The building has been determined eligible for listing in the NRHP under Criterion C as a distinguished example of its architectural style.

- Union Avenue Corridor – No APN (Bakersfield). This segment of SR 204 (old US 99) in Bakersfield has been determined eligible for listing in the NRHP under Criterion A, at the state level of significance. The corridor was identified by a Caltrans study that concluded the roughly 6-mile segment of old US 99 (on Golden State Road and Union Avenue between modern Airport Drive and Brundage Lane) in Bakersfield is significant for its association with early- to mid-twentieth-century highway construction including six lane roadway, landscaped median, sidewalks, curbs, gutters, and bridges and the associated mixed commercial development of restaurants, motels, and stores that occurred as a result of the placement of the corridor through Bakersfield. The corridor crosses through the APE on Union Avenue.

- Salon Juárez (Sociedad Juárez Mutualista Mexicana), APN: 017-280-03 (815 E. 18th Street). This historic property consists of two buildings: a circa 1948 false-front Quonset hut and a wood-frame stucco-clad building constructed about 1912. Both buildings were constructed by the Sociedad Juárez Mutualista Mexicana, a mutual-aid society for Mexican-Americans from the Juárez area of Mexico. This property has been determined eligible for the NRHP at the local level of significance under Criterion A as a traditional cultural property associated with the early development and social structure of Bakersfield's Mexican immigrant and Mexican-American community.

- 1031 East 18th Street – APN 017-260-07. This small wood-frame Folk Victorian residence was constructed circa 1900 and displays some Queen Anne stylistic details including fish scale shingles and strongly articulated molding and cornice in the pediment, as well as the cutaway bay that has wide window surrounds and decorative crowns. The building has been determined eligible for listing in the NRHP under Criterion C as an important local example of Folk Victorian architecture.

- San Joaquin Cotton Oil Company – APN 017-490-14 (1660 East California Avenue). The former San Joaquin Cotton Oil Company property was a cotton oil and cotton products production complex. Established in the 1920s, the property includes a steel water tank and seven steel frame / metal sided and wood frame / sided buildings. It has been determined eligible for listing in the NRHP under Criterion A at the local level of significance for its direct and important association with the early cotton industry in Kern County, playing a crucial role in the expanding demand for cotton and cotton byproducts during the 1920s as the commodity went on to become a major crop in Kern County.

- 2509 East California Avenue – APN 141-130-25. This small wood-frame Folk Victorian residence was constructed in about 1898 and displays some Queen Anne stylistic details including its dormer gable with articulated molding and cornice, spindlework frieze, and a cutaway bay with wide window surrounds. The building has been determined eligible for

listing in the NRHP under Criterion C as an important local example of Folk Victorian architecture.

4.6 Section 4(f) Use Assessment

4.6.1 Park, Recreation, and Wildlife Refuge Resources

Use assessments for the park, recreation and wildlife refuge resources relative to HST alternatives are discussed in this section. All Section 4(f) properties are shown in Figures 4-2 through 4-6; however, only those properties that would incur a use, or are in close enough proximity to an alignment alternative as to incur proximity impacts (as listed in Table 4-1) are described below.

4.6.1.1 Father Stephen Wyatt Park Use Assessment

BNSF Alternative and Corcoran Elevated Alternative

Differences in impacts on Father Stephen Wyatt Park are negligible under the BNSF Alternative and the Corcoran Elevated Alternative. Thus, the following discussion applies to both alternatives.

Neither the BNSF Alternative nor the Corcoran Elevated Alternative would permanently acquire land from Father Stephen Wyatt Park and therefore neither alternative would result in a permanent use of this park. Similarly, neither alternative would require temporary physical occupation of Father Stephen Wyatt Park, so there would be no temporary occupancy. However, both alternatives would require some construction activities within 300 feet of the park, including its publicly used recreational facilities (playground, arbor, picnic tables, benches, and softball field). Evaluation of the proximity impacts shows there would be increases in noise and dust levels that would be noticeable to park users during construction-related activities. While these impacts could potentially be considered a nuisance to park users, they would be temporary in nature. Trees located north and west of Father Stephen Wyatt Park and would shield park users from visual impacts during construction under both alternatives. Access to the park would be maintained throughout construction. Construction of these alternatives would not prevent public use of the park nor substantially impair use of the playground, arbor, picnic tables, benches, and softball field.

Noise impacts related to operation of the HST under both the BNSF Alternative and Corcoran Elevated Alternative would be minimal. Portions of the park that are used for recreation are subjected to freight train noise on a daily basis, with an existing ambient noise level of 80.7 day/night average sound level (L_{dn}). As described in Section 3.4, Noise and Vibration, introduction of the HST at this location would only increase ambient noise levels to 81.0 L_{dn}, a minor increase that would not be noticeable to park users. In addition, with respect to potential visual impacts during operation, the existing trees within the park to the north and west would screen views of the HST from park users. Therefore, because no park property would be acquired and the noise and visual impacts from the HST would not substantially impair the use of the park, there would be no Section 4(f) use under either alternative.

4.6.1.2 Colonel Allensworth State Historic Park/Allensworth Historic District

BNSF Alternative

The boundaries of Colonel Allensworth State Historic Park are the same as the boundaries of the Allensworth Historic District, a district listed in the NRHP under Criterion A that would incur a direct adverse effect under the BNSF Alternative.

The BNSF Alternative would be at-grade along the eastern side of the park and would convert 1.7 acres of the 240-acre park (less than 1%). Portions of the park that would be acquired are undeveloped and currently vacant (Figure 4-7). Due to the incorporation of areas of the park into the alignment right-of-way, and the resultant direct adverse effect under Section 106, the BNSF Alternative would result in a Section 4(f) use of the park.

Construction and operation of the HST would introduce a modern transportation element within 250 feet of park areas frequented by the public and would be incompatible with the existing visual character and early-twentieth-century context of the park, which includes a visitor center, picnic area, tent and RV camping areas, several homes (including the Allensworth home), stores, a bakery, a blacksmith area, a drugstore, barber shop, post office, library, hotel, schoolhouse, a Baptist Church, restaurant, various farm buildings, and several other buildings that have been reconstructed to reflect the 1908 to 1918 historical period. The HST would be a visually dominant modern feature, noticeably contrasting with the existing visual character of the early-twentieth-century buildings in the park. The 24-foot-high overhead contact system (OCS) components and wires, right-of-way fencing, and HSTs would introduce distinctly modern industrial elements into the visual foreground that would alter the character of the site and lower visual quality (see Section 3.16, Aesthetics and Visual Resources). Section 3.16, Aesthetics and Visual Resources, contains mitigation measures that serve as measures to minimize harm against visual impacts.

Although the portions of the park that are used for recreation are subjected to freight train noise on a daily basis, the HST would create a substantial increase in noise (up to 6.3 L_{dn}). Noticeable vibration impacts would occur during construction; however, these would be temporary. Section 3.4, Noise and Vibration, contains mitigation measures that serve as measures to minimize harm from noise and vibration.

Construction of the BNSF Alternative would result in physical acquisition of 1.7 acres of Colonel Allensworth State Historic Park land, a direct adverse effect on the historic district under the NHPA, and would constitute a Section 4(f) use.

4.6.1.3 Allensworth Ecological Reserve Use Assessment

BNSF Alternative

The BNSF Alternative would incorporate approximately 7.3 acres of land within the Allensworth Ecological Reserve (Figure 4-8). The portions of Allensworth Ecological Reserve lands to the east of the alignment would be separated from construction activities by SR 43 and would not be impacted by the construction or operation of the BNSF Alternative. To the west of SR 43, however, approximately 7.3 acres of land would be permanently incorporated into the transportation facility, which would reduce the amount of habitat for special-status species in the reserve by less than 0.2%. This permanent incorporation would result in a Section 4(f) use of the reserve.

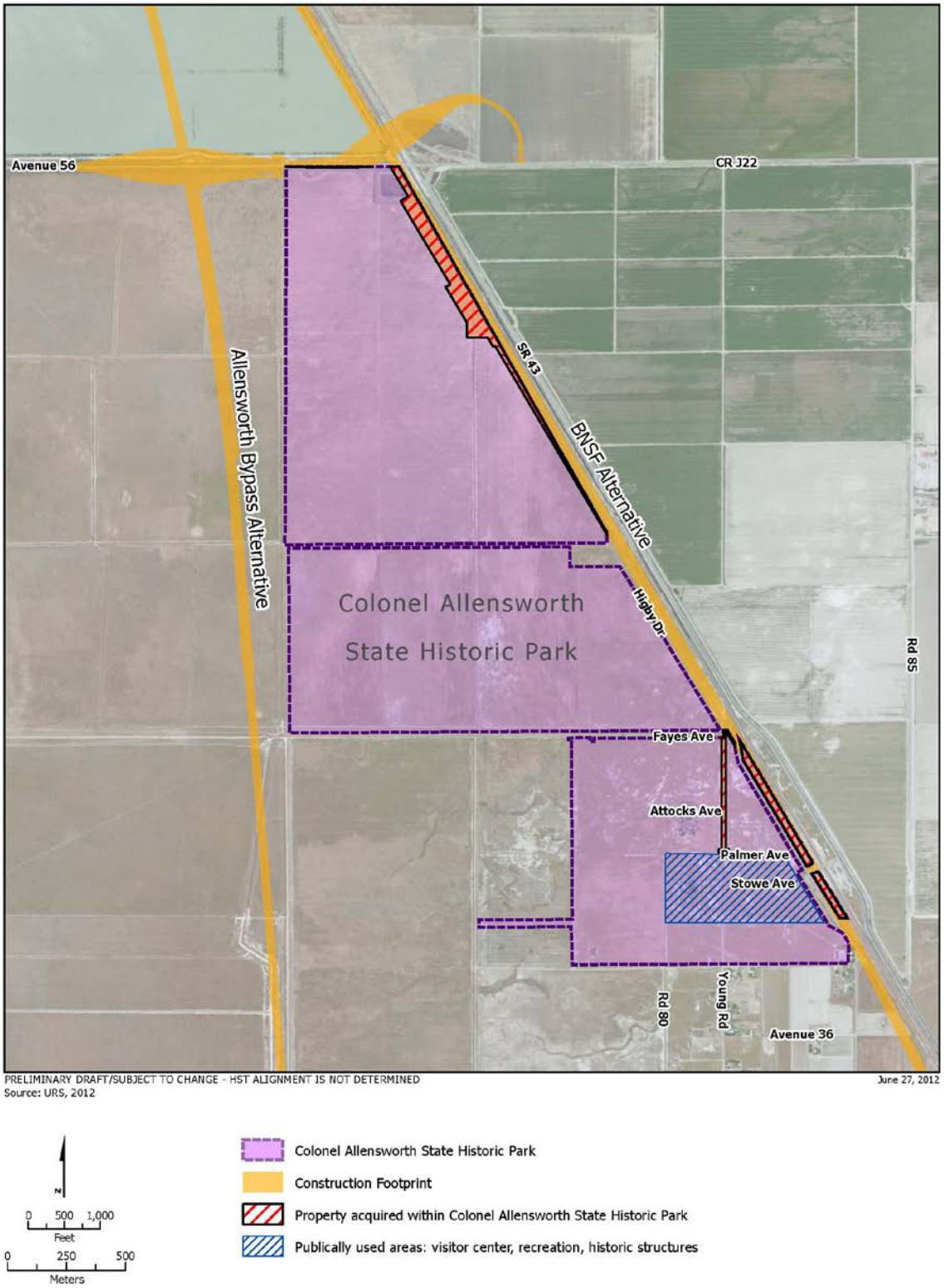

Figure 4-7
Colonel Allensworth State Historic Park

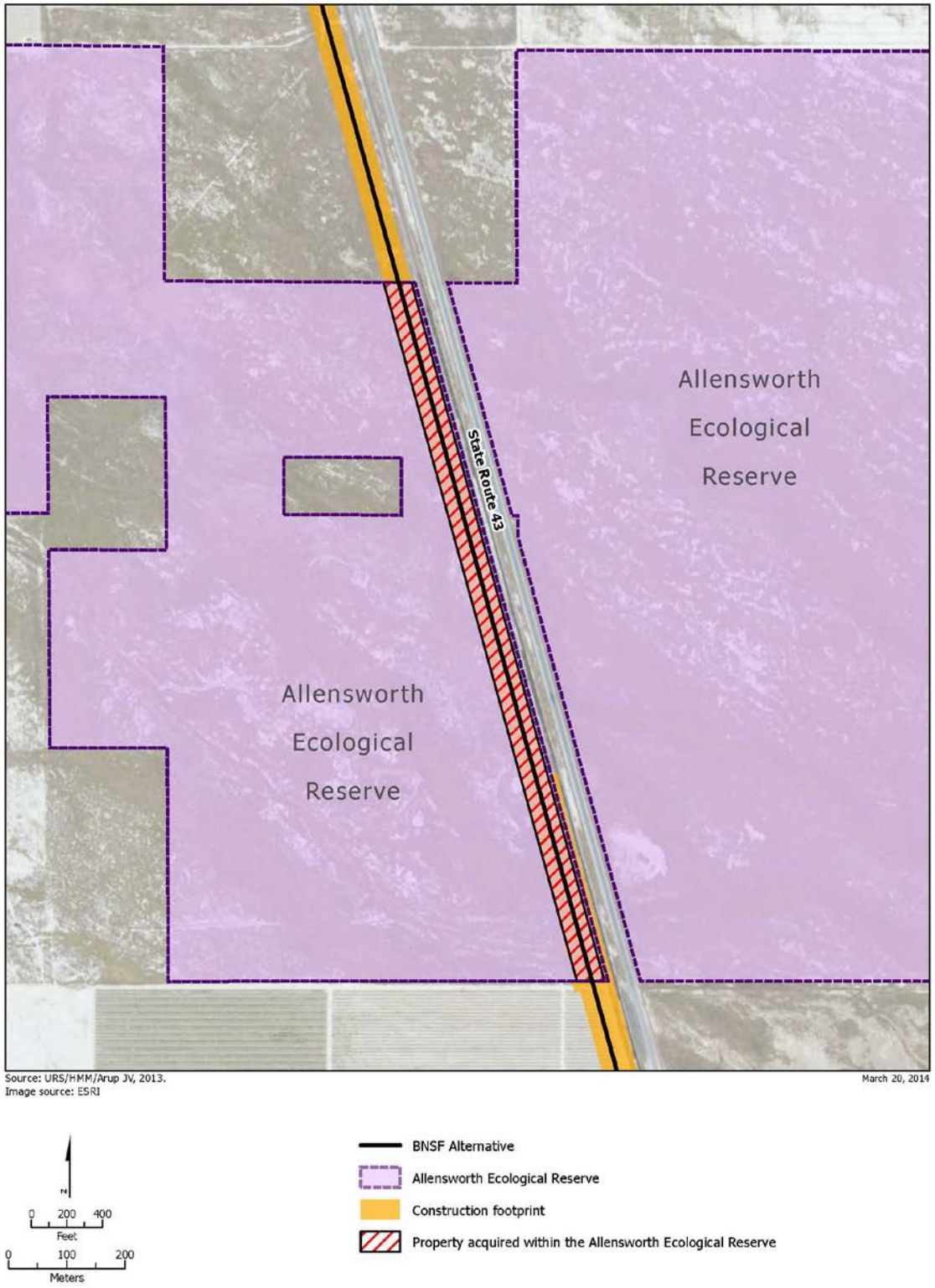

Figure 4-8
Allensworth Ecological Reserve land acquisition

The eastern areas of Allensworth Ecological Reserve that are publicly accessible for wildlife viewing do not contain any developed features and are separated from the BNSF Alternative by SR 43 and the existing BNSF railway; the HST would be consistent with the existing visual and noise environment associated with these transportation facilities. Therefore, the reserve would not experience any change in character as a result of the BNSF Alternative. Acquisition would occur directly adjacent to an existing transportation facility; it is anticipated that species within the reserve would already be conditioned to transportation-related noise. Wildlife passages have been designed through the guideway to allow wildlife movement across the BNSF Alternative alignment. Areas west of the BNSF Alternative do not offer access to Allensworth Ecological Reserve. Therefore, visitors are not anticipated in this area of the park. Given the separation of the eastern areas of the park from the BNSF Alternative by SR 43 and the BNSF Railway, and the lack of visitors to areas of the reserve west of the BNSF Alternative, there would be no proximity impacts due to operation of the HST under the BNSF Alternative.

