

3.17 Cultural and Paleontological Resources

3.17.1 Introduction

This section describes known and potential impacts on cultural and paleontological resources. Cultural resources include prehistoric archaeological sites, historic-era archaeological sites, traditional cultural properties (TCPs), and historic buildings, structures, landscapes, districts, and linear features. TCPs can be defined generally as resources that are eligible for inclusion in the National Register of Historic Places because of its association with cultural practices or beliefs of a living community. Prehistoric archaeological sites are places where Native Americans lived or carried out activities during the prehistoric period (as late as A.D. 1769). Archaeological sites may contain artifacts, cultural features, subsistence remains, and human burials. While cultural resources contain evidence of past human activity, paleontological resources are the often fossilized remains or traces of prehistoric animals and plants possessing scientific as well as educational value. The purpose of this section is to describe the regulatory setting associated with protection and treatment of cultural and paleontological resources, the affected environment for these resources, high-speed train (HST) impacts on cultural and paleontological resources, and mitigation measures that would reduce these impacts.

The primary applicable federal and state laws and regulations protecting cultural resources are Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), and California Public Resources Code (PRC) Sections 5024.1 and 21084.1. This section presents, as prescribed by Section 106, the results of background literature and records research, pedestrian field surveys, and consultations with the Native American community and other interested parties to date. Section 106 also requires that effects on historic properties be taken into consideration in any federal undertaking; these effects are described here, with further detail provided in:

- *California High-Speed Train Fresno to Bakersfield Archaeological Survey Report (ASR)* (Authority and FRA 2011c).
- *California High-Speed Train Fresno to Bakersfield Supplemental Archaeological Survey Report (Supplemental ASR)* (Authority and FRA 2012a).
- *California High-Speed Train Fresno to Bakersfield Historic Architectural Survey Report (HASR)* (Authority and FRA 2011d).
- *California High-Speed Train Fresno to Bakersfield Supplemental Historic Architectural Survey Report (Supplemental HASR)* (Authority and FRA 2012b).
- *California High-Speed Train Fresno to Bakersfield Historic Property Survey Report (HPSR)* (Authority and FRA 2011e).
- *California High-Speed Train Fresno to Bakersfield Supplemental Historic Property Survey Report (Supplemental HPSR)* (Authority and FRA 2012c).
- *California High-Speed Train Fresno to Bakersfield Second Supplemental Historic Architectural Survey Report (Second Supplemental HASR)* (Authority and FRA 2013a).
- *California High-Speed Train Fresno to Bakersfield Second Supplemental Historic Property Survey Report (Second Supplemental HPSR)* (Authority and FRA 2013b).
- *California High-Speed Train Fresno to Bakersfield Paleontological Resource Survey Report* (Authority and FRA 2011f).

- *California High-Speed Train Fresno to Bakersfield Supplemental Paleontological Resource Survey Report* (Authority and FRA 2012d).

In addition to the cultural resources studies listed above, additional studies relevant to the Fresno to Bakersfield Section study area overlap with the environmental study area for the Merced to Fresno Section to the north. The Fresno to Bakersfield Section cultural resources technical surveys prepared in 2011 covered downtown Fresno between East Amador Street (at the north) and Los Angeles Street (at the south). This area was then covered by the Merced to Fresno environmental studies from 2012 forward to facilitate the first phase of construction for the overall HST project. Therefore, the Section 106 compliance documents for the Merced to Fresno HST, including an amended Finding of Effects (FOE), Memorandum of Agreement (MOA), and associated treatment plans, were revised to address this change, and those documents address cultural resources identified within the area between Amador and Los Angeles streets in downtown Fresno.

Native Americans have historically expressed concerns about the disclosure of the location of culturally sensitive sites. The California Public Records Act exempts from public disclosure the records "of Native American graves, cemeteries, and sacred places and records of Native American places, features, and objects" described in sections 5097.9 and 5097.933 of the Public Resources Code (Gov. Code, Section 6254, subd. [r]). The act also exempts from public disclosure records that relate to archaeological site information and reports maintained by or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, other state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency (Gov. Code, Section 6254.10). In addition, CEQA Guidelines prohibit inclusion of information about the location of archaeological sites and Sacred Lands in an environmental impact report (CEQA Guidelines, Section 15120, subd. [d]). Potential measures to avoid, minimize, and mitigate adverse effects on historic built properties, archaeological properties, and paleontological resources are also discussed in this section. Federal law also exempts information pertaining to sensitive cultural resource information (16 U.S.C. 470w-3(a) and 16 U.S.C. 470w-3(b)). 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.

3.17.1.1 Status of the NHPA Section 106 Compliance Process

A Programmatic Agreement (PA) to satisfy the requirements of Section 106 of the NHPA for the California HST project was signed in July 2011 by the Federal Railroad Administration (FRA), the California High-Speed Rail Authority (Authority), the Advisory Council on Historic Preservation (ACHP), the California State Historic Preservation Officer (SHPO), and consulting parties, including Native American tribes, in compliance with Section 106 of the NHPA. The Surface Transportation Board (STB) has also been invited to be a signatory party. The PA provides an overall framework for conducting the Section 106 process throughout the HST System, and is included as Appendix 3.17-A of this EIR/EIS. The cultural resources survey, evaluation, and documentation process for the Fresno to Bakersfield Section was conducted in accordance with the PA.

The PA also presents the approach for the treatment of historic properties, including development of an MOA for each HST section to address the resolution of adverse effects on historic properties. Under the NHPA, historic properties are defined as those cultural objects, sites, or districts that meet the eligibility criteria for listing in the National Register of Historic Places. The MOA for the Fresno to Bakersfield Section was developed with input from the consulting parties, including Native American tribes, after the preferred alternative was chosen,

and it will be executed concurrently with the Record of Decision (ROD) by the FRA. The MOA stipulates the treatment measures that will be applied for cultural resources impacted by the project and calls for the development of two treatment plans: an Archaeological Treatment Plan (ATP) and a Built Environment Treatment Plan (BETP). The ATP and BETP will define the process by which these treatment measures will be applied to each known resource and will outline measures for the phased identification of historic properties as additional parcel access is obtained and design work is completed. The MOA and treatment plans provide specific performance standards that ensure each impact will be avoided, minimized, or mitigated to the extent possible.

3.17.2 Laws, Regulations, and Orders

The following federal, state, and local laws, regulations, and agency jurisdiction and management guidance are pertinent to cultural and paleontological resources. Key cultural resources regulations that are most relevant to the proposed project are summarized below.

3.17.2.1 Federal

National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA), as amended, establishes the Federal policy of protecting important historic, cultural, and natural aspects of our national heritage during Federal project planning. All federal or federally assisted projects requiring action pursuant to Section 102 of NEPA must take into account the effects on cultural resources.

According to the NEPA regulations, in considering whether an action may "significantly affect the quality of the human environment," an agency must consider, among other things, unique characteristics of the geographic area such as proximity to historic or cultural resources and the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP).

The NEPA regulations also require that to the fullest extent possible, agencies shall prepare draft EISs concurrently with and integrated with environmental impact analyses and related surveys and studies required by the NHPA. When Section 106 of the NHPA and NEPA are integrated, project impacts that cause adverse effects under Section 106 are usually considered to be significant under NEPA.

National Historic Preservation Act [16 United States Code (U.S.C.) Section 470 et seq.]

The NHPA establishes the federal government policy on historic preservation and the programs, including the NRHP, through which this policy is implemented. Under the NHPA, significant cultural resources, referred to as historic properties, include any prehistoric or historic district, site, building, structure, object, or landscape included in, or determined eligible for inclusion in, the NRHP. Historic properties also include resources determined to be National Historic Landmarks (NHLs). NHLs are nationally significant historic places designated by the Secretary of the Interior (SOI) because they possess exceptional value or quality in illustrating or interpreting United States heritage. A property is considered historically significant if it meets one or more of the NRHP criteria and retains sufficient historic integrity to convey its significance. This act also established the ACHP, an independent agency responsible for implementing Section 106 of NHPA by developing procedures to protect cultural resources included in, or eligible for inclusion in, the NRHP. Regulations are published in 36 Code of Federal Regulations (C.F.R.) Parts 60, 63, 800.

36 C.F.R. Part 800 Implementing Regulations Section 106 National Historic Preservation Act

Section 106 requires that effects on historic properties be taken into consideration in any federal undertaking. The process has five steps: (1) initiating the Section 106 process, (2) identifying historic properties, (3) assessing adverse effects, (4) resolving adverse effects, and (5) implementing stipulations in an agreement document.

Section 106 affords the ACHP and the SHPO, as well as other consulting parties, a reasonable opportunity to comment on any undertaking that would adversely affect historic properties. SHPOs administer the national historic preservation program at the state level, review NRHP nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review.

The NRHP uses the National Register eligibility criteria (36 C.F.R. Section 60.4) to evaluate significance. The criteria for evaluation are as follows:

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

Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for NRHP inclusion. In addition, a broader range of TCPs are also considered and may be determined eligible for or listed in the NRHP. TCPs are places associated with the cultural practices or beliefs of a living community that are rooted in that community's history and that may be eligible because of their association with cultural practices or beliefs of living communities that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. In the NRHP programs, "culture" is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or the nation as a whole.

Archaeological and Historic Preservation Act [16 U.S.C. Sections 469 to 469(c)-2]

This act provides for preserving significant historic or archaeological data that may otherwise be irreparably lost or destroyed by construction of a project by a federal agency or under a federally licensed activity or program. This includes relics and specimens.

American Antiquities Act [16 U.S.C. Sections 431 to 433]

The American Antiquities Act was enacted with the primary goal of protecting cultural resources in the United States. As such, it prohibits appropriation, excavation, injury, or destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government. The act also establishes penalties for such actions and sets forth a permit requirement for collection of antiquities on federally owned lands. Objects of

antiquity are considered by a number of federal agencies as including fossils, without permission of the secretary of the federal department with jurisdiction.

Neither the American Antiquities Act itself nor its implementing regulations (43 C.F.R. Part 3) specifically mentions paleontological resources. However, many federal agencies have interpreted objects of antiquity to include fossils. Consequently, the American Antiquities Act represents an early cornerstone for efforts to protect the nation's paleontological resources.

American Indian Religious Freedom Act [42 U.S.C. Section 1996]

The American Indian Religious Freedom Act protects and preserves the traditional religious rights and cultural practices of American Indians, Eskimos, Aleuts, and Native Hawaiians. The act requires policies of all governmental agencies to respect the free exercise of Native religion and to accommodate access to and use of religious sites to the extent that the use is practicable and is not inconsistent with an agency's essential functions.

Section 4(f) of the Department of Transportation Act (49 U.S.C. Section 303)

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 U.S.C. 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation land, wildlife and waterfowl refuges, and historic sites." Section 4(f) states that the Secretary of Transportation "may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of a historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible avoidance alternative to the use of the land from the Section 4(f) property.
- The program or project includes all possible planning to minimize harm to the Section 4(f) property resulting from the use.

Presidential Memorandum, Government-to-Government Relations with Native American Tribal Governments, April 29, 1994

Directed to the heads of executive departments and agencies, this memorandum outlines the principles that are to be followed in interactions with Native American tribal governments. It includes provisions for government-to-government relations, consultation, and requires assessment of the impact of federal government plans, projects, programs, and activities on tribal trust resources and assurance that tribal government rights and concerns are considered during the development of such plans, projects, programs, and activities.

Executive Order 13175, Consultation with Indian Tribal Governments

The order is intended to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, to strengthen the government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. It sets forth guiding principles for government-to-government relations with Indian tribes, along with criteria for formulating and implementing policies that have tribal implications.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

This executive order requires that each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. It provides for translation of crucial public documents, notices, and hearings relating to human health or the environment for limited-English-speaking populations and for agency efforts to confirm that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.