4.6.1.4 McMurtrey Aquatic Center Use Assessment

BNSF Alternative, Bakersfield South Alternative, Bakersfield Hybrid Alternative

Differences in impacts on McMurtrey Aquatic Center under the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative are inconsequential. Thus, the following discussion applies to all three alternatives.

None of the alternatives would temporarily occupy or permanently acquire land from McMurtrey Aquatic Center, and therefore there would be no permanent incorporation as a result of implementation of any of the alternatives. Access to the facility would be maintained and would not change during either construction or operation. The BNSF, Bakersfield South, and Bakersfield Hybrid alternatives would require construction activities within 100 feet of the park, which would result in temporary increases in noise levels that could be considered a nuisance for park users. However, activities at the park (i.e., swimming and aquatic recreation) are not noise sensitive, therefore the minor increase in noise would not substantially impair the protected activities, features or attributes of the park.

Construction activities would be visible from the park. However, the facility is located in an urbanized area and its main features are swimming pools which do not require a high-quality visual setting in order for the public to use and enjoy the facility. Therefore because of the urbanized area and the park's use for activities which are not dependent on visual setting, construction of the HST alternatives would not substantially impair the features of the resource that qualified it for protection under Section 4(f).

The introduction of the HST guideway with the BNSF Alternative, Bakersfield South, and Bakersfield Hybrid alternatives in proximity to the park would also create noise and visual impacts that do not currently exist. Existing ambient noise levels at McMurtrey Aquatic Park are 67.7 Ldn. As described in Section 3.4, Noise and Vibration, sound barriers would be employed under each alternative scenario to minimize harm to the Section 4(f) resource. With barriers, the operational noise levels at McMurtrey Aquatic Center would increase to 69-70 Ldn under each alternative scenario, a negligible increase that would not be evident to park users.

Depending on the alternative, the columns for the HST guideway would be constructed in the parking lot that is currently dedicated for use by patrons of the park and the adjacent privately operated ice center. This column placement would result in a loss of up to 11% of the parking spaces. Areas underneath the elevated guideway would remain available for parking in accordance with the Authority's policy in "Access Control for High-Speed Rail Right-of-Way and Facilities" (Parsons Brinckerhoff 2013); a permanent maintenance easement would need to be obtained. The estimated loss of spaces would not reduce the number of available dedicated

spaces below the applicable parking requirements listed in the City of Bakersfield Municipal Code at Title 17.58.110, "Parking Space Requirements by Land Use." Therefore, the reduction in parking spaces dedicated to the park would not substantially impair the features of the resource that qualify it for protection under Section 4(f).

Based on these findings and coordination with the City of Bakersfield conducted to date, there would be no Section 4(f) use of McMurtrey Aquatic Park under the BNSF Alternative, the Bakersfield South Alternative, or the Bakersfield Hybrid Alternative.

4.6.1.5 Kern River Parkway Use Assessment

BNSF Alternative, Bakersfield South Alternative, and Bakersfield Hybrid Alternative

The impacts on Kern River Parkway are substantially similar under the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative. Thus, the following discussion applies to all three alternatives.

The BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative would cross above the Kern River Parkway at a height of approximately 65 feet in an area that contains a pathway available for bikes and pedestrians and features that serve floodway purposes. The height of the viaduct in this location is controlled by adjacent roadway projects, Westside Parkway and Centennial Corridor projects, which were recently constructed or are currently in the development phase with the city. Depending on the alignment chosen for Centennial Corridor, the vertical clearance of the HSR viaduct may be reduced. As part of ongoing coordination with the City of Bakersfield, FRA and the Authority will continue discussions and identification of opportunities to reduce impacts, such as minimizing the vertical clearance.

The crossing location for all three alternatives contains a pathway available for bikes and pedestrians and features that serve floodway purposes. The HST would be on an elevated structure spanning tangentially a portion of the parkway that is undeveloped except for the bike and pedestrian pathway. Footings for the columns that would support the guideway would be constructed within the Kern River Parkway, and the completed guideway would span the bike and pedestrian path. Except for the footings, no portion of the Kern River Parkway would be purchased by the Authority because the guideway would completely span the property and the park underneath the elevated guideway would remain available for park use in accordance with the Authority's policy on "Access Control for High-Speed Rail Right-of-Way and Facilities" (Parsons Brinckerhoff 2013). However, the Authority would have to negotiate and obtain a permanent 90-foot-wide maintenance easement from the City of Bakersfield so that the elevated guideway and track could be appropriately maintained during operation.

The footings for the columns located within the Kern River Parkway and the maintenance easement may result in a Section 4(f) use of this park resource. Construction of the guideway would require temporary closure of the existing bike path within the adjacent area of the parkway. However, temporary detours would be established to maintain connectivity throughout construction. Following the completion of construction activities (between 3 and 6 months), the bike path would be restored to the condition it was in before project construction or better.

Current views of open sky and distant mountains in the vicinity of the HST guideway crossing are already partially obscured by the presence of two roadway bridges. The introduction of the HST guideway above the bike path within the Kern River Parkway would create an additional permanent intrusive visual element, which would be generally consistent with the other transportation features (i.e., roadway bridges) in the viewshed. The addition of the elevated guideway would not adversely impact the normal use of the parkway because views of the additional feature would be temporary (i.e., they would only be experienced while the guideway is within the views of park users as they pass through this area). The addition of the HST viaduct

to the landscape would result in noticeable visual impacts on users of the parkway in the immediate vicinity of the alignment. Mitigation measures to address impacts on the viewshed, as described in Section 3.16, Aesthetics and Visual Resources, will be employed to reduce these impacts. Further, FRA and the Authority are continuing ongoing coordination with the City of Bakersfield; during FRA's consideration of its decision and during final design, additional measures may be agreed on to further reduce potential impacts on this property. Because of the existing visual setting of the parkway and the types of uses accommodated (i.e., bicycle and pedestrian travel), the visual impacts would not substantially impair the attributes that qualify the facility for protection under Section 4(f). Noise impacts due to operation of the HST would result in a minor increase in noise levels (varying from an additional 1.5 to 4.5 L_{dn}-dBA). The portion of the parkway in the study area is characterized by multiple noise-generating uses, including roadways and railroads. The operation of the HST would not substantially and adversely impact the normal use of the parkway because noise from the operations would be temporary (i.e., HST noise would only be experienced when the trains pass through this area). Because of the levels of ambient noise, the types of uses accommodated (i.e., bicycle and pedestrian travel), and considering the inclusion of the applicable mitigation measures, the moderate increase in noise levels would not substantially impair the attributes that qualify the facility for protection under Section 4(f).

As described above, the impacts on the Kern River Parkway that would result from the footing installation and the maintenance easement (e.g., drain cleaning, litter removal, and inspection) would be minor in nature and would not adversely affect the activities, features, or attributes that qualify the resource for protection under Section 4(f). Based on the information garnered to date, the analysis supports an FRA finding that the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative on Kern River Parkway in Bakersfield could result in a *de minimis* impact, as defined at 49 U.S.C. 303(d). The Authority and FRA are continuing discussions with the City of Bakersfield Department of Recreation and Parks with regard to the characterization of effects of the project in the context of this Section 4(f) evaluation, consistent with 49 U.S.C 303(d)(3)(B). For the purposes of this analysis and because coordination is ongoing with the City of Bakersfield, both a *de minimis* impact and potential use of this resource are evaluated.

4.6.1.6 Mill Creek Linear Park Use Assessment

BNSF Alternative, Bakersfield South Alternative, Bakersfield Hybrid Alternative

Impacts on Mill Creek Linear Park are substantially similar under the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative. Thus, the following discussion applies to all three alternatives.

The BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative would cross above areas of Mill Creek Linear Park used by pedestrians. The guideway would cross perpendicularly on an elevated structure above the portion of the Mill Creek Linear Park that straddles Kern Island Canal south of the existing BNSF right-of-way. Footings for the columns that would support the guideway may be constructed within this portion of the park, and the completed guideway would span the park. The exact placement of the footings will be established during final design. While it is possible to find an engineering solution that would avoid placing the footings within the park, FRA has taken a conservative approach for purposes of this analysis. Although no portion of Mill Creek Linear Park would be purchased for the HST guideway and the park land underneath the elevated guideway would remain available for park use in accordance with the Authority's policy in "Access Control for High-Speed Rail Right-of-Way and Facilities" (Parsons Brinckerhoff 2013), a permanent 90-foot-wide maintenance easement would be obtained.

Construction of the guideway could require temporary closure of a portion of the park for safety purposes while construction takes place. Also, construction of the guideway footings and columns for the BNSF Alternative would require temporary closure and reconfiguration of access to the park from the Q Street undercrossing. However, temporary detours would be provided during construction of the guideway to provide access. After the completion of construction activities, the portions of the Mill Creek Linear Park impacted by the project would be restored to the condition they were in before project construction or better.

Introduction of the HST guideway above the park would introduce a visual transportation element that did not previously exist. The minimum vertical clearance over the park would be approximately 30 feet and the width of the guideway would range from 50 feet under the Bakersfield Hybrid Alternative to 100 feet under both the Bakersfield North Alternative and Bakersfield South Alternative. However, the park is currently in an urban setting with various existing transportation features; it is crossed at-grade by numerous streets and pedestrian crossings, and the existing BNSF right-of-way is in the vicinity of the park. Therefore, although the introduction of the HST guideway would create noticeable effects on park users due to the introduction of additional transportation features, it would be consistent with the existing urban setting of the park.

Noise impacts due to operation of the HST project would result in a minor increase in noise levels in the vicinity of the park (varying from an additional 1 to 4 L_{dn}-dBA). The portion of the park in the study area is characterized by multiple noise-generating uses, including adjacent roadways and a railroad. The operation of the HST project would not substantially and adversely impact the normal use of the park because noise from project operations would be temporary (i.e., HST noise would only be experienced when the trains pass through this area). Because of the existing levels of ambient noise, the moderate increase in noise levels would not substantially impair the attributes that qualify the facility for protection under Section 4(f).

Although the visual and acoustic impacts of the project would adversely affect park users, the impacts are not expected to be so severe as to substantially impair the attributes that qualify the resource for protection under Section 4(f); the park would continue to function for pedestrians seeking recreation. Also, measures to minimize harm, as described in Table 4-4, below, would be employed to reduce these impacts. Further, FRA and the Authority are continuing ongoing coordination with the officials with jurisdiction over the resource; during FRA's consideration of its decision and during final design, additional measures may be agreed on to further reduce potential impacts on this property.

The footings located within the Mill Creek Linear Park and the maintenance easement may result in a Section 4(f) use of Mill Creek Linear Park. However, based on the minor nature of the impacts on Mill Creek Linear Park (also described above), the FRA analysis supports a determination that impacts from the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative on Mill Creek Linear Park in Bakersfield may be *de minimis* in nature, as defined at 49 U.S.C. 303(d). The Authority and FRA are continuing coordination and investigations to clarify the boundaries and ownership of the park and to characterize the effects of the Project in the context of this Section 4(f) evaluation. For the purposes of this analysis and because coordination is ongoing with the officials with jurisdiction over the resource, both a *de minimis* impact and potential use of the resource are evaluated.

4.6.1.7 Amtrak Station Playground

BNSF Alternative, Bakersfield South Alternative, Bakersfield Hybrid Alternative

Impacts on the Amtrak Station Playground are similar under the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative. Thus, the following discussion applies to all three alternatives.

None of the alternatives would temporarily occupy or permanently acquire land from the Amtrak Station Playground. Therefore, there would be no permanent incorporation as a result of implementation of any of the alternatives. Access to the facility would be maintained and would not change during either project construction or project operation.

The BNSF, Bakersfield South, and Bakersfield Hybrid alternatives would require construction activities within 77 feet of the park (depending on the alternative), which would result in temporary increases in noise and vibration levels that could be considered a nuisance for park users. Also, operation of the HST project would result in an increase in noise levels. Section 3.4, Noise and Vibration, contains mitigation measures that serve as measures to minimize harm from noise and vibration. In addition, the playground is currently subject to frequent freight and passenger train noise as well as noise from the adjacent roadway and bus terminal on a daily basis, and activities at the playground (i.e., passive recreation) are not noise sensitive. Therefore, the increase in noise would not substantially impair the protected activities, features, or attributes of the park.

Construction and operation of the HST project would introduce a modern transportation element within approximately 199 feet of the playground. Although the HST guideway would be a visually dominant modern feature, the facility would be in an urbanized area and its main feature is a play area that does not require a high-quality visual setting for the public to use and enjoy it. The mitigation measures that serve as measures to minimize harm against visual impacts would be implemented as described in Section 3.16, Aesthetics and Visual Resources. Therefore, because of the urbanized area and the playground's use for activities that are not dependent on visual setting, construction of the HST alternatives would not substantially impair the features of the resource that qualify it for protection under Section 4(f), and no use would occur.

4.6.2 Cultural Resources

Section 106 of the NHPA 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 the method by which a cultural resource's significance and any resulting protections are 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 analyzes impacts on cultural resources. Whereas Section 106 is concerned with "adverse effects," Section 4(f) is concerned with "use" of protected properties. An adverse effect does not necessarily result in a Section 4(f) use unless it either results in a permanent incorporation of the property or the adverse effect substantially impairs the attributes and features that qualify the resource for protection under Section 4(f).

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

Based on the analysis conducted for cultural resources (see Section 3.17), the following seven NRHP-listed or eligible historic sites would be directly adversely affected under Section 106 by

one or more HST alternatives. These properties have been determined to incur Section 4(f) uses because these sites would be permanently incorporated into the HST right-of-way.

Washington Irrigated Colony Historic Rural Landscape (Rural Fresno County)

BNSF Alternative

A Section 4(f) Use of the Washington Irrigated Colony Historic Rural Landscape would occur under the BNSF Alternative as a result of direct adverse effects to properties that contribute to the district, including the Washington Colony Canal and the North Branch of the Oleander Canal, as discussed further below. The BNSF Alternative would have no adverse effect on 6422 South Maple Avenue (eligible both individually and as contributing element to the Washington Irrigated Colony Historic Rural Landscape) under Section 106.

- Washington Colony Canal (Rural Fresno County). The BNSF Alternative would cross this canal at-grade. This would result in the placement of culvert crossings within the physical boundary of the historic property, permanently converting land into a transportation feature and therefore resulting in a Section 4(f) use. Impacts would be limited to the portion of the canal crossed by the BNSF Alternative and would not extend to other historic portions of the canal.

- North Branch of the Oleander Canal (Rural Fresno County). The BNSF Alternative would cross this canal at-grade. This would result in the placement of culvert crossings within the physical boundary of the historic property, converting land into a transportation feature and therefore resulting in a Section 4(f) use. Impacts would be limited to the portion of the canal crossed by the BNSF Alternative and would not extend to other historic portions of the canal.