U.S. Department of Transportation Tribal Consultation Plan (DOT Order 5301.1)

In response to Executive Order 13175, this plan states that as an executive agency, the U.S. Department of Transportation has a responsibility and is committed to working with Indian tribal governments in a unique relationship, respecting tribal sovereignty and self-determination. The plan identifies specific goals, including establishing direct contact with Indian tribal governments at reservations and tribal communities and seeking tribal government representation in meetings, conferences, summits, advisory committees, and review boards concerning issues with tribal implications.

3.17.2.2 State

California Environmental Quality Act, Public Resources Code Section 21083.2 and CEQA Guidelines California Code of Regulations (CCR), Title 14, Section 15064.5

California Environmental Quality Act (CEQA) Guidelines Section 15064.5 provides specific guidance for determining the significance of impacts on historic and unique archaeological resources. Under CEQA these resources are called "historical resources" whether they are of historic or prehistoric age. CEQA Public Resources Code Section 21084.1 defines historical resources as those listed, or eligible for listing, in the California Register of Historical Resources (CRHR), or those listed in the historical register of a local jurisdiction (county or city). NRHP-listed "historic properties" located in California are considered historical resources for the purposes of CEQA and are also listed in the CRHR. The CRHR criteria for listing such resources are based on, and are very similar to, the NRHP criteria. CEQA PRC Section 21083.2 and CEQA Guidelines Section 15064.5(c) provide further definitions and guidance for archaeological sites and their treatment.

Section 15064.5 also prescribes a process and procedures for addressing the existence of, or probable likelihood, of Native American human remains, as well as the unexpected discovery of any human remains within the project. This includes consultations with appropriate Native American tribes.

Guidelines for the implementation of CEQA define procedures, types of activities, persons, and public agencies required to comply with CEQA. Section 15064.5(b) prescribes that project effects that would "cause a substantial adverse change in the significance of an historical resource" are significant effects on the environment. Substantial adverse changes include physical changes to both the historical resource and its immediate surroundings.

Appendix G in Section 15023 provides an Environmental Checklist of questions that a lead agency should normally address if relevant to a project's environmental impacts. One of the questions to be answered in the Environmental Checklist (Section 15023, Appendix G, Section V, part c) is the following: "Would the project directly or indirectly destroy a unique paleontological resource or site?" Although CEQA does not define what constitutes "a unique paleontological resource or

site," Section 21083.2 defines "unique archaeological resources" as "any archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and show that there is a demonstrable public interest in that information.
- Exhibits a special and particular quality, such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person."

This definition is equally applicable to recognizing "a unique paleontological resource or site." CEQA Section 15064.5 (a)(3)(D), which indicates "generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, information important in prehistory or history," provides additional guidance.

The CEQA lead agency (i.e., the Authority) having jurisdiction over a project is responsible for ensuring that paleontological resources are protected in compliance with CEQA and other applicable statutes. California Public Resources Code Section 21081.6, entitled Mitigation Monitoring Compliance and Reporting, requires that the CEQA lead agency (i.e., the Authority) demonstrate project compliance with mitigation measures developed during the environmental impact review process.

Paleontological resource management and historical resource management are also addressed in California Public Resources Code Chapter 1.7, Section 5097.5 (Stats. 1965, c. 1136, p. 2792), entitled "Archaeological, Paleontological, and Historical Sites." This statute defines as a misdemeanor any unauthorized disturbance or removal of a fossil site or remains on public land and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources. This statute applies to any construction or other related project impacts that occur on state-owned or state-managed lands.

California Register of Historical Resources (PRC Section 5024.1 and 14 CCR Section 4850)

Public Resources Code Section 5024.1 establishes the CRHR. The register lists all California properties considered to be significant historical resources. The CRHR also includes all properties listed or determined eligible for listing in the NRHP, including properties evaluated under Section 106. The criteria for listing are similar to those of the NRHP.

The CRHR regulations govern the nomination of resources to the CRHR (14 CCR Section 4850). The regulations set forth the criteria for eligibility as well as guidelines for assessing historical integrity and resources that have special considerations.

California Native American Graves Protection and Repatriation Act (California Health & Safety Code Section 8010 et seq.)

The California Native American Graves Protection and Repatriation Act establishes a state repatriation policy consistent with and facilitates implementation of the federal Native American Graves Protection and Repatriation Act. The act strives to ensure that all California Native American human remains and cultural items are treated with dignity and respect, and asserts intent for the state to provide mechanisms for aiding California Native American tribes, including non-federally recognized tribes, in repatriating remains.

California Public Resources Code Section 5006.10

Public Resources Code Section 5006.10 and Assembly Bill 1077 (chaptered October 8, 2011) establish that the Department of Parks and Recreation (DPR) notify the State Parks and Recreation Commission (Commission) of any proposed development that may substantially impact the historical, cultural, or recreational significance of Colonel Allensworth State Historic Park. The Commission is required to hold a public hearing to receive input regarding the potential impacts of the proposed development, and then submit, in writing, a summary of its conclusions on potential park impacts caused by the proposed development for transmission by the DPR to the appropriate local government entities. The DPR, in consultation with the State Office of Historic Preservation, will study the feasibility of recommending that Colonel Allensworth State Historic Park be considered for designation as a National Historic Landmark.

3.17.2.3 Regional and Local

This section identifies local planning guidance and ordinances, including general and specific plans, and historical/cultural resource district and protection ordinances. The section is organized by the county, immediately followed by cities within that county, to provide an overall framework for the geographic area.

The local governments with jurisdiction along the alternative alignments include the counties of Fresno, Tulare, Kings, and Kern, and the cities of Fresno, Hanford, Corcoran, Wasco, Shafter, and Bakersfield. All of the cities and counties in the project vicinity have some form of plan or policy that recognizes the importance of historic preservation in their respective communities. Only Fresno has established commissions and adopted ordinances that give it jurisdiction to review and comment on construction or planning projects involving locally designated landmarks. The Fresno County Historical Landmarks and Records Commission (created in 1965) maintains a list of Fresno County historic properties and landmarks and is involved in land-use decisions when planning decisions involve historic structures.