Peoples Ditch (Rural Kings County)

BNSF Alternative

The HST alignment under the BNSF Alternative would cross this canal at-grade and would require culvert installation and relocation of up to 1,000 feet of a segment of this ditch. This would result in the placement of project components within the physical boundary of the historic property, resulting in a Section 4(f) use. These effects would be limited to the specific segments of the canal subject to construction and would not extend to other historically significant segments of the canal.

Last Chance Ditch (Kings County)

Hanford West Bypass 1 and 2 Alternatives

All of the Hanford West Bypass alternatives would require relocation of up to a mile of the Last Chance Ditch irrigation canal. Other project activities that would materially alter this property include construction of roadway structures that would require installation of culverts and other alterations of the canal. These activities would result in the placement of project features within the boundary of this historic property, which is a Section 4(f) use. These effects would be limited to the specific segments of the canal subject to construction and would not extend to other historically significant segments of the canal.

9860 13th Avenue (Kings County)

Hanford West Bypass 1 and 2 Alternatives

The farmstead at 9860 13th Avenue is in the construction footprint of the Hanford West Bypass 1 and 2 (at-grade and below-grade) alternatives. The residence, tank house, and outbuildings would be demolished and the parcel boundaries bisected by the construction of the Hanford West

Bypass 1 and 2 alternatives. Construction would result in the physical destruction of this historic property, and would constitute a Section 4(f) use.

Allensworth Historic District (4129 Grant Drive, Tulare County)

BNSF Alternative

The Allensworth Historic District exists in the same location as Colonel Allensworth State Park. The Section 4(f) use from permanent incorporation of this property as a result of the BNSF Alternative is discussed above in Section 4.6.1.2.

2509 East California Avenue (Bakersfield)

Bakersfield South Alternative

This property is within the alignment of the Bakersfield South Alternative. Implementation of this alternative would result in the physical destruction of this resource and would constitute a Section 4(f) use.

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

The seven historic properties listed below were analyzed to determine whether the project alternatives could result in indirect adverse effects. Section 4(f) use determinations are based on analyzing the potential proximity impacts on the properties, taking into account the activities, features or attributes that qualify the property for protection under Section 4(f). A finding of indirect adverse effect does automatically result in a Section 4(f) use. Where there is the potential for an indirect adverse effect on a protected property, FRA completes a property-specific evaluation to determine whether the adverse effects will substantially impair the attributes that qualify this resource for protection under Section 4(f).

Southern Pacific Railroad Depot (1033 H Street, Fresno)

BNSF Alternative

No HST alternative would result in a Section 4(f) use of property of the NRHP-listed Southern Pacific Railroad Depot site based on acquisition or occupancy of the property. However, the BNSF Alternative would result in a Section 106 indirect adverse effect on the Southern Pacific Railroad Depot because the new station would change the character of the Depot's use. The property's setting, feeling, and association, which contribute to its historic significance, and the operation of the new station would introduce a visual impact that reduces the integrity of the property's historic features and historic use.

The BNSF Alternative would include construction of a Tulare Street overcrossing adjacent to the southern side of the Southern Pacific Railroad Depot in Fresno. The size, scale, and mass of this elevated structure are larger than the original depot design layout; however, although the new transportation features would be visible within the viewshed of the property, they would not detract from the character-defining features of historic depot's architectural style or change the character of the property's use. Therefore, the BNSF Alternative would not result in a substantial impairment of the attributes that qualify this resource for protection under Section 4(f). Therefore, the assessment is that it would not constitute a Section 4(f) use.

Bank of America (947–951 F Street, Fresno)

BNSF Alternative

The BNSF Alternative includes the introduction of a raised structure within 15 feet of the Bank of America building and would diminish its historic design by altering its relationship to the formerly at-grade storefronts on a prominent corner lot; would diminish its setting, and would diminish the prominent commercial facades on its northeast, northwest, and southwest sides.

The Bank of America building qualifies for protection under Section 4(f) as the first Japanese-owned lending institution in Fresno and as a local example of Spanish Mission Revival style architecture. While its setting would be diminished and would result in an indirect adverse effect under Section 106, its association with the historic Japanese community in Fresno would not change. Further, its location, design, materials, and workmanship as Spanish Revival Style building would not change. Thus, the determination is that this would not result in a substantial impairment to the features that qualify the resource for protection under Section 4(f) and would not result in a constructive use of this property.

South Van Ness Entrance Gate (2208 South Van Ness Avenue, Fresno)

BNSF Alternative

The BNSF Alternative would cause an indirect adverse effect under Section 106 to the South Van Ness Entrance Gate, through the permanent closure of local roadways. The closure of South Railroad Avenue and the portion of South Van Ness that that intersects that street would alter the function of the gate as an entrance marker for vehicles entering Fresno. This change would diminish the property's historic design, location, feeling, association, and setting.

The South Van Ness Entrance Gate qualifies for protection under Section 4(f) due to its association with early 20th century transportation and as an example as an early 20th century roadway sign. While its historic function was as a gateway into the City of Fresno in the early 20th century, the area now has limited use as a gateway: modern thoroughfares into the city are primarily SR 99, SR 41, and Golden State Boulevard. Additionally, the gateway structure would not be materially altered and would retain its design and workmanship as an early 20th century roadway sign. Therefore, while the BNSF Alternative would result in an indirect adverse effect under Section 106, the determination is that features that qualify the sign for protection would not be substantially impaired and would not result in a Section 4(f) use.

Lakeside Cemetery (Kent Avenue, Rural Kings County)

BNSF Alternative

The BNSF Alternative includes the construction of an at-grade rail line, a grade separation and overcrossing for Kent Avenue approximately 70 feet from the boundary of Lakeside Cemetery, a site containing a communication tower up to 100 feet tall and associated shelter, approximately 25 feet east of the cemetery, and permanent closure of Kent Avenue to the northeast of the property. The attribute that qualifies the cemetery for protection under Section 4(f) is its association with early development of the Lakeside District as an agricultural community. Under Section 106 of the NHPA, the BNSF Alternative would result in an indirect adverse effect to the pioneer cemetery due to visual impacts. The historic setting of the cemetery is agricultural and rural in nature; however, today the local landscape includes modern large-scale agricultural operations and roadways. The construction of the HST structure and associated retaining walls in the vicinity of the cemetery is not consistent with the agricultural characterization of the surrounding development; however, it is consistent with infrastructure improvements in the area. Therefore, the inclusion of the BNSF Alternative as a visual element in the background of the

Lakeside Cemetery would not be so severe that the cemetery's association with early development of the Lakeside District would be substantially impaired. Therefore, the assessment is that BNSF Alternative would not constitute a Section 4(f) use of this property.

Stark/Spencer Residence (1321 N Street, Bakersfield)

Bakersfield Hybrid

The Bakersfield Hybrid Alternative includes the construction of an elevated rail line that would measure between 30 and 90 feet in height and approximately 170 feet north of this historic property. Construction would not result in the removal of, the physical destruction of, or damage to this historic property. However, the introduction of a new, elevated transportation infrastructure in the immediate vicinity of this nineteenth century residence would adversely alter the viewshed and setting of this historical property. Under Section 106 of the NHPA, the Bakersfield Hybrid Alternative would result in an indirect adverse effect to the Stark/Spenser Residence from the introduction of visual elements.

The Stark/Spenser Residence is a two-story wood-frame residence constructed in 1898 in the Queen Anne and Eastlake styles characterized by decorative shingles, delicate spindle woodwork, complex roofline, and distinctive porches. The building has been determined eligible for listing in the NRHP under Criterion C as a distinguished example of its architectural style. Because the Bakersfield Hybrid Alternative would not result in removal of, the physical destruction of, or damage to this historic property, the attributes that qualify the property for protection under Section 4(f) (i.e., its qualities as an example of its architectural style) would not be substantially impaired. Therefore, the assessment is that the indirect adverse effect under Section 106 for the impacts related to the Bakersfield Hybrid Alternative would not constitute a Section 4(f) use of this property.

1031 East 18th Street (Bakersfield)

BNSF Alternative

The BNSF Alternative would cause an indirect adverse visual effect on small wood-frame Folk Victorian residence at E. 18th Street, because of the construction of an elevated rail line. The elevated rail line would be between 50 and 70 feet in height, about 110 feet from the historic property, and cross through the neighborhood at a height equivalent to a five- to seven-story building in an area that has historically consisted of one-story residences. The elevated rail structure would be across the street from this historic property and the size, scale, and massing of such a structure are not consistent with the historic design, setting, location, feeling, or setting of the building and would diminish the historic integrity of the historic property, which is an indirect adverse effect under Section 106. The building has been determined eligible for listing in the NRHP under Criterion C as an important example of Folk Victorian architecture. However, because the BNSF Alternative would not result in removal of, the physical destruction of, or damage to this historic property, the attributes that qualify the property for protection under Section 4(f) (i.e., its qualities as an example of Folk Victorian architecture) would not be substantially impaired. Therefore, the assessment is that indirect adverse effect under Section 106 caused by the BNSF Alternative would not constitute a Section 4(f) use of this property.

Harvey Auditorium, Bakersfield High School (1241 G Street, Bakersfield)

BNSF Alternative

The BNSF Alternative includes construction of an elevated rail line between 50 and 70 feet in height approximately 125 feet from Harvey Auditorium. The elevated structure would be

constructed adjacent to an existing at-grade railroad in an area that historically consisted of a mixture of institutional and education-related buildings. The construction of the BNSF Alternative would have an indirect adverse effect under Section 106 because it would alter the setting of the auditorium through the demolition of buildings just north, northeast, and northwest of the auditorium, which would diminish the integrity of its setting, association, and feeling. The construction of the BNSF Alternative would also have an indirect adverse effect through the introduction of a large-scale (50 to 70 feet tall), elevated rail line across the street from the auditorium. This construction diminishes the historic design, setting, association, and feeling of this building, and would diminish its historic integrity.

Harvey Auditorium qualifies for protection under Section 4(f) due to its association with local master architect Charles Biggar. While the property would incur an indirect adverse effect under Section 106 for the reasons listed above, the building would remain recognizable as having the design and workmanship of local master architect Charles Biggar. Other character-defining features include the location and orientation of the auditorium facing the central quadrangle of Bakersfield High School and its visual relationship to the other buildings and structures of the campus, including the Industrial Arts building complex located diagonally across the street to the northwest. Although the Industrial Arts building complex would be demolished as part of the BNSF Alternative, the other structures of the campus, as well as the orientation of the Harvey Auditorium towards the Bakersfield High School quad would remain unchanged. Thus, the attributes that qualify the property for protection under Section 4(f) would not be substantially impaired. The assessment is that the BNSF Alternative would not result in a Section 4(f) use to the property.

Summary of Section 4(f) Use Determinations of Historic Properties

A summary of Section 4(f) uses of NRHP-listed or eligible historic properties is provided in Table 4-3. Alternatives are compared against other alternatives in locations where they parallel each other. All historic property determinations of use shown are direct Section 4(f) uses as a result of property acquisition.

Table 4-3
Summary of Section 4(f) Uses of NRHP-Listed or Eligible Properties

Alternative	Number of Historic Property Uses	Historic Property Uses
Areas with no Corresponding Alternative		
BNSF	2	• Washington Irrigated Colony Historic Rural Landscape – Washington Colony Canal – North Branch of Oleander Canal
Hanford Area		
BNSF	1	• Peoples Ditch
Hanford West Bypass 1	2	• Last Chance Ditch • 9860 13th Ave
Hanford West Bypass 2	2	• Last Chance Ditch • 9860 13th Ave

Table 4-3
Summary of Section 4(f) Uses of NRHP-Listed or Eligible Properties

Alternative	Number of Historic Property Uses	Historic Property Uses
Corcoran Area		
BNSF	0	N/A
Corcoran Bypass	0	N/A
Corcoran Elevated	0	N/A
Allensworth Area		
BNSF	1	• Allensworth Historic District
Allensworth Bypass	0	N/A
Wasco-Shafter Area		
BNSF	0	N/A
Wasco-Shafter Bypass	0	N/A
Bakersfield Area		
Bakersfield South	1	• 2509 E. California Ave

N/A = not applicable
NRHP = National Register of Historic Places

4.7 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 Fresno to Bakersfield Section EIR/EIS tiers off the approved program EIR/EIS documents. The alternatives evaluation process conducted as part of the HST Project for the Fresno to Bakersfield Section concluded that there was no feasible and prudent HST alternative within the study area that did not result in a use of a Section 4(f) resource. Although the alternatives analysis process considered multiple criteria, the screening emphasized the project objective to maximize the use of existing transportation corridors and available rights-of-way, to the extent feasible; the result of this was the carrying forward of the north-south alignment alternatives that follow the existing freight corridor of the BNSF. The alternatives evaluation process resulted in the conclusion that, in accordance with 49 U.S.C. 303(c), there was no feasible and prudent HST alternative within the study area that, based on multiple factors that are individually not severe, would cumulatively result in conditions rendering the alternative not prudent.

The reason for this finding is as follows:

- 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.

- Any alternative that did not follow existing railroad or other existing transportation corridors would not meet the purpose and need of the Fresno to Bakersfield HST project because such an alternative would fail to link the major metropolitan areas of the state, deliver predictable and consistent travel times, and relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California's unique natural resources:

  - Scoping comments brought up alternatives that were already considered in the 2005 Final Statewide Program EIR/EIS, such as the Sierra Foothills (located 8 miles east of SR 99) and an alignment along the I-5 corridor. The Sierra Foothills Alternative was already eliminated in the Program EIR/EIS due to lack of connectivity with urban centers, inability to generate adequate revenue, and high environmental impacts.

  - The potential for an I-5 alignment was considered and rejected for further study in decisions by the Authority and the FRA in the 2005 Final Statewide Program EIR/EIS. While the I-5 corridor could possibly provide better end-to-end travel times compared with alignment alternatives that generally follow the rail corridors or the SR 99 corridor, it would not meet project objectives and would not satisfy the project's purpose and need as well as the BNSF/UPRR/SR 99 corridors would. Because it is not where the bulk of the Central Valley population resides, the I-5 corridor would result in lower ridership and would not meet the current and future intercity travel demand generated by the Central Valley communities. The I-5 corridor would not provide transit connections in this area, and thus would not meet the purpose and need and basic objectives of maximizing intermodal transportation opportunities and improving the intercity travel experience in the Central Valley area of California. Use of the I-5 corridor would also encourage sprawl development, which is the opposite of what the HST System is intended to achieve, and which was opposed by numerous agencies, including EPA.

  - In contrast to the lower population along the I-5 corridor, almost 5 million residents are projected to live between Merced and Bakersfield along the BNSF/UPRR/SR 99 corridors by 2035. Residents along the BNSF/UPRR/SR 99 corridors lack a competitive transportation alternative to the automobile, and the detailed ridership analysis showed that they would be ideal candidates to use an HST System (Authority and FRA 2010b). In addition, the I-5 corridor would not be compatible with current land use planning in the Central Valley, which focuses and accommodates growth in the communities along the BNSF/UPRR/SR 99 corridors. The concept of linking the I-5 corridor to Fresno and Bakersfield with spur lines was also considered at the program level, but dismissed because it would add considerably to the I-5 corridor capital costs and would still have the same lower ridership figures when compared to the SR 99 corridor.

The Authority and FRA identified avoidance alternatives to the Hanford West Bypass 1 and 2 alternatives (referred to below as the Hanford West Bypass 1 and 2 Modified alternatives and shown on Figures 4-9 and 4-10) by moving the alignments approximately 500 feet to the west. This modification has been determined to be a feasible and prudent avoidance alternative to using some Section 4(f) resources. The implications of this modification are evaluated in this section with respect to the relevant Section 4(f) resources discussed below (Sections 4.7.1.5 through 4.7.1.8).

The No Project Alternative would not include the construction of the HST project or any associated facilities and would thus have no impact on any Section 4(f) or Section 6(f) resources associated with the construction and operation of the HST. There could be impacts to Section 4(f) or Section 6(f) resources as a result of the existing and planned improvements associated with the No Project Alternative. However, this alternative 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.

Greater detail on the alternatives considered but dismissed is provided in Section 2.3 and in the *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System* (Authority and FRA 2005), the *Fresno to Bakersfield Preliminary Alternatives Analysis Report* (Authority and FRA 2010a), the *Fresno to Bakersfield Supplemental Alternatives Analysis Report* (Authority and FRA 2010b), and the *Fresno to Bakersfield Section: Checkpoint B Summary Report* and attachments (Authority and FRA 2011b), all of which are available at http://www.hsr.ca.gov/.

4.7.1 Individual Resource Avoidance Assessments

4.7.1.1 Washington Irrigated Colony Historic Rural Landscape, Washington Colony Canal and North Branch of Oleander Canal

The Washington Irrigated Colony Historic Rural Landscape contains two contributing features that would be used by the BNSF Alternative: the Washington Colony Canal and the North Branch of the Oleander Canal, which are oriented generally east-west across the study area between SR 41 on the west and SR 99 on the east. As the Fresno to Bakersfield Section travels north-south, to avoid these resources it would be necessary to reroute the alignment at least 2 miles away from the BNSF Railway tracks to the east or west to avoid these canals. Because the curve radius for the proposed HST varies from approximately 4 to 6.5 miles, it would be necessary to reroute at least 6 miles of the alignment, resulting in higher construction and right-of-way costs and a minor increase in travel times. This rerouting would take place across an area of intensive farming, potentially resulting in severe disruption of existing farm operations, for example, due to severance of a parcel by the project footprint that would create two parcels and result in remnant parcel(s) that would be too small or too physically constrained to be farmed economically.

The HST alignment would permanently incorporate portions of these linear historic properties. However, the alignment would not require a complete demolition of the canals as a whole. With implementation of the measures to minimize harm discussed in Section 4.8, the alignment would not compromise the rural landscape's overall NRHP-eligibility and would not compromise the integrity of the canals as contributing elements to the Washington Irrigated Colony. Therefore, the assessment is that the BNSF Alternative would result in a Section 4(f) use of the Washington Irrigated Colony Historic Rural Landscape and its two contributing features, the Washington Colony Canal and the North Branch of the Oleander Canal; there is no feasible and prudent avoidance alternative to such use.

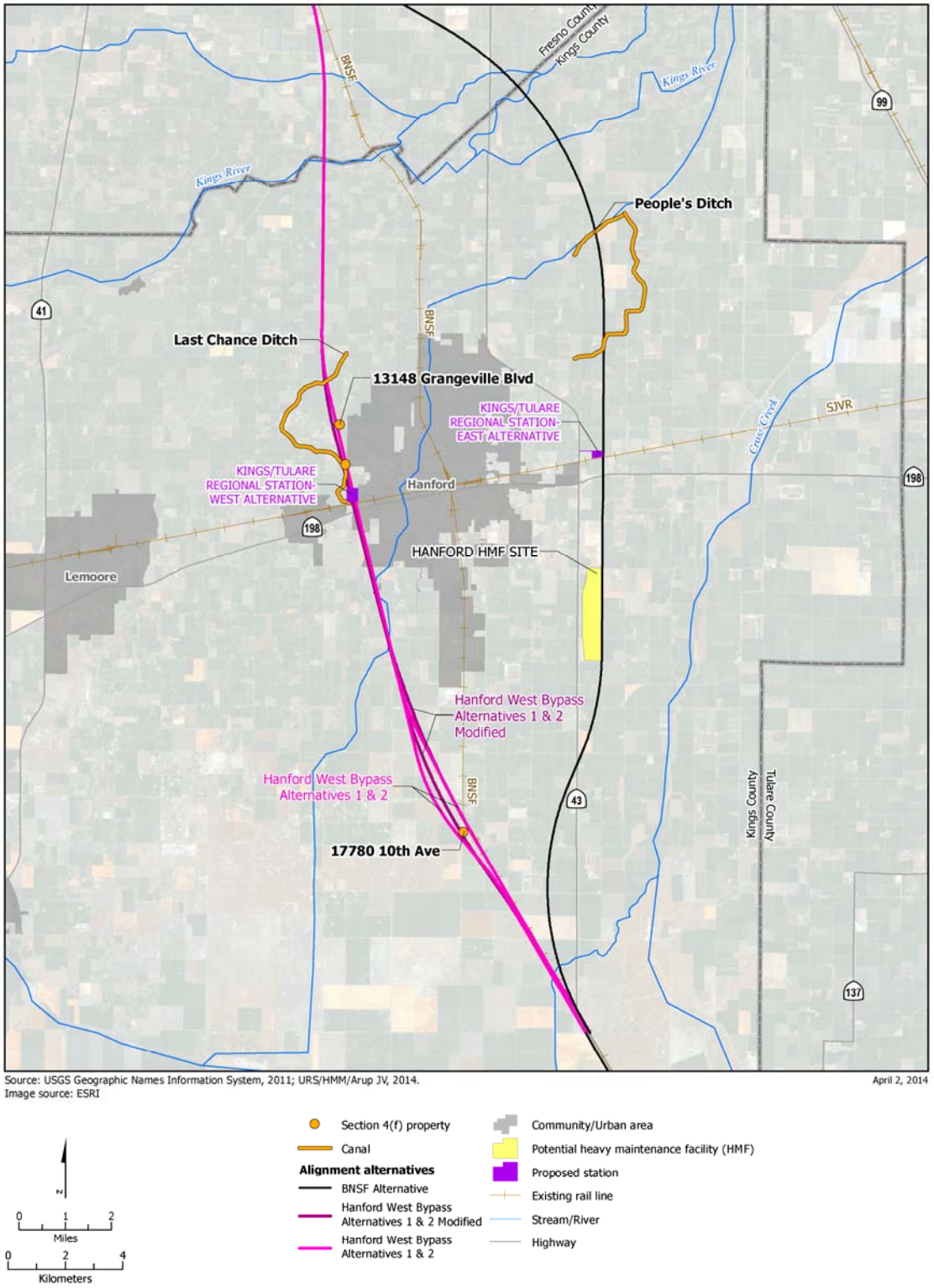

Figure 4-9
Hanford area: Hanford West Avoidance Alternative overview

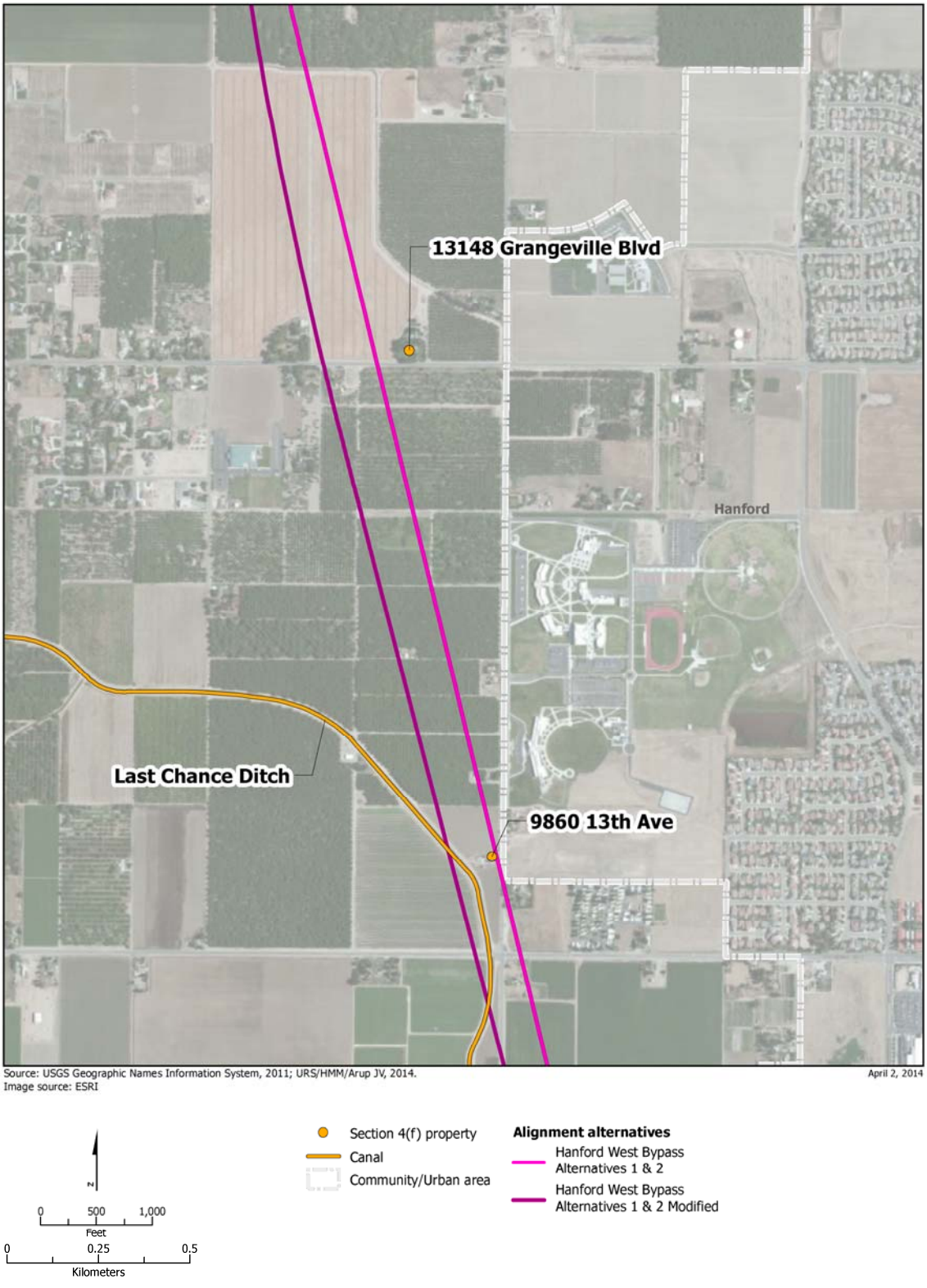

Figure 4-10
Hanford area: Hanford West Avoidance Alternative details

4.7.1.2 Last Chance Ditch

The Last Chance Ditch is an irrigation canal that would be relocated at two points under the Hanford West Bypass 1 and 2 alternatives: at the canal crossing of Fargo Avenue and west of 13th Avenue, north and south of W. Lacey Avenue. Relocation of the canal as part of the Hanford West Bypass 1 and 2 alternatives (both at-grade and below-grade) near Fargo Avenue would result in the material alteration of this historic property, which is a direct adverse effect under Section 106. Relocation of the canal in the vicinity of W. Lacey Avenue as part of the Hanford West Bypass 1 and 2 alternatives (at-grade only) would result in the material alteration of this historic property, which is a direct adverse effect. Other project activities that would materially alter this property include construction of roadway structures that would require installation of culverts and other alterations of the canal, relocation of a freight rail line, and construction of project features such as communications and power facilities. These project activities would diminish the historic integrity of the canal at these locations, but would not affect other segments of the canal that may be historic. Under the below-grade options for both Hanford West Bypass 1 and Bypass 2 alternatives, the historic property would be materially altered through the construction of roadway structures. These project actions would be a direct adverse effect Section 106, and would constitute a Section 4(f) use.

The Hanford West Bypass Modified alternatives would place the alignment approximately 600 feet west of the Hanford West 1 and 2 Bypass Alternatives (see Figures 4-9 and 4-10). However, because the canal is a linear feature, the east to west portions of the canal would still be bisected by the Hanford West Avoidance Alternative, and the impacts on the canal would be the same as under the Hanford West Bypass 1 and Bypass 2 alternatives and would still result in a Section 4(f) use.

Last Chance Ditch could be avoided by selecting the BNSF Alternative in the Hanford area. By selecting the BNSF Alternative at this location, there would be no Section 4(f) use of this property.

4.7.1.3 9860 13th Avenue

As described in Section 4.6.2, the Hanford West Bypass 1 and 2 alternatives would result in a Section 4(f) use of 9860 13th Avenue. The Hanford West Bypass Modified alternatives would move the alignment approximately 500 feet west, resulting in the rail line being placed within the northwest corner of the parcel on which this property lies (see Figures 4-9 and 4-10).

The property at 9860 13th Avenue qualifies for protection under Section 4(f) as a historic property that is a good local example of Folk Victorian architecture. The Hanford West Bypass Modified alternatives would place the HST within the parcel boundary, but it would not result in the acquisition or demolition of the structures, or otherwise affect their physical integrity. However, the introduction of this new visual feature would diminish the integrity of setting and impact the property boundary.

As noted above, the Hanford West Bypass Modified alternatives would require the relocation of Last Chance Ditch, which forms the western boundary of the farmstead. The Hanford West Bypass Modified alternatives also include construction of an interlocking site and an underpass at W. Lacey Boulevard, as well as the relocation of 13th Avenue—project activities that would take place south of and outside the property boundaries. Thus, a Section 106 indirect adverse effect would occur due to the change in visual setting to the property. However, the design, materials, and workmanship of the property would remain intact. However, even though the Hanford West Bypass Modified alternatives would avoid the demolition of structures at 9860 13th Avenue, they would still place the HST within the parcel boundaries. Because of the permanent incorporation of a portion of the parcel into the HST project and the parcel's importance to the setting of the

property, the Hanford West Bypass Modified alternatives constitute a use of the Section 4(f) property at 9860 13th Avenue.

The property at 9860 13th Avenue could be avoided by selecting the BNSF Alternative in the Hanford area. By selecting the BNSF Alternative at this location, there would be no Section 4(f) use of the property.

4.7.1.4 Peoples Ditch

As described in Section 4.6.2, the BNSF Alternative would result in an actual Section 4(f) use of the Peoples Ditch, which is oriented generally east to west in areas where it crosses the BNSF Alternative. The curve radius for the proposed HST varies from approximately 4 to 6.5 miles; to avoid this property it would be necessary to reroute at least 6 miles of the alignment, resulting in higher construction and right-of-way costs, and minor increased travel times. The rerouting would take place across an area of intensive farming, potentially resulting in severe disruption of existing farm operations, for example, due to severance of a parcel by the project footprint that would create two parcels and result in remnant parcel(s) that would be too small or too physically constrained to be farmed economically. As proposed, the BNSF Alternative would permanently incorporate portions of this linear historic property resulting in a direct Section 4(f) use. However, the alignment would not require a complete demolition of the Peoples Ditch as a whole, and with implementation of the measures to minimize harm discussed in Section 4.8, would not compromise its overall NRHP-eligibility.

The Peoples Ditch could be avoided by selecting the Hanford West Bypass 1 and Bypass 2 alternatives in the locations where they are parallel to the BNSF Alternative. The assessment is that there would be no Section 4(f) use of the Peoples Ditch under these alternatives.