Table 3.17-1 summarizes the local plans, policies, and ordinances that were identified and considered in the preparation of this analysis.

Table 3.17-1
 Plans, Policies, and Ordinances

Policy Title	Summary
Fresno County	
Fresno County General Plan, Open Space and Conservation Element, Goal OS-J, Policies OS-J.1 through OS-J.13, Implementation Measure OSJ.A (Fresno County 2000)	The General Plan Open Space Element addresses the identification and protection of historical, cultural, and geological resources. A number of policies describe the steps to be taken to ensure the identification, protection, and preservation of significant cultural resources. Other policies require communication with local Native American groups.
Fresno County Code of Ordinances, Title 15, Chapter 15.04, Section 15.04.160, Historical Buildings (Fresno County 2010)	Section 15.04.160 of the municipal code provides the definition of historic buildings. Construction involving historical buildings is to comply with the applicable provisions of the California State Historical Building Code.

Table 3.17-1
 Plans, Policies, and Ordinances

Policy Title	Summary
City of Fresno	
2025 Fresno General Plan, Goals 3 and 11; Open Space and Recreation Element, Policy F-9-a; Resource Conservation Element, Objective G-10, Policies G-10-a through G-10-c, and G-11, Policies G-11-a through G-11-I (City of Fresno Planning and Development Department 2002)	The General Plan includes goals to preserve and revitalize historical resources and to protect, preserve, and enhance significant archaeological and paleontological resources. Policy F-9-a directs recreational activities to be designed and managed to protect cultural resources, such as archaeological and Native American religious sites. Objective G-10 calls for the identification, recognition, and promotion of historic and cultural resources. Objective G-11 calls for preserving resources that reflect important cultural, social, economic, and architectural features so that Fresno community residents will have a foundation upon which to measure physical change.
Fresno Code of Ordinances, Chapter 12, Article 16, Historic Preservation Ordinance (City of Fresno 2010)	The purposes of the Historic Preservation Ordinance are to preserve, promote, and improve the historic resources and districts of the city of Fresno; to protect and review changes to these resources and districts that have a distinctive character or a special historic or cultural value; to preserve and regulate historic buildings, structures, objects, sites and districts that reflect the city's historic, cultural, social, economic, political, and architectural history; to preserve and enhance the environmental quality and safety of these landmarks and districts; and to establish, stabilize and improve property values, and to foster economic development. This article authorizes the formation of a Historic Preservation Commission, defines the designation criteria for historical resources, and requires a local register of historic resources.
Kings County	
2035 Kings County General Plan, RC Goal I1, RC Objectives I1.1 and I1.2, RC Policy I1.1.1 to I1.2.7 (Kings County Planning Department Agency 2010)	Goals of the General Plan include the preservation of significant historical and archaeological sites and structures that represent the ethnic, cultural, and economic groups that have lived and worked in Kings County by promoting the rehabilitation or adaptation to new uses of historic sites and structures, by identifying potential archaeological and historical resources, and by protecting such resources.
City of Hanford	
City of Hanford General Plan Update 2002, Open Space, Conservation, and Recreation Element, Objective OCR 12, Policies OCR 12.1 and 12.2, Program OCR 12.1-A through OCR 12.2-B (City of Hanford 2002)	Objective OCR 12 provides for the preservation and establishment of cultural and historic resources. Policies in the section require archaeological studies in sensitive areas prior to approval of development projects, and require preservation and restoration of historical sites that are significant to the city's or region's cultural or historic background.
Hanford Municipal Code, Title 17, Chapter 17.36, H Historic Resources Combining District (City of Hanford 2009)	The Historic Resources Combining District section contains provisions regarding the protection, enhancement, preservation, and use of structures in districts of historic, architectural, and engineering significance within the city of Hanford. This section indicates the criteria for designation of historical districts, businesses, and sites; applicability of historic resource permits; design criteria; and criteria for demolition and repair of historic structures.

Table 3.17-1
 Plans, Policies, and Ordinances

Policy Title	Summary
City of Corcoran	
Corcoran General Plan 2025, Land Use Element, Policies 1.36 and 1.38; Open Space, Conservation and Recreation Element, Policies 5.21 and 5.22; Community Design Element, Policies 7.20, 7.23 and 7.33 (City of Corcoran 2007)	These policies outline measures to preserve distinctive structures and areas proposed for conversion in the Central Business District; preserve important links to Corcoran’s heritage, including historical and prehistoric resources; avoid impacts on cultural resources where feasible, and preserve such resources in place; and preserve and enhance the historical character of the community and strengthen the city’s sense of history by identifying and preserving historic residential structures throughout the community.
Corcoran City Code, Title 9, Chapter 9, Section 9-9-5, Definitions (City of Corcoran 2009)	This section of the Corcoran City Code provides the definition of historical structures within city limits, or any structure listed or eligible for the NRHP, CRHR, or local inventories that have been certified by the U.S. SOI.
Tulare County	
Tulare County General Plan 2030 Update, Planning Framework, Goal PF-1; Land Use, Policies LU-7.11 through LU-7.14; Scenic Resources, Policies SL-2.3, SL-3.1 through SL-3.4 and Policies SL-4.1 through SL-4.2; Environmental Resources Management, Goal ERM-6, Policies ERM-6.1 through ERM- 6.10; Corridors Framework Plan, Policy C-1.3 (Tulare County 2010)	The goals, objectives, and policies of this plan outline measures to promote the viability of communities, hamlets, and cities, while protecting the cultural and historic heritage of the County. The Scenic Resources section contains policies regarding the preservation and connection of cultural and historical resources. The Land Use and Environmental Resource Management sections include policies designed to minimize impacts through the protection of the County’s traditional neighborhoods and historic districts. These policies encourage preservation of buildings and areas with special and recognized historic, architectural, or aesthetic value, and indicate that new development should respect architecturally and historically significant buildings and areas.
Kern County	
Kern County General Plan, Land Use, Open Space and Conservation Element, General Provisions, Policy 25, Implementation Measures K through O (Kern County Planning Department 2007)	This policy and measures promote the preservation of cultural and historic resources that constitute a heritage value to residents and visitors. Measures address procedures for archaeological and historical resources for discretionary projects subject to CEQA and preservation of paleontological resources where feasible.
Kern County Municipal Code, Title 17, Buildings and Construction (Kern County 2010)	The Kern County Building and Construction Ordinance provides the definition of a historic structure and provides measures for the repair or rehabilitation of these structures.
City of Wasco	
Wasco Municipal Code, Title 15, Chapter 15.32, Section 15.32.050, Definitions (City of Wasco 2010)	This section of the municipal code outline provides the definition of a historic structure, or any structure listed or eligible for the NRHP, CRHR, or local inventories that have been certified by the U.S. SOI.