4.7.1.5 Colonel Allensworth State Historic Park/Allensworth Historic District

Colonel Allensworth State Historic Park (which is congruent with the Allensworth Historic District) could be avoided by selecting the Allensworth Bypass Alternative. This alignment would avoid the park boundary by 450 feet on the southeastern boundary. The rail line would be constructed at-grade, as previously described, and would be located approximately 1 mile from any publicly used facilities. The HST would be located at sufficient distance from the park that it would not create any visual intrusion (see Section 3.16, Aesthetics and Visual Resources). Noise levels and vibration would be reduced by attenuation due to the distance of the Allensworth Bypass from the park (see Section 3.4, Noise and Vibration). The determination is that the Allensworth Bypass Alternative would not result in a Section 4(f) use of the park or district.

4.7.1.6 Allensworth Ecological Reserve

The Allensworth Bypass Alternative would avoid all portions of the reserve by approximately 2 miles, a sufficient distance to attenuate any potential noise or visual impacts. The Allensworth Bypass Alternative is a feasible and prudent avoidance alternative to the Section 4(f) use that would occur as a result of the BNSF Alternative.

4.7.1.7 Kern River Parkway

As described in Section 4.6.1, Park, Recreation, and Wildlife Refuge Resources, information garnered to date supports a finding that the impacts on the Kern River Parkway from the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives are *de minimis*. This analysis considers both *de minimis* impacts and potential use of this resource, because coordination with the City of Bakersfield continues regarding the characterization of impacts. Therefore, FRA has carefully considered whether feasible and prudent alternatives exist to avoid the property.

The Kern River Parkway extends along the Kern River in a general east/west axis through most of Bakersfield and would be crossed by the HST guideway in a north/south direction. Although it is possible to design an avoidance alternative as a matter of sound engineering judgment (i.e., it is feasible), to do so is not prudent because to avoid this long, linear resource, it would be necessary to reroute the alignment at least 4 miles in either direction and, due to design considerations and curve radii for the proposed HST, a reroute of the alignment to avoid the Kern River Parkway would likely require the relocation of the Bakersfield Station alternatives. This reroute would result in increased travel times and higher construction and right-of-way costs. The relocation of the station and station approaches to other locations in Downtown Bakersfield would likely result in adverse effects similar to or more severe than those associated with the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives.

The guideway would cross above the Kern River Parkway at a height of approximately 65 feet in an area that contains a pathway available for bikes and pedestrians. At this location, the HST would be on an elevated structure spanning tangentially to an undeveloped portion of the parkway. Footings for the columns that would support the guideway would be constructed within the Kern River Parkway; however, the completed guideway would span the bike path. Construction of the guideway would require temporary closure of the existing bike path within the parkway. However, temporary detours would be established to maintain connectivity. Following the completion of construction activities and with implementation of the measures to minimize harm discussed in Section 4.8, Measures to Minimize Harm, the bike path would be restored to the condition it was in before project construction or better.

Because of the extensive rerouting (and the impacts associated with the rerouting) that would be required to avoid this resource (as discussed above), avoidance would not be prudent. Further, FRA is continuing consultations with the City of Bakersfield to characterize the effects of the project on the resource. After this consultation, FRA may determine the effects to be *de minimis,* in which case avoidance would not be necessary.

4.7.1.8 Mill Creek Linear Park

As described in Section 4.6.1, Park, Recreation, and Wildlife Refuge Resources, information garnered to date supports a finding that the impacts on the Mill Creek Linear Park from the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives are *de minimis*. This analysis considers both *de minimis* impacts and potential use of this resource because coordination with the officials with jurisdiction over the resource continues regarding the specific nature of the Kern Delta Water District as a private or public entity and characterization of impacts. Therefore, FRA has carefully considered whether feasible and prudent alternatives exist to avoid the property.

Similar to the Kern River Parkway, the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives may result in a Section 4(f) use of Mill Creek Linear Park because of the requirement for a permanent 90-foot-wide maintenance easement. Mill Creek Linear Park extends along the Kern Island Canal in a north/south axis for a distance of approximately 1.5 miles. The park would be crossed by the HST guideway in an east/west direction on approach to the two alternative station sites for the Bakersfield Station. Although it is possible to design an avoidance alternative as a matter of sound engineering judgment (i.e., it is feasible), to do so is not prudent because to avoid the resource, it would be necessary to reroute the alignment up to 0.25 mile to the south or in excess of 1 mile to the north and would also require relocation of both station alternatives and respective west and east approaches. These reroutings and relocations would result in increased travel times and higher construction and right-of-way costs. Also, the relocation of the station and station approaches to other locations in Downtown Bakersfield would likely result in adverse effects similar to or more severe than those associated with the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives.

After the completion of construction activities and with implementation of the measures to minimize harm discussed in Section 4.8, Measures to Minimize Harm, Mill Creek Linear Park would be restored to the condition it was in before project construction or better. Because of the rerouting and station relocations that would be required to avoid this linear resource, avoidance would not be prudent. Further, FRA continues coordination with the officials with jurisdiction over the resource to confirm the nature of the Kern Delta Water District's ownership and to characterize the effects of the project on the resource in the context of Section 4(f). Following this coordination, FRA may determine the effects to be *de minimis,* in which case avoidance would not be necessary.

4.7.1.9 2509 East California Avenue

As described in Section 4.6.2, the Bakersfield South Alternative would result in a Section 4(f) use of 2509 East California Avenue. Both the Bakersfield Hybrid Alternative and the BNSF Alternative are feasible and prudent avoidance alternatives to this Section 4(f) use.

4.8 Measures to Minimize Harm

Measures to minimize harm include measures that were taken during project planning to avoid or minimize impacts as well as mitigation and enhancement measures to compensate for unavoidable project impacts. Table 4-4 lists the measures identified by the FRA and the Authority to minimize harm, as required by 49 U.S.C. Section 303(c)(2), which will be incorporated into the project to address the impacts of the alternative alignments. Additionally, avoidance alternatives have been developed to avoid uses to Section 4(f) properties where possible, as described in Section 4.7, Avoidance Alternatives, and coordinated with the officials with jurisdiction over the resource. The FRA and the Authority are continuing ongoing coordination, as appropriate, with these officials; during FRA's consideration of its decision and during final design, additional measures may be agreed on to further reduce potential impacts on Section 4(f) properties.

For effects on historic properties, the Programmatic Agreement among the SHPO, ACHP, the Authority, and FRA outlines an approach for compliance with Section 106 of the NHPA. A Memorandum of Agreement (MOA) that is under development for the Fresno to Bakersfield Section will address the treatment of adverse effects on the built environment from the proposed HST alignment. The MOA will stipulate that treatment measures will be applied to cultural resources and that the treatments will be described in the Built Environment Treatment Plan (BETP). The BETP will define the process by which these treatment measures will be applied to each identified resource. Proposed measures to minimize harm for all historic properties are listed together in Table 4-4; measures pertaining to each individual historic property are outlined in Chapter 3.17, Cultural and Paleontological Resources. As described, the project includes all possible planning to minimize harm to Section 4(f) properties resulting from use, as required by 49 U.S.C. Section 303(c)(2).

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

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Allensworth State Historic Park (Jurisdiction: State of California Parks and Recreation and SHPO)	
Acquisition of land from park (BNSF Alternative only) Temporary construction activities in the park (BNSF Alternative only)	• Final design will continue to minimize right-of-way impacts in Allensworth State Historic Park. Acquisition of Allensworth State Historic Park land will be pursuant to California Code of Civil Procedure Section 1240 for the permanent use of 1.7 acres of Allensworth State Historic Park. • Mitigation may include providing financial compensation for purchase and development of replacement park property of at least equivalent value with the property acquired or, where appropriate, enhancement of the existing facility. Where applicable, this process will be consistent with Section 6(f) requirements (refer to Section 6.10 Section 6[f]), and provide park enhancement as appropriate. • FRA and the Authority will continue to work with the relevant jurisdictions on the establishment of appropriate compensation in terms of allowance or additional property to accommodate for displaced park use during construction. Options will include preparing a plan for alternative public recreation resources during the period of closure and preparing signs and newsletters describing the project, its schedule, and alternative public recreational opportunities.
Allensworth Ecological Reserve (Jurisdiction: State of California [CDFW])	
Acquisition of land from reserve (BNSF Alternative only)	• Passages have been designed through the trackway embankment in the vicinity of the Allensworth Ecological Reserve to allow wildlife movement across the HST right-of-way. Wildlife crossings would be provided in the railroad embankment at intervals of approximately 0.3 mile over the segment of the alignment from approximately Avenue 84 in Tulare County to the Elmo Highway in Kern County. • Mitigation may include providing financial compensation for purchase and development of replacement park property of at least equivalent value with the property acquired or, where appropriate, enhancement of the existing facility.

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Historic Properties (Jurisdiction: SHPO)	
Property acquisition Potential vibration impacts Potential visual intrusion	• The HST project will develop construction methods to avoid indirect adverse effects to any historic properties from vibration caused by construction activities. Vibration from impact pile-driving during construction is anticipated to reach up to 0.12 in/sec ppv at 135 feet from the project centerline, a level that 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 impact pile-driving could cause adverse effects, alternative construction methods causing less than 0.12 in/sec ppv measured at the receptor will be developed for construction activities near historic properties or historical resources if they are determined to be susceptible to vibration damage at or above 0.12 in/sec ppv (Authority and FRA 2012e). The development of alternative construction methods at these locations would avoid indirect adverse vibration effects on historic properties. Implementation of avoidance measures will be monitored to ensure that damaging vibration levels are avoided during construction adjacent to the historic properties identified as requiring this treatment. The mitigation measure described above is consistent with FRA's High-Speed Ground Transportation Noise and Vibration Impact Assessment (2005) for evaluation of noise and vibration impacts associated with HSTs. The BETP will describe the methodology for the avoidance of adverse vibration effects and how such avoidance will be monitored and implemented during construction of the project. • The BETP will identify historic properties/historical resources that may require protection and/or stabilization before the start of construction of the project. Properties subject to this mitigation activity include those that would be physically affected by the project and properties in close-enough proximity to require protection to avoid effects. This treatment will allow the project to avoid adverse effects on historic properties/historical resources outright or will minimize those effects to the extent possible. This treatment will be developed in consultation with the landowner or land-owning agencies as well as the SHPO and the MOA signatories, as required by the PA. Such measures will include, but will not be limited to, vibration monitoring of construction in the vicinity of historic properties; cordoning off of resources from construction activities (e.g., traffic, equipment storage, personnel); shielding of resources from dust or debris; and stabilization of buildings adjacent to construction.

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Property acquisition Potential vibration impacts Potential visual intrusion (continued)	• The BETP will identify the historic properties/historical resources that will be subject to treatment to minimize the indirect adverse effects caused by the operational noise of the HST project. Properties subject to this mitigation will be treated in consultation with the landowner or land-owning agencies. Preliminary project design options, such as noise walls, have been developed to help reduce noise impacts and follow FRA methodologies for noise abatement. Application of this treatment would help minimize effects on historic properties. • As identified in the MOA, the BETP will identify specific historical resources that would be physically altered, damaged, or destroyed by the project that will be documented in detailed recordation that includes photographs. This documentation may include preparation of updated recordation forms (DPR 523), or may be consistent with the Historic American Building Survey (HABS), the Historic American Engineering Record (HAER), and the Historic American Landscape Survey (HALS) programs. The recordation undertaken by this treatment will focus on the aspect of integrity that would be affected by the project for each historic property subject to this treatment. For example, historic properties in an urban setting that would experience an adverse visual effect would be photographed to capture exterior and contextual views; interior spaces would not be subject to recordation if they would not be affected. As identified in the MOA consultation with the SHPO, NPS, and the consulting parties will be conducted for the historic architectural resources to be documented. Recordation documents will follow the appropriate guidance for the recordation format and program selected. • The BETP will identify historic properties and historical resources that will be subject for historic interpretation. Interpretive exhibits will provide information regarding specific historic properties or historical resources and will address the aspect of the significance of the properties that would be affected by the project. Interpretive materials could include, but are not limited to: brochures, videos, websites, articles, or reports for general publication, commemorative plaques or exhibits. Historic properties and historical resources subject to demolition by the project will be the subject of informative permanent metal plaques that will be installed at the site of the demolished historic property or at nearby public locations. Each plaque will provide a brief history of the subject property, its engineering/architectural features and characteristics, and the reasons for and the date of its demolition.

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Property acquisition Potential vibration impacts Potential visual intrusion (continued)	• The interpretive materials will utilize images, narrative history, drawings, or other material produced for the mitigation described above, including the additional recordation prepared, or other archival sources. The interpretive materials could be advertised and made available to and/or disseminated to the public at local libraries, historical societies, or public buildings. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with the treatment of historic properties in similar-scale transportation projects. Preparing interpretive exhibits has proven to be effective in achieving the stewardship goals of Section 106. Performance tracking of this mitigation measure will be described in the BETP and will be included in the MMEP. • The BETP will provide that a plan for the repair of inadvertent damage to historic properties or historical resources be developed before project construction. The plan will consist of a general protocol for inadvertent damage to historic architectural resources and a listing of specific properties that should be the subject of an individual plan because of their immediate proximity to the project. Inadvertent damage from the project to any of the historic properties or historical resources near construction activities will be repaired in accordance with the SOI's Standards for Rehabilitation. The plan may utilize photographic documentation prepared for the other mitigation measures (such additional recordation) as the baseline condition for assessing damage. The plan will include the protocols for notification, coordination, and reporting to the SHPO and the landowner or land-owning agencies. Before implementation of the plan, plans for any repairs to historic properties will be submitted for review and comment to the SHPO to verify conformance with the SOI's Standards for Rehabilitation. This mitigation measure is consistent with best practices within the professional historic preservation community and is commensurate with treatment of historic properties in similar-scale transportation projects. This type of mitigation measure has proven to be effective in achieving the stewardship goals of Section 106. Performance tracking of this treatment will be described in the BETP.

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Kern River Parkway; Mill Creek Linear Park (Jurisdiction: City of Bakersfield; Kern Delta Water District and City of Bakersfield)	
Visual intrusion from overhead HST Temporary construction activities in the park Temporary construction noise impacts	• Offsite landscape screening will be planted to provide new, intermittent screening of project structures. Occasional groupings of new trees in the parkway should be placed to break up views of long expanses of the guideway. Extensive tall tree planting would be made at or near the edge of the project right-of-way in the parkway. • The Authority and FRA will continue to work with the City of Bakersfield to advance the final design through a collaborative, context-sensitive solutions approach. Participants in the consultation process will meet on a regular basis to develop a consensus on the urban design elements that are to be incorporated into the final guideway designs. The process will include activities to solicit community input in the affected neighborhoods. • For the elevated guideways and columns, architectural elements, such as graceful curved or tapered sculptural forms and decorative surfaces, will be incorporated to provide visual interest. Decorative texture treatments will be included on large-scale concrete surfaces such as parapets and other portions of elevated guideways. A variety of texture, shadow lines, and other surface articulation will be added to provide visual and thematic interest. The design of guideway columns and parapets will be closely coordinated with station and platform architecture to promote unity and coherence where guideways lie adjacent to stations. • Design features that provide interest and reflect the local design context will be incorporated. These features could include landscaping, lighting, and public art. • After construction is complete, the Authority will plant vegetation within lands acquired for the project (e.g., shifting roadways) that are not used for the HST project or related supporting infrastructure. Plantings will allow adequate space between the vegetation and the HST alignment and catenary lines. All street trees and other visually important vegetation removed in these areas during construction will be replaced with similar vegetation that, on maturity, will be similar in size and character to the removed vegetation. The Authority will ensure that vegetation will be continuously maintained and appropriate irrigation systems will be installed within the planting areas. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. • The Authority and FRA would coordinate with the City of Bakersfield to provide alternative routes for bicycle or pedestrian paths that would be temporarily closed during construction of the HST guideway. • As part of ongoing coordination with the City of Bakersfield, FRA and the Authority will continue discussions and identification of opportunities to reduce impacts, such as minimizing the vertical clearance of the guideway.