Table 3.17-1
 Plans, Policies, and Ordinances

Policy Title	Summary
City of Shafter	
City of Shafter General Plan, Environmental Management Program, Cultural Resources Objective, Policies 1 through 7 (City of Shafter 2005)	The objective and policies of the plan outline measures to preserve archaeological, paleontological, and historic resources within the Shafter Planning Area for the benefit and education of future residents. Significant historic structures are to be preserved, and new projects are to be sensitive to the character of historic buildings. Measures also require that new developments analyze, avoid, and mitigate impacts on archaeological, paleontological, and historic resources; that areas found to contain significant artifacts or fossils be examined by an archaeologist or paleontologist; and require that if cultural or paleontological resources are encountered during grading, a qualified expert will evaluate the find and record identified cultural resources.
Shafter Code of Ordinances, Title 15, Chapter 15.44, Section 15.44.060, Definitions (City of Shafter 2010)	The Building and Construction Ordinance provides the definition of a historic structure, or any structure listed or eligible for the NRHP, CRHR, or local inventories that have been certified by the U.S. SOI.
City of Bakersfield	
Metropolitan Bakersfield General Plan, Land Use Element, Policies 5, 7, 27, 72, 104 through 107 (City of Bakersfield 2007)	These policies promote the preservation of significant historical resources. These policies also provide for streetscape improvements, landscape, and signage that uniquely identify major and/or historic residential neighborhoods and require that new commercial uses maintain visual compatibility with single-family residences in areas designated for historic preservation.
Bakersfield Municipal Code, Title 15, Article II, Chapter 15.72, Historical Preservation (City of Bakersfield 2010)	The Historical Preservation Ordinance establishes a historic preservation commission for the city, criteria for the designation of a historic district and areas of historic interest, and criteria for alteration of a designated cultural resource or of property within a historic district.

3.17.3 Methods for Evaluating Effects/Impacts

The PA developed by the FRA, the Authority, the ACHP, the SHPO, and the consulting parties, including Native American tribes, provides an overall framework for conducting the Section 106 process, including guidelines for consultation procedures, documentation standards, and federal agency oversight in compliance with the NHPA. The PA also provides guidelines for identification and evaluation of historic properties, including developing the Area of Potential Effect (APE); identification, documentation, and evaluation procedures for historic properties; and assessment and treatment of adverse effects.

The PA presents the approach for the treatment of historic properties, including guidance on developing an MOA for each undertaking where there are adverse effects. Development of the MOA for the Fresno to Bakersfield Section followed SHPO review of the HPSR and related supporting documentation, including the FOE. In accordance with the Section V.A. of the PA, “the public and consulting parties will have an opportunity to comment and have concerns taken into account on findings identified in Section 106 survey and effects documented via attendance at

public meetings where they can submit comments on the information presented, as well as access the Section 106 documents via email requests to the Authority's website.... Public involvement and the release of information hereunder shall be consistent with 36 C.F.R. 800.2(d)(1-2), 800.3(e), and 800.11(c)(1 and 3), the Freedom of Information Act, 5 U.S.C. Section 552, and Section 6254.10 of the California Government Code."

The MOA documenting agreement on the treatment of historic properties within the Fresno to Bakersfield Section will be executed concurrent with the Record of Decision (ROD) by the FRA; the ROD will be issued after the completion of the Final EIR/EIS.

Study Area/Area of Potential Effects

Regulations implementing Section 106 of the NHPA require that an APE be established for all federal undertakings (36 C.F.R. 800.4(a)(1)). The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist (36 C.F.R. Section 800.13(d)). Two distinct APEs were delineated for the purposes of this undertaking: an Archaeological APE and a Historic Architecture APE, as defined in detail below. These two APEs allow the analysis to address potential effects on the built environment that could be caused by the project outside the area of direct physical impact of the undertaking, such as visual or vibration effects. This methodology also shaped the impacts analysis under CEQA in terms of determining whether those characteristics that convey the significance of a resource would be adversely changed by project actions.

On June 28, 2010, in accordance with 36 C.F.R. Section 800.4 and the PA, the SHPO concurred that the APEs initially delineated for this HST section were appropriate. Since SHPO concurrence with the initial APEs, the project footprint has been refined as specific design requirements have become better defined (see Chapter 2, Alternatives). As a result, the APEs were updated based on the current design in accordance with the guidance included in Attachment B of the PA. The updated APEs were submitted to the SHPO for review along with the ASR, HPSR, and HASR in October 2011. The SHPO concurred with the revised APEs and conclusions of the technical reports on February 6, 2012.

Further refinements to the alignment since October 2011 have precipitated additional updates to the APEs and the preparation of supplemental technical reports (Supplemental ASR, HASR, and HPSR in 2012; as well as a Second Supplemental HASR and HPSR in 2013 [Authority and FRA 2012a, 2012b, 2012c, 2013a, 2013b]). The 2012 supplemental studies were submitted and received SHPO concurrence in April 2013. The Second Supplemental HASR and HPSR were prepared in late 2013, and submitted to the SHPO. The SHPO concurred with the findings of the Second Supplemental HASR and HPSR on December 13, 2013. Subsequent changes to the alignment footprint since the original 2011 submittals of the technical reports are addressed in this EIR/EIS, and the supplemental technical studies also address these refinements. The Final EIR/EIS addresses the most current footprint as defined in Chapter 2, Section 2.4, in October 2013. The current APEs for archaeological and historic architectural resources are described below. The APEs for the Fresno to Bakersfield Section begin at Amador Street in Fresno and extend to Oswell Street in Bakersfield.

The portion of the APE located in the downtown Fresno area, between Amador Street to the north and Los Angeles Street to the south, overlaps with the APE for the Merced to Fresno Section of the HST. Known and potential impacts on cultural and paleontological resources in the area of overlap are described and evaluated in Chapter 3.17 of the Merced to Fresno Section Final EIR/EIS and are not discussed here. Compliance with Section 106 and CEQA for historical resources, including assessment of effects or substantial adverse changes, as well as resolution of adverse effects or changes, for properties within the APE for both project sections in the

overlapping area, is being completed as part of the Merced to Fresno Section environmental process. This Final EIR/EIS and the FOE, MOA, and treatment plans for the Fresno to Bakersfield Section address the historic properties within the APEs for the Fresno to Bakersfield Section that extends south from Los Angeles Street in Fresno.

Archaeological APE

The APE for archaeological properties is the area of ground proposed to be disturbed during construction of the undertaking, including grading, cut-and-fill, easements, staging areas, utility relocation, and biological mitigation areas (i.e., the project footprint).

Historic Architectural APE

The historic architectural resources APE for the Fresno to Bakersfield Section includes all legal parcels intersected by the proposed HST right-of-way for all alternatives, including construction of proposed ancillary features (such as grade separations or maintenance facilities) and construction staging areas. The legal parcels within the APE that contained buildings, structures, objects, sites, landscapes, or districts that were 50 years old or older at the time the intensive surveys were conducted (2010–2013) were studied in compliance with the PA.

If historic architectural resources existed on a large rural parcel within 150 feet of the proposed HST right-of-way, or if it was determined that the resources on that parcel were otherwise potentially affected by the project, the entire parcel was included in the APE. If historic architectural resources on a large rural parcel were more than 150 feet away from the proposed HST at-grade right-of-way, and were otherwise not potentially affected by the project, the APE boundary was set at 150 feet from the right-of-way. In these cases, resources outside the APE on that parcel did not require further survey. This methodology for establishing the Historic Architectural APE follows both standard practices for the discipline and Attachment B of the PA, which provides that the APE will include:

- 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 the historic setting and where the introduction of visual or audible elements may affect the use or characteristics of those properties that would be the basis for their eligibility for listing in the National Register.
- Properties near the undertaking that were either used by a railroad, served by a railroad, or where railroad materials, features, and activities have long been part of their historic setting, but only in such cases where the undertaking would result in a substantial change from the historic use, access, or noise and vibration levels that were present 50 years ago, or during the period of significance of a property, if different.

The APE was revised during the course of environmental review to reflect updated project information as well as ongoing field efforts that clarify whether individual properties meet the above stipulations. As mentioned, this analysis is based on preliminary design available as of October 2013. The APE maps will be updated in accordance with the stipulations of the 106 PA and the Fresno to Bakersfield MOA.

Paleontological Study Area

For paleontological resources, the study area is a 1-mile radius around the proposed HST right-of-way and any potential facilities, including the potential stations. No specific guidance dictates the radius width used for paleontological resource studies; however, a 1-mile radius allows for the development of a more complete context because paleontological resources tend to be distributed widely across the landscape.

3.17.3.1 Cultural and Paleontological Resource Data Sources

Information regarding potential cultural, archaeological, historic, architectural, and paleontological resources in the project vicinity includes the following:

- California Historical Resource Information System Records, the Southern San Joaquin Valley Information Center (SSJVIC) for Fresno, Tulare, Kings, and Kern counties.
- Historical maps and photographs.
- NRHP and CRHR listings.
- Native American Heritage Commission (NAHC) Sacred Land files.
- Caltrans Historic Bridge Inventory and Caltrans District 6 offices; Caltrans Transportation Library and History Center.
- Historical railroad records.
- Previous environmental studies within the study area.
- City and county historic registers and landmark lists.
- County Assessor building construction data.
- Local and university libraries, historical societies, county museums, and planning offices.
- The paleontological site database maintained by the University of California Museum of Paleontology, at Berkeley.
- The paleontological site database maintained by the San Bernardino County Museum.
- The paleontological site database maintained by the Natural History Museum of Los Angeles County.
- The Paleobiology Database (<http://paleodb.org/cgi-bin/bridge.pl?user=Guest&action=displayHomePage>).

Archaeological Resources

Archaeologists meeting the professional qualifications under the SOI's Standards for Archaeologists and meeting the definition of Qualified Investigator (QI) in accordance with the PA conducted the identification and evaluation of archaeological resources for the Fresno to Bakersfield Section of the HST.

As a means to provide archaeological context, the records of all recorded sites within a 0.25-mile radius of the APE were obtained from the SSJVIC (Authority and FRA 2011a).¹ Based on this archival review and research, a total of 21 previously recorded archaeological sites are within 0.25 mile of the archaeological APE. However, because archaeological site locations are confidential, locations of these sites are not depicted in this document. Of these previously

¹ The parameters of the records search followed the standard Caltrans practice of reviewing all plotted resources within a 1-mile radius of the project APE and obtaining all site records and surveys within a 0.25-mile radius. This approach was disclosed in the *Fresno-Bakersfield Archaeological Identification and Evaluation Plan* (Authority and FRA 2011b).

recorded sites, four—CA-KER-2507,² CA-KIN-69H, CA-TUL-473, and CA-TUL-2950H—are in the current archaeological APE.