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
	• During construction, the contractor will monitor construction noise to verify compliance with the established noise limits. The contractor would be given the flexibility to meet the FRA construction noise limits in the most efficient and cost-effective manner. Meeting these limits can be done by either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet the noise limits. The following noise control mitigation measures will be implemented as necessary, for nighttime and daytime: – Install a temporary construction site sound barrier near a noise source. – Locate stationary construction equipment as far as possible from noise-sensitive sites. – Use low-noise emission equipment. – Implement noise-deadening measures for truck loading and operations. – Monitor and maintain equipment to meet noise limits. – Line or cover storage bins, conveyors, and chutes with sound-deadening material. – Use acoustic enclosures, shields, or shrouds for equipment and facilities. – Use high-grade engine exhaust silencers and engine-casing sound insulation. – Minimize the use of generators to power equipment. – Limit use of public address systems. – Grade surface irregularities on construction sites. – Use moveable sound barriers at the source of the construction activity. – Limit or avoid certain noisy activities during nighttime hours. – To mitigate noise related to pile driving, the use of an auger to install the piles instead of a pile driver would reduce noise levels substantially. If pile driving is necessary, limit the time of day that the activity can occur. – In the procurement of an HST vehicle technology, the Authority will require bidders to meet the federal regulations (40 CFR Part 201.12/13) at the time of procurement for locomotives (currently a 90-dB-level standard) for cars operating at speeds of greater than 45 miles per hour.

Table 4-4
Measures to Minimize Harm

Impact(s)	Measures to Minimize Harm
Acronyms: BETP = Built Environment Treatment Plan CEQA = California Environmental Quality Act FRA = Federal Railroad Administration HABS = Historic American Building Survey HAER = Historic American Engineering Record HMF = heavy-maintenance facility HSR = historic structure report HST = high-speed train MOA = Memorandum of Agreement MMEP = Mitigation Monitoring and Enforcement Plan NPS = National Park Service NRHP = National Register of Historic Places OCS = overhead contact system OHP = (California) Office of Historic Preservation PA = Programmatic Agreement ppv = Peak Particle Velocity SHPO = State Historic Preservation Office(r) SOI = Secretary of the Interior VdB = vibration velocity level CDFW = California Department of Fish and Wildlife	

4.9 Section 4(f) Least Harm Analysis

When there is no feasible and prudent avoidance alternative to using Section 4(f) resources, FRA may approve the alternative that causes the least overall harm to Section 4(f) resources, taking into consideration the preservation purpose of the statute. Moreover, if FRA determines that the alternatives that use Section 4(f) properties are substantially equal, FRA may approve any of those alternatives. In order to ascertain which alternative that uses Section 4(f) properties would cause the overall least harm, FRA considers the following seven factors:

- Ability to mitigate adverse impacts on each Section 4(f) property (including any measures that result in benefits to the property).
- Relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection.
- Relative significance of each Section 4(f) property.
- Views of the official(s) with jurisdiction over each Section 4(f) property.
- Degree to which each alternative meets the purpose and need for the project.
- After reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f).
- Substantial differences in costs among the alternatives.

The first four factors relate to the net harm that each alternative would cause to a Section 4(f) property, and the remaining three factors take into account concerns with the alternatives that are not specific to Section 4(f).

Considering the foregoing discussion of the project's use of Section 4(f) properties and alternatives assessment, there is no feasible and prudent avoidance alternative to the use of three Section 4(f) properties, regardless of which alternative is selected:

- Washington Irrigated Colony Historic Rural Landscape
  - Washington Colony Canal
  - North Branch of Oleander Canal
- Kern River Parkway
- Mill Creek Linear Park

The Washington Irrigated Colony Historic Rural Landscape, which includes both the Washington Colony Canal and the North Branch of Oleander Canal, exists in areas where the BNSF Alternative is the only alternative being evaluated. Due to their linear nature perpendicular to the HST project, there are no feasible and prudent avoidance alternatives to the use of these properties, as described in Section 4.7.1.3.

Kern River Parkway and Mill Creek Linear Park exist in areas where the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative are all being evaluated. Due to their linear nature perpendicular to the HST project, there are no feasible and prudent avoidance alternatives to the use of these properties, as described in Section 4.7.1.7 and 4.7.1.8, respectively.

The following discussion demonstrates the overall least harm alternative for impacts in the Hanford and Bakersfield areas which includes the BNSF Alternative (east of Hanford) and the Bakersfield Hybrid Alternative and is consistent with the Preferred Alternative (see Chapter 7).

4.9.1 Least Harm Analysis for Hanford Area Alternatives

There are no feasible and prudent alternatives to the use of 4(f) properties for the BNSF Alternative (east of Hanford), Hanford West Bypass 1 and 2 alternatives, and Hanford West Bypass 1 and 2 Modified alternatives. Because all alternatives in this portion of the Fresno to Bakersfield Section will result in a Section 4(f) use, FRA has completed the following least-harm analysis. Table 4-5 shows the Section 4(f) property that would incur a use as a result of the BNSF Alternative (Peoples Ditch), the Hanford West Bypass 1 and 2 alternatives (Last Chance Ditch and a farmstead at 9860 13th Avenue in rural Kings County), and the Hanford West Bypass 1 and 2 Modified alternatives (Last Chance Ditch and acquisition of 1.7 acres [approximately 16.5% of the overall 10.28-acre parcel] of 9860 13th Avenue) and characterizes each alternative using the seven Least Harm Analysis factors.

Table 4-5
Least Harm Analysis for BNSF-Hanford East Alternative and Hanford West Bypass Alternatives

Least Harm Analysis Factor	BNSF–Hanford East	Hanford West Bypass 1	Hanford West Bypass 1 Modified	Hanford West Bypass 2	Hanford West Bypass 2 Modified
Section 4(f) property(ies) incurring a use	Use of one Section 4(f) property: • Peoples Ditch: Reroute ~1,000 ft of canal.	Use of two Section 4(f) properties: • Last Chance Ditch: Reroute ~ 1 mi of canal. • 9860 13th Avenue: Demolition of structure.	Use of two Section 4(f) properties: • Last Chance Ditch: Reroute ~ 1 mi of canal. • 9860 13th Avenue: Impact to parcel boundary.	Use of two Section 4(f) properties: • Last Chance Ditch: Reroute ~ 1 mi of canal. • 9860 13th Avenue: Demolition of structure.	Use of two Section 4(f) properties: • Last Chance Ditch: Reroute ~ 1 mi of canal. • 9860 13th Avenue: Impact to parcel boundary.
Factor 1: "The ability to mitigate adverse impacts on each Section 4(f) property (including any measures that result in benefits to the property)."	Peoples Ditch: Canal impact would be mitigated in a similar manner under all alternatives; remaining canal segments would retain their integrity.	Last Chance Ditch: Canal impact would be mitigated in a similar manner under all alternatives; remaining canal segments would retain their integrity. 9860 13th Avenue: Impacts cannot be mitigated for demolished structure.	Last Chance Ditch: Canal impact would be mitigated in a similar manner under all alternatives; remaining canal segments would retain their integrity. 9860 13th Avenue: Impact to parcel boundary cannot be mitigated.	Last Chance Ditch: Canal impact would be mitigated in a similar manner under all alternatives; remaining canal segments would retain their integrity. 9860 13th Avenue: Impacts cannot be mitigated for demolished structure.	Last Chance Ditch: Canal impact would be mitigated in a similar manner under all alternatives; remaining canal segments would retain their integrity. 9860 13th Avenue: Impact to parcel boundary cannot be mitigated.
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."	Peoples Ditch: Unaffected canal segments would retain their integrity.	Last Chance Ditch: Unaffected canal segments would retain their integrity. 9860 13th Avenue: Mitigation would not reduce overall harm to the structure, as it would be demolished.	Last Chance Ditch: Unaffected canal segments would retain their integrity. 9860 13th Avenue: Impact to parcel boundary would not result in demolition of historic structure.	Last Chance Ditch: Unaffected canal segments would retain their integrity. 9860 13th Avenue: Mitigation would not reduce overall harm to the structure, as it would be demolished.	Last Chance Ditch: Unaffected canal segments would retain their integrity. 9860 13th Avenue: Impact to parcel boundary would not result in demolition of historic structures.

Table 4-5
Least Harm Analysis for BNSF-Hanford East Alternative and Hanford West Bypass Alternatives

Least Harm Analysis Factor	BNSF–Hanford East	Hanford West Bypass 1	Hanford West Bypass 1 Modified	Hanford West Bypass 2	Hanford West Bypass 2 Modified
Factor 3: "The relative significance of each Section 4(f) property."	Peoples Ditch: This property is significant due its association with the agricultural settlement pattern in the Mussel Slough region circa 1870s as a result of local pioneering canal systems and its association with the Mussel Slough Tragedy in 1880. The significance of this property is similar to that of Last Chance Ditch, which is also significant for its association with these same events.	Last Chance Ditch: This property is significant due to its association with the agricultural settlement pattern in the Mussel Slough region circa 1870s as a result of local pioneering canal systems and its association with the Mussel Slough Tragedy in 1880. The significance of this property is similar to that of Peoples Ditch, which is also significant for its association with these same events. 9860 13th Ave: This historic property is significant because it is being recommended as eligible for inclusion on the NRHP for its association with settlement of the Mussel Slough area and as a significant local example of folk Queen Anne architecture.	Last Chance Ditch: This property is significant due to its association with the agricultural settlement pattern in the Mussel Slough region circa 1870s as a result of local pioneering canal systems and its association with the Mussel Slough Tragedy in 1880. The significance of this property is similar to that of Peoples Ditch, which is also significant for its association with these same events. 9860 13th Ave: This historic property is significant because it is being recommended as eligible for inclusion on the NRHP for its association with settlement of the Mussel Slough area and as a significant local example of folk Queen Anne architecture.	Last Chance Ditch: This property is significant due to its association with the agricultural settlement pattern in the Mussel Slough region circa 1870s as a result of local pioneering canal systems and its association with the Mussel Slough Tragedy in 1880. The significance of this property is similar to that of Peoples Ditch, which is also significant for its association with these same events. 9860 13th Ave: This historic property is significant due because it is being recommended as eligible for inclusion on the NRHP for its association with settlement of the Mussel Slough area and as a significant local example of folk Queen Anne architecture.	Last Chance Ditch: This property is significant due to its association with the agricultural settlement pattern in the Mussel Slough region circa 1870s as a result of local pioneering canal systems and its association with the Mussel Slough Tragedy in 1880. The significance of this property is similar to that of Last Chance Ditch, which is also significant for its association with these same events. 9860 13th Ave: This historic property is significant because it is being recommended as eligible for inclusion on the NRHP for its association with settlement of the Mussel Slough area and as a significant local example of folk Queen Anne architecture.

Table 4-5
Least Harm Analysis for BNSF-Hanford East Alternative and Hanford West Bypass Alternatives

Least Harm Analysis Factor	BNSF–Hanford East	Hanford West Bypass 1	Hanford West Bypass 1 Modified	Hanford West Bypass 2	Hanford West Bypass 2 Modified
Factor 4: "The views of the official(s) with jurisdiction over each Section 4(f) property."	SHPO concurred with the NRHP eligibility of the canal on February 6, 2012. SHPO concurred with the findings regarding effects on the canal pursuant to Section 106 of the NHPA on December 13, 2013.	SHPO concurred with the NRHP eligibility of the canal on April 2, 2013. The effect to the canal pursuant to Section 106 of the NHPA is pending. SHPO concurred with the NRHP eligibility of the historic structure on April 2, 2013.	SHPO concurred with the NRHP eligibility of the canal on April 2, 2013. The effect on the canal pursuant to Section 106 of the NHPA is pending. SHPO concurred with the NRHP eligibility of the historic structure on April 2, 2013.	SHPO concurred with the NRHP eligibility of the canal on April 2, 2013. The effect on the canal pursuant to Section 106 of the NHPA is pending. SHPO concurred with the NRHP eligibility of the historic structure on April 2, 2013.	SHPO concurred with the NRHP eligibility of the canal on April 2, 2013. The effect to the canal pursuant to Section 106 of the NHPA is pending. SHPO concurred with the NRHP eligibility of the historic structure on April 2, 2013.
Factor 5: "The degree to which each alternative meets the purpose and need for the project."	Meets the project purpose and need. Highest travel time (8 minutes and 17 seconds).	Meets the project purpose and need. Lower travel time than BNSF Alternative, higher than Hanford West Bypass 2 Alternative (8 minutes and 2 seconds). This alternative would not connect to the Preferred Alternative in Corcoran.	Meets the project purpose and need. A travel time for the modified Hanford West Bypass 1 Alternative has not been determined, but given its similarity to the alignment profile of Hanford West Bypass 2 Modified Alternative and the unmodified Hanford West Bypass 1 Alternative and Hanford West Bypass 2 Alternative, the travel time is assumed to fall within the range of the travel times for those alternatives. This range results in a travel time of between 8 minutes and 2 seconds and 7 minutes and 43 seconds. This alternative would not connect to the Preferred Alternative in Corcoran.	Meets the project purpose and need. Lowest travel time (7 minutes and 43 seconds).	Meets the project purpose and need. A travel time for the Hanford West Bypass 2 Modified Alternative has not been determined, but given its similarity to the alignment profile of the Hanford West Bypass 1 Modified Alternative and the unmodified Hanford West Bypass 1 Alternative and Hanford West Bypass 2 Alternative, the travel time is assumed to fall within the range of the travel times for those alternatives. This range results in a travel time of between 8 minutes and 2 seconds and 7 minutes and 43 seconds.

Table 4-5
Least Harm Analysis for BNSF-Hanford East Alternative and Hanford West Bypass Alternatives

Least Harm Analysis Factor	BNSF–Hanford East	Hanford West Bypass 1	Hanford West Bypass 1 Modified	Hanford West Bypass 2	Hanford West Bypass 2 Modified
Factor 6: "After reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f)."	• Greatest impact on important agricultural land (1,203 acres). • Most modifications of confined animal facilities (seven dairies). • Least impact on wetlands (0.01 acre). • Moderate impact on other waters of the U.S. (26.31 acres). Similar to Hanford West Bypass 1 and Hanford West Bypass 1 Modified. Less than Hanford West Bypass 2 and Bypass 2 Modified. • Least impact on riparian areas (1.37 acres). • Least impact to natural habitat that could support special-status species (e.g., annual grassland, pasture) (38.87 acres). • Greatest number of relocations (52 residences).	• Least impact on important agricultural land (834 acres). • Less impact on confined animal facilities than Hanford West Bypass 1 Modified, Hanford West Bypass 2, and Hanford West Bypass 2 Modified; less than BNSF-Hanford East (closure of one and modification of two dairies). • Greatest impacts on wetlands (0.46 acre). • Impacts 24.76 acres of other waters of the U.S. (second fewest). Much lower than Hanford West Bypass 2 and Bypass 2 Modified. • Impacts moderate amount of riparian areas (2.32 acres). Similar impact as Hanford West Bypass 2.	• Greater impact on important agricultural land than Hanford West Bypass 1 and Hanford West Bypass 2 (959 acres). Less than Hanford West Bypass 2 Modified. • Greater impact on confined animal facilities than Hanford West Bypass 1, Hanford West Bypass 2, and Hanford West Bypass 2 Modified; less than BNSF-Hanford East (closure of two and modification of two dairies). • Similar impacts on wetlands as the Hanford West Bypass 2 Modified (0.28 acre). More than BNSF-Hanford East, but less than Hanford West Bypass 1 and Hanford West Bypass 2.	• Less impact on important agricultural land than Hanford West Bypass Modified 1 and Hanford West Bypass 2 Modified (847 acres). • Greater modifications of confined animal facilities than Hanford West Bypass 1, Hanford West Bypass 1 Modified, and Hanford West Bypass 2 Modified (three dairies). • Greater impacts on wetlands than all alternatives but Hanford West Bypass 1 (0.43 acre). • Greater impact on other waters of the U.S. (44.00 acres). Less than Hanford West Bypass 2 Modified. • Impacts moderate amount of riparian areas (2.32 acres). Similar impact as Hanford West Bypass 1.	• Greater impact on important agricultural land than Hanford West Bypass 1, Hanford West Bypass Modified 1, and Hanford West Bypass Modified 2 (1,025 acres). Less than BNSF-Hanford East. • Least modifications of confined animal facilities (two dairies). • Similar impacts on wetlands (0.27 acres) as Hanford West Bypass 1 Modified. • Greatest impact on other waters of the U.S. (45.28 acres). • Greatest impacts to riparian areas (2.87 acres). Similar to Hanford West Bypass 2. • Greatest impact to natural habitat (e.g., annual grassland, pasture, and valley oak woodland) (77.82 acres).

Table 4-5
Least Harm Analysis for BNSF-Hanford East Alternative and Hanford West Bypass Alternatives

Least Harm Analysis Factor	BNSF–Hanford East	Hanford West Bypass 1	Hanford West Bypass 1 Modified	Hanford West Bypass 2	Hanford West Bypass 2 Modified
	• Least displacement of commercial/industrial businesses (2). • Most impacts on community facilities (1: Lakeside Cemetery). Least noise impacts (178 receivers). Greater vibration impacts than Hanford West Bypass 1, Hanford West Bypass 2, or Hanford West Bypass 2 Modified; less than Hanford West Bypass 1 Modified. (8 receivers)	• Greater impact to natural habitat that could support special-status species (e.g., annual grassland, pasture, and valley oak woodland) (61.41 acres). Similar to Hanford West Bypass 1 Modified and Hanford West Bypass 2. Greater than BNSF-Hanford East. Less than Hanford West Bypass 2 Modified. • Greater number of relocations than Hanford West Bypass 2 and Hanford West Bypass 2 Modified, fewer than BNSF-Hanford East (41 residences). • Similar displacement of commercial/industrial businesses as all alternatives except BNSF-Hanford East (4). • No impacts on community facilities. Similar as all alternatives except BNSF-Hanford East.	• Least impact on other waters of the U.S. (23.39 acres). Much lower than Hanford West Bypass 2 and Bypass 2 Modified. • Greatest impacts on riparian areas (2.87 acres). Similar to Hanford West Bypass 2 Modified. • Greater impact on natural habitat that could support special-status species (e.g., annual grassland, pasture, and valley oak woodland) (64.64 acres). Similar to Hanford West Bypass 1 and Hanford West Bypass 2. Greater than BNSF-Hanford East. Less than Hanford West Bypass 2 Modified. • Fewer relocations than BNSF-Hanford East and greater number of relocations than Hanford West Bypass 2 and Hanford West Bypass 2 Modified (40 residences).	• Greater impact on natural habitat that could support special-status species (e.g., annual grassland, pasture, and valley oak woodland) (63.99 acres). Similar to Hanford West Bypass 1 and Hanford West Bypass 1 Modified. More than BNSF-Hanford East. Less than Hanford West Bypass 2 Modified. • Least number of relocations (37 residences). • Most displacement of commercial/industrial businesses (5). Similar to Hanford West Bypass 2 Modified. No impacts on community facilities. Similar as all alternatives except BNSF-Hanford East.	• Fewer number of relocations than BNSF-Hanford East, Hanford West Bypass 1, and Hanford West Bypass 1 Modified (39 residences). • Most displacement of commercial/industrial businesses (5). Similar to Hanford West Bypass 2. • No impacts on community facilities. Similar to all alternatives except BNSF-Hanford East. • Most noise impacts (298 receivers). Greater vibration impacts than Hanford West Bypass 1, less than BNSF Hanford East or Hanford West Bypass Modified, similar to Hanford West Bypass 1 Modified (7 receivers).

Table 4-5
Least Harm Analysis for BNSF-Hanford East Alternative and Hanford West Bypass Alternatives

Least Harm Analysis Factor	BNSF–Hanford East	Hanford West Bypass 1	Hanford West Bypass 1 Modified	Hanford West Bypass 2	Hanford West Bypass 2 Modified
		• Greater noise impacts than BNSF-Hanford East, less than Hanford West Bypass 2, Hanford West Bypass 2 Modified, or Hanford West Bypass 1 Modified (232 receivers). Least vibration impacts (4 receivers)	• Similar displacement of commercial/industrial businesses as all alternatives except BNSF-Hanford East (4). • No impacts on community facilities. Similar to all alternatives except BNSF-Hanford East. • Greater noise impacts than BNSF-Hanford East, Hanford West Bypass 1, Hanford West Bypass 2 (288 receivers). Less than Hanford West Bypass 2 Modified. Most Vibration impacts (10 receivers).	• Greater noise impacts than BNSF Hanford East, Hanford West Bypass 1, or Hanford West Bypass 1 Modified, less than Hanford West Bypass 2 Modified (252 receivers). Greater vibration impacts than Hanford West Bypass 1, less than BNSF Hanford East or Hanford West Bypass Modified, similar to Hanford West Bypass 2 Modified (7 receivers)	
Factor 7: "Substantial differences in costs among the alternatives."	$1,326,000,000	Estimated to cost $368M less than the BNSF Alternative.	Estimated to cost $325M less than the BNSF Alternative.	Estimated to cost $74M less than the BNSF Alternative.	Estimated to cost $11M more than the BNSF Alternative.

Acronyms and Abbreviations:
Ave = Avenue
FRA = Federal Railroad Administration
M = million
ft = foot or feet
mi = mile
NHPA = National Historic Preservation Act
NRHP = National Register of Historic Places
SHPO = State Historic Preservation Office(r)

Based on the analysis of the factors contained in Table 4-5 and in light of the preservationist purpose of Section 4(f), FRA has determined that the BNSF-Hanford East Alternative would result in the least overall harm to properties protected by Section 4(f). All of the alternatives affect canals with a similar level of significance but the Hanford West Bypass 1 and Hanford West Bypass 2 alternatives would also each require demolition of the historic structure at 9860 13th Avenue. Demolition of this structure could be avoided by the BNSF Alternative, the Hanford West Bypass 1 Modified Alternative, and the Hanford West Bypass 2 Modified Alternative. However, under the Hanford West Bypass 1 Modified Alternative and the Hanford West Bypass 2 Modified Alternative, while the demolition of the structure would be avoided, both would still require the acquisition of a portion of the parcel at 9860 13th Avenue. Impacts on resources not protected by Section 4(f) vary depending on the resource area, as shown in Table 4-5. The BNSF-Hanford East will result in fewer overall impacts to wetlands, riparian areas, habitat for special-status species, have the fewest noise impacts, and result in the fewest displacements of commercial and industrial properties.

Net Harm to Section 4(f) Property

Factors 1 through 4 in Table 4-5 consider the net harm that each alternative would cause to Section 4(f) properties.

The Hanford West Bypass 1 and Hanford West Bypass 2 would result in greater net harm to Section 4(f) resources because unlike the BNSF-Hanford East and the Hanford West Bypass 1 and 2 Modified Alternatives they require the demolition the historic structure at 9860 13th Avenue. The historic structure is eligible for the NRHP for its association with pioneering agricultural settlement of the area and as a significant local example of folk Queen Anne style architecture. Mitigation would not reduce the overall harm to the structure because it would be demolished. Although the Hanford West Bypass 1 Modified Alternative and the Hanford West Bypass 2 Modified Alternative would both avoid demolition of the historic structure, both alternatives would require the permanent acquisition of a portion of the parcel. The partial take at 9860 13th Avenue as a result of these alternatives would not affect the structure itself; rather, its context in a rural agricultural setting. The BNSF-Hanford East would not affect any portion of this property but like the other alternatives would impact a historic ditch.

Under all five alternatives, historic ditches would be adversely affected. The historic ditches are eligible for the NRHP and are commensurate in overall significance because all are eligible for their association with the development of the area and their association with the Mussel Slough Tragedy of 1880. Appropriate mitigation will be implemented and the remaining sections of the ditches would retain integrity. However, the Hanford West Bypass 1 and 2 and Hanford West Bypass 1 and 2 Modified alternatives would require a longer section of the Last Chance Ditch (1 mile) to be rerouted as compared to the Peoples Ditch rerouted from the BNSF Alternative (approximately 1000 feet). As a result, fewer linear feet of historic ditches protected by Section 4(f) will be impacted by the BNSF-Hanford East Alternative.

After considering the first four factors in Table 4-5, the BNSF-Hanford East is likely to result in fewer overall impacts to properties protected by Section 4(f) because it will not result in the demolition of the 9860 13th Avenue or require the acquisition of a portion of the parcel. While the BNSF-Hanford East will impact a historic ditch, the ditch is similar in significance to those impacted by the other alternatives and the required rerouting will be substantially shorter than the other alternatives.

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

FRA also considered the other factors beyond the potential impacts to properties protected by Section 4(f). As shown in Table 4-5, while all of the alternatives are consistent with the Project's

purpose and need, each will result in different comparative impacts to the other resource areas. For example, the BNSF-Hanford East Alternative will result in fewer overall impacts to riparian areas and habitat for special-status species. Similarly, the BNSF-Hanford East Alternative will result in fewer impacts to waters of the U.S. (including wetlands), which is the primary consideration of the U.S. Army Corps of Engineers in its determination of the Least Environmental Damaging Practicable Alternative (LEDPA). In addition, the BNSF-Hanford East Alternative will result in fewer overall displacements of commercial and industrial businesses and is likely to result in fewer noise impacts as compared to the other alternatives. However, the BNSF-Hanford East will result in the greatest impacts to agricultural properties and confined animal facilities. In addition the BNSF-Hanford East will require the greatest number of relocations and will impact the community facility at Lakeside Cemetery. With respect to other factors like travel time, while the BNSF Alternative has the highest travel time of the alternatives under consideration it is only an increase of roughly ½ minute. Based on this information, while each of the alternatives will cause impacts to resources not protected by Section 4(f), those resulting from the BNSF-Hanford East Alternative do not outweigh the additional adverse impacts to properties protected by Section 4(f) that would otherwise result from the Hanford West alternatives.

4.9.2 Least Harm Analysis for Bakersfield Area Alternatives

As described in Section 4.6.1, Park, Recreation, and Wildlife Refuge Resources, information garnered to date supports a finding that the impacts on the Kern River Parkway and Mill Creek Linear Park from the BNSF, Bakersfield South, and Bakersfield Hybrid alternatives are *de minimis*. This analysis considers both *de minimis* impacts and potential use of these resources because coordination with the officials with jurisdiction over the resources is ongoing. In addition, the Bakersfield South Alternative would also result in a use of one Section 4(f) historic property: 2509 East California Avenue.

There are no feasible and prudent alternatives to the use of Section 4(f) properties for the BNSF Alternative, Bakersfield South Alternative, or Bakersfield Hybrid Alternative. Since all alternatives in this portion of the Fresno to Bakersfield Project section may result in a Section 4(f) use, FRA has analyzed which alternative would result in the least overall harm to these resources. Table 4-6 provides a comparative assessment of the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative with regard to the least harm analysis factors. Based on the information presented below, the Bakersfield Hybrid Alternative would cause the least overall harm to Section 4(f) resources when considering multiple factors.

Table 4-6
Preliminary Least Harm Analysis for BNSF, Bakersfield South, and Bakersfield Hybrid Alternatives

Least Harm Factor	BNSF	Bakersfield South	Bakersfield Hybrid
Section 4(f) property(ies) incurring a use	Use of two Section 4(f) properties: • Kern River Parkway: single-column supports, permanent incorporation of a maintenance easement; crossing Kern River Parkway at this location has the smallest permanent easement footprint • Mill Creek Linear Park: dual-column supports, permanent incorporation of a maintenance easement; crossing has a larger permanent easement at this location than the Bakersfield Hybrid Alternative due to dual-column supports for the viaduct abutments. Additional impacts to Kern River Parkway and Mill Creek Linear Park may be incurred if the viaduct abutments and support columns cannot span the limits of the park. Every effort will be made to clearspan; however, coordination is ongoing with the City of Bakersfield to verify the physical limits of each resource.	Use of three Section 4(f) properties: • Kern River Parkway: dual-column supports, permanent incorporation of a maintenance easement; crossing Kern River Parkway at this location has a larger permanent easement footprint than the BNSF Alternative • Mill Creek Linear Park: dual-column supports, permanent incorporation of a maintenance easement; crossing has a larger permanent easement at this location than the Bakersfield Hybrid Alternative due to dual-column supports for the viaduct abutments. • 2509 East California Avenue: Demolition of structure. Additional impacts to Kern River Parkway and Mill Creek Linear Park may be incurred if the viaduct abutments and support columns cannot span the limits of the park. Every effort will be made to clearspan; however, coordination is ongoing with the City of Bakersfield to verify the physical limits of each resource.	Use of two Section 4(f) properties: • Kern River Parkway: dual-column supports, permanent incorporation of a maintenance easement; crossing Kern River Parkway at this location has a larger permanent easement footprint than the BNSF Alternative • Mill Creek Linear Park: single-column supports, permanent incorporation of a maintenance easement; crossing Mill Creek Linear Park at this location has the smallest permanent easement. Additional impacts to Kern River Parkway and Mill Creek Linear Park may be incurred if the viaduct abutments and support columns cannot span the limits of the park. Every effort will be made to clearspan; however, coordination is ongoing with the City of Bakersfield to verify the physical limits of each resource.

Table 4-6
Preliminary Least Harm Analysis for BNSF, Bakersfield South, and Bakersfield Hybrid Alternatives

Least Harm Factor	BNSF	Bakersfield South	Bakersfield Hybrid
Factor 1: "The ability to mitigate adverse impacts on each Section 4(f) property (including any measures that result in benefits to the property)"	• Kern River Parkway and Mill Creek Linear Park: mitigation would include deliberate placement of abutments and supports, as well as temporary easements for construction, to avoid the primary or secondary floodways and park amenities, to the extent possible and depending on the limits of each resource verified through coordination with the city of Bakersfield. • Kern River Parkway and Mill Creek Linear Park: for all alternatives, any trails impacted would be re-routed and maintained for use during construction, and relocated if needed.	• Kern River Parkway and Mill Creek Linear Park: mitigation would include deliberate placement of abutments and supports, as well as temporary easements for construction, to avoid the primary or secondary floodways and park amenities, to the extent possible and depending on the limits of each resource verified through coordination with the city of Bakersfield. • Kern River Parkway and Mill Creek Linear Park: for all alternatives, any trails impacted would be re-routed and maintained for use during construction, and relocated if needed. • 2509 East California Avenue: impacts could not be mitigated for demolished structure.	• Kern River Parkway and Mill Creek Linear Park: mitigation would include deliberate placement of abutments and supports, as well as temporary easements for construction, to avoid the primary or secondary floodways and park amenities, to the extent possible and depending on the limits of each resource verified through coordination with the city of Bakersfield. • Kern River Parkway and Mill Creek Linear Park: for all alternatives, any trails impacted would be re-routed and maintained for use during construction, and relocated if needed.
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."	• Smallest permanent easement necessary from Kern River Parkway; however, this alignment is closest to an existing parking lot with benches and picnic tables for trail users. It does not have a direct impact on these amenities. • Requires relocation of both the ramp and sidewalk at Mill Creek Linear Park with the least amount of space for the	• The crossing of Kern River Parkway at this location has a larger permanent easement footprint than the BNSF Alternative. • Requires a permanent easement from Mill Creek Linear Park similar to the BNSF Alternative. • 2509 East California Avenue: mitigation would not reduce overall harm to the structure, as it would be demolished.	• The crossing of Kern River Parkway at this location has a larger permanent easement footprint than the BNSF Alternative. • Smallest permanent easement necessary from Mill Creek Linear Park. Requires relocation of the sidewalk at Mill Creek Linear Park.