CA-KER-2507, recorded in 1989, was originally identified as “a village site with willow huts” in written accounts from the 1890s prior to the railroad construction, as defined in the original site record (Ptomey and Wear 1989). However, the record indicates that the site is completely destroyed and its existence is based solely on documentary evidence through written accounts from the 1890s and ethnographic interviews conducted in the early twentieth century. The site was described by ethnographic informants as the *Yowlumne* village site of *Woilu* (Latta 1977:46–47). CA-KIN-69H is a sparse historic refuse scatter. CA-TUL-473 is a highly disturbed prehistoric artifact scatter. CA-TUL-2950H/P-54-4737 is the former location of Stoil, a Standard Oil Company pumping station with a train stop, three tanks, two streets, 16 structures, and palm trees along the east/west-trending road alignment (Orfila 2010). This site is periodically used as a water retention basin by the Alpaugh Irrigation District. The results of the records search as relevant to this particular site are further discussed in Section 3.17.4.

In addition to the above record search, a review of historic fire insurance maps, prepared by the Sanborn Company, was conducted to identify areas where previously unrecorded historic-era archaeological resources might be found. Sanborn maps, which had been scanned, were geo-referenced and evaluated using GIS to allow visualization and comparison with respect to the Fresno to Bakersfield HST APE. The historic Sanborn maps were generally available for all urban areas in the project vicinity, including Fresno, Hanford, Wasco, Shafter, Bakersfield, East Bakersfield, and Sumner (incorporated into East Bakersfield in 1910).

The dates of the maps, which range from 1867 to 1970, vary by location, with larger urban areas generally having earlier mapping near their historic downtowns. The smaller towns and more peripheral urban areas were mapped later. However, because the majority of the project in urban neighborhoods is proposed along an existing railroad corridor, the Sanborn neighborhood maps available merely demonstrate the importance of these early neighborhoods spatially, and thereby economically, to the railroad. The rural sections of the project are not represented by Sanborn maps. While it is unlikely that privies or other hollow features containing historic archaeological assemblages are located within the railroad corridor, this analysis concluded that there is a high probability that intact subsurface historic archaeological deposits are located in metropolitan areas. See the *California High-Speed Train Fresno to Bakersfield Archaeological Survey Report (ASR)* (Authority and FRA 2011c) for details regarding this analysis.

In addition to the archival research discussed above, four field surveys were conducted that sought to identify prehistoric and historic archaeological resources within the APE. The first intensive pedestrian survey of the APE was conducted on parcels to which access had been granted between February 15 and April 8, 2010, on all alternative alignments as they were defined at that time. A subsequent survey of the BNSF Railway right-of-way not included in the private parcel surveys was conducted in April 2010. The third survey was conducted on August 16 to 18, 2010, and reflected changes in the APE since the initial (February 2010) surveys. A fourth survey was conducted in December 2011 to address changes to the BNSF Alternative and additional acreage for the recently added Hanford West Bypass 1 and 2 alternatives.

The current APE represents a total of 12,635 acres. Permission to enter (PTE) was obtained for approximately 42%, or 4,494 acres, of this total. In addition to restrictions on entry, portions of the APE could not be surveyed because of crop cover, vegetation, or urbanization. Also, some parcels to be surveyed were undergoing aerial spraying at the time of the survey. As a result, of

² A state designation for identifying archaeological sites called a Trinomial that refers to the state, county of origin, and number associated with a particular site for reference purposes.

the area for which PTE was granted, 53% (or 2,374 acres) was surveyed. Therefore, in terms of the total footprint APE, this acreage represented 19% of the entire area. As stipulated in Section 8 (A)(1) of the PA, a phased identification effort will be necessary of the remaining portions of the APE as right of entry is obtained and where adverse effects are likely to occur. This phasing is being coordinated through the development and implementation of the MOA.

The field procedures that guided the identification of archaeological sites encountered during the field investigation relied on the *Fresno-Bakersfield Archaeological Identification and Evaluation Plan* (Authority and FRA 2011b), the Section 106 PA (Authority and FRA 2011a), and the standards of professional practice of archaeology (see Section 110 of the NHPA and the SOI's Standards and Guidelines for identification of historic properties [48 FR 44716]). The overarching approach to assessing the resources encountered in the field for the Fresno to Bakersfield Section and the guidance for establishing historic property exemptions were defined in the PA. The criteria for what constitutes an "isolate" and a "site" and the process for the initial evaluation of a given resource are the implementation of the criteria for exemption provided by Attachment D of the PA. Those resources encountered that qualified as exemptions under the PA were reviewed under CEQA criteria and were found not to be historical resources as defined by the CEQA Guidelines.

Details of the surveys are provided in the ASR (Authority and FRA 2011c) and *California High-Speed Train Fresno to Bakersfield Supplemental Archaeological Survey Report* (Supplemental ASR) (Authority and FRA 2012a). It is anticipated that field inventory will be completed for previously unsurveyed areas of the APE for the preferred alternative when legal access has been granted.

In addition to field surveys, an Extended Phase I (XPI) site testing effort was conducted on those sites identified during the inventory phase within the APE and for which no previous determination of eligibility had been completed. XPI field investigations were conducted from March 6 to 10, 2011. The purposes of these investigations were to:

1. Delineate the site boundaries of HST-A-TUL-1, HST-A-TUL-2, and HST-A-TUL-3.
2. Determine the presence and extent of any possible subsurface deposits associated with these resources.
3. Determine whether sites HST-TUL-1 and HST-A-TUL-2 are components of a single site.
4. Conduct geoarchaeological trenching to determine the presence and extent of any possible subsurface deposits associated with the archaeological resources, determine the presence or absence of paleosols, and assess the area's sensitivity for buried prehistoric resources.

As such, investigation procedures were split into two distinct actions: excavation of shovel test units (STUs) and excavation of backhoe trenches. The results of this investigation are presented in Section 3.17.4.1 under the field survey results.

Historic Architectural Resources

Architectural historians meeting the professional qualifications under the SOI's Standards for Architectural History and meeting the definition of QI in accordance with the PA conducted the identification and evaluation of historic architectural resources (also referred to as built-environment resources) for the Fresno to Bakersfield Section of the HST. QIs developed the APE for historic architectural resources and conducted reconnaissance and intensive-level surveys of the entire APE. Intensive-level surveys included all built-environment resources constructed in 1960, and earlier, to account for all resources 50 years old or older at the time of survey in 2010; the survey conducted in 2011–12 included those built-environment resources built in 1961 and

1962; and the survey conducted in 2013 included built-environment resources built in 1963. These resources were the survey population for the studies. The architectural resource types listed in Attachment D of the PA were exempt from further study under Section 106 because they do not demonstrate potential for historical significance. None of these resource types had potential to be considered historical resources as defined in the CEQA Guidelines.