Table 4-6
Preliminary Least Harm Analysis for BNSF, Bakersfield South, and Bakersfield Hybrid Alternatives

Least Harm Factor	BNSF	Bakersfield South	Bakersfield Hybrid
	redesign.		
Factor 3: The relative significance of each Section 4(f) property	• Kern River Parkway and Mill Creek Linear Park: resources include flood control or water conveyance as part of their primary purpose; however, they are also significant recreational resources, according to the city of Bakersfield. • Kern River Parkway: affected section is less significant than other sections of the parkway in terms of amenities. • Mill Creek Linear Park: landscaped with park benches at the crossing location; however, larger recreational areas exist along the waterway at other locations in Bakersfield (e.g. Central Park at Mill Creek).	• Kern River Parkway and Mill Creek Linear Park: resources include flood control or water conveyance as part of their primary purpose; however, they are also significant recreational resources, according to the city of Bakersfield. • Kern River Parkway: affected section is less significant than other sections of the park in terms of amenities. • Mill Creek Linear Park: landscaped with park benches at the crossing location; however, larger recreational areas exist along the waterway at other locations in Bakersfield (e.g. Central Park at Mill Creek). • 2509 East California Avenue: This historic property is significant because it is being recommended as eligible for inclusion on the NRHP as an important example of Folk Victorian (Queen Anne) style architecture.	• Kern River Parkway and Mill Creek Linear Park: resources include flood control or water conveyance as part of their primary purpose; however, they are also significant recreational resources, according to the city of Bakersfield. • Kern River Parkway: affected section is less significant than other sections of the park in terms of amenities. • Mill Creek Linear Park: landscaped with park benches at the crossing location; however, larger recreational areas exist along the waterway at other locations in Bakersfield (e.g. Central Park at Mill Creek).

Table 4-6
Preliminary Least Harm Analysis for BNSF, Bakersfield South, and Bakersfield Hybrid Alternatives

Least Harm Factor	BNSF	Bakersfield South	Bakersfield Hybrid
Factor 4: "The views of the official(s) with jurisdiction over each Section 4(f) property"	• Kern River Parkway and Mill Creek Linear Park: Westside Parkway, a nearby and recently completed roadway project, which included consideration of Section 4(f) impacts to the bike path and park, considered the crossing of the Kern River Parkway at this location to be *de minimis*, and would not interfere with the function, purpose or continuity of the bike path. Conditions of this determination included keeping the bike path open during construction, avoidance of park resources with bridge column placement. • Kern River Parkway and Mill Creek Linear Park: coordination is ongoing with the city of Bakersfield who has indicated that both properties are significant recreational resources.	• Kern River Parkway and Mill Creek Linear Park: Westside Parkway, a nearby and recently completed roadway project, which included consideration of Section 4(f) impacts to the bike path and park, considered the crossing of the Kern River Parkway at this location to be *de minimis*, and would not interfere with the function, purpose or continuity of the bike path. Conditions of this determination included keeping the bike path open during construction, avoidance of park resources with bridge column placement. • Kern River Parkway and Mill Creek Linear Park: the City of Bakersfield has indicated that both properties are significant recreational resources. • 2509 East California Avenue: SHPO concurred with the NRHP eligibility of the historic structure on April 2, 2013.	• Kern River Parkway and Mill Creek Linear Park: Westside Parkway, a nearby and recently completed roadway project, which included consideration of Section 4(f) impacts to the bike path and park, considered the crossing of the Kern River Parkway at this location to be *de minimis*, and would not interfere with the function, purpose or continuity of the bike path. Conditions of this determination included keeping the bike path open during construction, avoidance of park resources with bridge column placement. • Kern River Parkway and Mill Creek Linear Park: the City of Bakersfield has indicated that both properties are significant recreational resources.
Factor 5: "The degree to which each alternative meets the purpose and need for the project."	Meets the project purpose and need. Total travel time of 3 minutes and 19 seconds in this segment.	Meets the project purpose and need. Shortest travel time of the three alternatives in this segment (3 minutes and 17 seconds).	Meets the project purpose and need. Longest travel time of the three alternatives in this segment (4 minutes and 17 seconds).

Table 4-6
Preliminary Least Harm Analysis for BNSF, Bakersfield South, and Bakersfield Hybrid Alternatives

Least Harm Factor	BNSF	Bakersfield South	Bakersfield Hybrid
Factor 6: "After reasonable mitigation, the magnitude of any adverse impacts on resources not protected by Section 4(f)."	• No impacts on agricultural land or animal operations. Similar to Bakersfield Hybrid and Bakersfield South. • Similar impacts on wetlands as Bakersfield Hybrid and Bakersfield South (0.63 acre). • Least impact on other waters of the U.S. (11.55 acres). • Least impact on riparian areas (0.3 acre). • Greatest amount of impact on natural upland habitat (e.g., alkali desert scrub, annual grassland, pasture) that could support special-status species (57.77 acres). • Greater amount of residential relocations than Bakersfield Hybrid, less than Bakersfield South (309). • More impacts on community facilities than Bakersfield Hybrid; less than Bakersfield South (7). • Least noise impacts (10 receivers). • More vibration impacts than Bakersfield South, less than Bakersfield Hybrid (14 receivers).	• No impacts on agricultural land or animal operations. Similar to BNSF and Bakersfield Hybrid. • Similar impacts on wetlands as BNSF and Bakersfield Hybrid (0.63 acre). • Greater impact on other waters of the U.S. (13.89 acres). More than BNSF. • Same impact on riparian areas as Bakersfield Hybrid (1.00 acre). More than BNSF. • Similar amount of impact on natural upland habitat (e.g., alkali desert scrub, annual grassland, pasture) that could support special-status species (54.98 acres) as Bakersfield Hybrid. Less than BNSF. • Greatest amount of residential relocations (315). • Greatest impacts on community facilities (11). • Greatest noise impacts (51 receivers), similar to Bakersfield Hybrid. • Least vibration impacts (9 receivers).	• No impacts on agricultural land or animal operations. Similar to BNSF and Bakersfield South. • Similar impacts on wetlands as BNSF and Bakersfield South (0.63 acre). • Greatest impact on other waters of the U.S. (14.47 acres). • Same impact on riparian areas as Bakersfield South (1.00 acre). More than BNSF. • Similar amount of impact on natural upland habitat (e.g., alkali desert scrub, annual grassland, pasture) that could support special-status species (54.99 acres) as Bakersfield South. Less than BNSF. • Least amount of residential relocations (231). • Least impacts on community facilities (5). • Greatest noise impacts (51 receivers), similar to Bakersfield South. • Greatest vibration impacts (16 receivers)
Factor 7: "Substantial differences in costs among the alternatives."	$1,488,000,000	Estimated to cost $196M more than BNSF.	Estimated to cost $181M more than BNSF.

Coordination with the City of Bakersfield is ongoing in order to determine the best and feasible placement of viaduct abutments to avoid and minimize effects to park resources, verifying the physical limits of each resource, and ownership. Both park resources evaluated in this least harm analysis include flood control or water conveyance as part of their primary purpose; however, the City of Bakersfield also considers these significant recreational resources. When considering the resources in their entirety, the affected portions of the Kern River Parkway and Mill Creek Linear Park do not have as many amenities or focused recreation areas as other sections of each resource, such as Central Park at Mill Creek or Yokuts Park. Notwithstanding, these resources are significant in terms of connectivity, and bike and pedestrian access within the city.

When considering nearby similar projects and their effects on these resources in this context, the Westside Parkway project's effect on the Kern River Parkway was determined not to interfere with its function, purpose or continuity as a recreational resource. Conditions of this determination included keeping the bike path open during construction and avoidance of park resources with bridge column placement, based on abutting privately-owned parcels affected or leased surface rights for oil production, where recreation is not the primary purpose. The city also noted that for impacted city-owned parcels, the initial purchase of these parcels was for water conveyance and not recreational purposes.

Table 4-6 explains the impacts based on initial placement of viaduct abutments and columns without avoidance to provide a conservative analysis.

4.9.3 Net Harm to Section 4(f) Property

Factors 1 through 4 in Table 4-6 consider the net harm that each alternative would cause to a Section 4(f) property. While the impacts to Mill Creek Linear Park and Kern River Parkway as a Section 4(f) resource are not substantially different, the Bakersfield Hybrid alignment and Bakersfield South Alignment offer more opportunity to reduce or avoid impacts than the BNSF Alternative. The Bakersfield Hybrid would require the smallest permanent easement from Mill Creek Linear Park. Pedestrian access would need to be maintained or rerouted to Mill Creek Linear Park in all alternatives; however, the BNSF alignment leaves the least amount of room in which to relocate the access. In terms of relative significance of the resource, the Bakersfield Hybrid and Bakersfield South alignments would cross the Kern River Parkway with the least impacts to recreational amenities, when compared to the BNSF alignment. The Bakersfield South Alternative would also result in the demolition of 2509 East California Avenue, which would not be adversely affected by either the BNSF or Bakersfield Hybrid alternatives.

After considering the first four factors in Table 4-6, the Bakersfield Hybrid alignment is likely to result in fewer overall impacts to properties protected by Section 4(f) because it would require the smallest permanent easement from Mill Creek Linear Park and not impact the property at 2509 East California Avenue.

4.9.4 Impacts to Environmental Resources Outside of Section 4(f) Uses

Factors 5 through 7 in Table 4-6 provide comparison with non-Section 4(f) considerations and are helpful in determining overall least harm where the impacts to the Section 4(f) qualifying attributes of the resources do not provide a clear distinction. The Bakersfield South and BNSF alignments have greater impacts on community facilities, residential relocations including the housing adjacent to Mill Creek Linear Park, wetlands, and natural habitat areas. While these alignments also have lower travel time than the Hybrid alignment, it's only by 1 minute. The Bakersfield Hybrid Alternative would result in the least amount of residential and community impacts and reduced effects on wetlands and natural habitat. Based on this information, while each of the alternatives will cause impacts to resources not protected by Section 4(f), the

Bakersfield Hybrid Alternative would cause the least amount of impacts to these resources when compared with the Bakersfield South and BNSF Alternative.

4.10 Section 6(f)

The purpose of the LWCF Act is to assist in preserving, developing, and ensuring accessibility to outdoor recreation resources and 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.

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 Department of the Interior (NPS is a service of the Department of the Interior), and only if the Secretary finds it to be in accord with the then Statewide Comprehensive Outdoor Recreation Plan (SCORP), 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 (36 CFR Part 59).

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

- All practical alternatives to the proposed conversion have been evaluated.
- 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 SCORP and/or equivalent recreation plans.

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.

The Colonel Allensworth State Historic Park/Allensworth Historic District was established by the California Department of Parks and Recreation in 1974 for the preservation, development, and interpretation of resources of the historical community of Allensworth. Because funds from a 1994 LWCF development grant to the California Department of Parks and Recreation were used for new recreational facilities at the site, the park is considered a Section 6(f) property (National Park Service 2010).

4.10.1.1 Converted area: description

No Project Alternative

Although this alternative would have no impact on Colonel Allensworth State Historic Park, it would not address the state's need for an intercity transportation system, including the need in the southern San Joaquin Valley. This alternative is insufficient to meet existing and future travel demand; current and projected future congestion of the transportation system will continue to result in deteriorating air quality, reduced reliability, and increased travel times. Because it does not meet the project purpose and need, the No Project Alternative is not feasible.

BNSF Alternative

As previously described and shown on Figure 4-7, construction and operation of the BNSF Alternative would require the conversion of approximately 1.7 acres of Colonel Allensworth State Historic Park. This area represents less than 1% of the 240-acre park. An area of 1.7 acres east of Road 84, which are currently vacant public lands, would be converted to alignment right-of-way uses.

The remaining park area includes a visitor center, picnic area, tent and RV camping areas, several homes (including the Allensworth home), stores, a bakery, a blacksmith area, a drugstore, barber shop, post office, library, hotel, schoolhouse, a Baptist Church, restaurant, various farm buildings, and several other buildings that have been reconstructed to reflect the 1908 to 1918 historical period.

In addition to direct impacts on the converted areas of the park, indirect impacts on the unconverted areas of the park could also result from the BNSF Alternative, where such areas would not remain recreationally viable. As described in Section 3.4, Noise and Vibration, the BNSF Alternative would be located as close as 150 feet from existing park facilities and would result in increases in noise and vibration in the park. With implementation of mitigation measures, potential operational noise and vibration impacts would be reduced to less-than-significant levels. Although construction vibration impacts on the park would remain significant and unavoidable, even with mitigation, these impacts would be short-term and would not affect the recreational viability of the park.

As described in Section 3.16, Aesthetics and Visual Resources, the visual setting of the park would be altered by the BNSF Alternative because construction and operation of the HST would introduce an industrial transportation element to the park's agricultural valley landscape. The HST would intrude on the existing park experience, undermine the integrity of the visual setting, and thereby reduce the recreational viability of the park until the HST landscape screening has grown to maturity.

Both lands that are directly impacted and those that are indirectly impacted would be required to be replaced. If the BNSF Alternative is implemented, a replacement property would be provided

that would meet the requirements for a reasonably equivalent usefulness and location. In addition, the replacement property would be of at least equivalent fair market value. The NPS prerequisites for conversion approval state that all necessary coordination with other federal agencies must be satisfactorily accomplished. In addition, 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 that other action have been met. This process is under way in conjunction with FRA through the EIR/EIS process.

Allensworth Bypass Alternative

The Allensworth Bypass Alternative is a feasible and prudent alternative to avoiding impacts on Section 6(f) resources. The Allensworth Bypass Alternative would be located outside of the park boundaries and would not result in conversion of parkland.

4.10.1.2 Section 6(f) Summary

Colonel Allensworth State Historic Park is the only Section 6(f) property located within the study area, and a conversion of portions of the park would only occur under the BNSF Alternative. Due to the impacts related to Section 4(f) and Section 6(f), and the fact that a feasible and prudent avoidance alternative exists for the use of the Colonel Allensworth State Historic Park, implementation of the BNSF Alternative is not anticipated at this location. However, if the BNSF Alternative is selected in this location, the Authority and FRA would provide additional environmental evaluation for the Section 6(f) conversion consistent with NPS NEPA requirements. The FRA could issue its Record of Decision on the California High-Speed Train Project Final EIR/EIS for the Fresno to Bakersfield Section before the NPS determination specific to Section 6(f) conversion. The Authority and the FRA would coordinate with the NPS and meet the remaining prerequisites for conversion approval, including establishing the fair market value of the property to be converted and the property proposed for substitution, which would be of at least equal fair market value as established by an approved appraisal. Also, subsequent environmental evaluation of the conversion would include analysis of the impacts of conversion for the replacement property, once the property was identified.