As with the records search discussed above, the background research for known architectural resources was conducted using digital scans of the South San Joaquin Valley Information Center U.S. Geological Survey 7.5-minute quadrangles that intersect with the current Fresno to Bakersfield Section. Each map was georeferenced to real-world coordinates and placed in a GIS environment to allow for accurate digitization of the individual resources and reports conveyed on the maps. All previously recorded resources and previous surveys on each quadrangle were digitized in conjunction with the records search results for archaeology (described above). Prior to the first field surveys in 2010, all recorded resources within 500 feet of the centerline were obtained to provide context for the known historic properties within the vicinity of the project. As the architectural APE was refined, the population of known properties was also further refined using the database. The APE for historic architectural properties includes buildings, structures, objects, sites, landscapes, and districts that were more than 50 years of age at the time the intensive surveys were conducted between 2010 and 2013. The APE for historic architectural resources was defined in accordance with Attachment B of the PA (see Section 3.17.3.1, above).

The following data sources were also reviewed for historic architectural resources:

- National Register of Historic Places (both listed and determined-eligible properties).
- California Register of Historical Resources.
- California Inventory of Historic Resources (OHP 1976).
- California Points of Historical Interest (OHP 1992).
- California Historical Landmarks (OHP 1995).
- Directory of Properties in the Historic Property Data Files for Fresno, Kings, Tulare, and Kern counties (as provided by the South San Joaquin Valley Information Center).
- Sanborn maps for urban areas.
- Historic U.S. Geological Survey quadrangles.

The historical overview presented in this section, as well as the detailed historic context and property-specific research conducted for the significance evaluations, was based on a wide range of primary and secondary materials gathered by QIs. See the *California High-Speed Train Fresno to Bakersfield Section Historic Architectural Survey Report (HASR)* (Authority and FRA 2011d), the Supplemental HASR (Authority and FRA 2012b), the Second Supplemental HASR (Authority and FRA 2013a), the *California High-Speed Train Fresno to Bakersfield Historic Property Survey Report (HPSR)* (Authority and FRA 2011e), the Supplemental HPSR (Authority and FRA 2012c), and the Second Supplemental HPSR (Authority and FRA 2013b). Research on the historic themes and survey population was conducted in both archival and published records, including but not limited to the following: Kern County Museum (Bakersfield); Beale Memorial Library (Bakersfield); Fresno Historic Preservation Program, Fresno Planning Office; California State University, Fresno, Special Collections; Kings County Assessor; Tulare County Assessor; Kern County Assessor and Recorder; California Geological Survey Library; California State Archives and Library; Bancroft Library (University of California, Berkeley); Shields Library (University of California, Davis); maps and plans obtained from Caltrans District 6 (Fresno); and Caltrans Transportation Library and History Center (Sacramento). QIs reviewed the CHRIS, publications and updates for the California Historical Landmarks and Points of Historical Interest, the NRHP, the CRHR, and local register listings. QIs also used published and digital versions of U.S. Census Bureau information, including population and agricultural schedules.

The records search performed at the South San Joaquin Valley Information Center revealed only 15 recorded architectural resources within the search area (i.e., the 500-foot radius of the alignment centerline adopted for the record search and used before the field surveys were conducted) because most of the area within the APE has not been previously surveyed for historic architectural resources. Of the 15 resources on file, only 1 was an NRHP-listed property: the Shafter Railroad Depot in Kern County. Historic architectural resources on file included three canals that had been found eligible and one State Historic Landmark marker. The other resources identified in the search results are not historic properties (Section 106) or historical resources (CEQA) for various reasons: they were previously found not eligible for the NRHP or CRHR, were no longer extant, had been identified, but not evaluated, or were not within the refined APE. The identified but unevaluated resources within the APE were added to the survey population and addressed in the HASR, HPSR, and Supplemental HASRs and HPSRs (Authority and FRA 2011d, 2011e, 2012b, 2012c, 2013a, 2013b).

Because few previous built environment resource surveys have been conducted within the APE for this project, QIs reviewed other sources of potential built environment data. QIs noted any potential historic properties/historical resources during fieldwork and reviewed local registers and lists while conducting research in local repositories. They also consulted with local government planning staff to thoroughly account for previously identified historic properties and historical resources and included them in the HPSR survey population.

Although an archaeological or historic architectural resource may not be listed in or determined to be eligible for listing in the NRHP or the CRHR, may not be included in a local register of historic resources (pursuant to Section 5020.1[k] of the Public Resources Code), or may not be identified in a historic resources survey (meeting the criteria in Section 5024.1[g] of the Public Resources Code), a lead agency may still determine it to be a historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

Once the historic architectural APE was defined, fieldwork began with a reconnaissance-level survey of the APE to account for all historic architectural resources found within the APE.³ This reconnaissance took into account known resources (see above) and also identified additional resources that would require evaluation in the HPSR or HASR, as required by the PA. The reconnaissance survey identified hundreds of historic architectural resources that did not appear in the South San Joaquin Valley Information Center search results. The historic architectural resources that could be potentially eligible for listing in the NRHP or CRHR became the survey population.

QIs then conducted an intensive-level field survey and field research on the survey population resources from March to May 2010, with additional surveys conducted in 2011, 2012, and 2013. These additional surveys were conducted to address additional resources brought into the APE by project refinements, including changes to the BNSF Alternative and the inclusion of the Hanford West Bypass 1 and 2 alternatives, and the Bakersfield Hybrid Alternative. The intensive surveys addressed more than 400 historic architectural resources.

The intensive-level surveys identified 62 properties in the APE that were 50 years of age or older at the time of the survey that were known or potential historic properties or historical resources. This result was reported in the HPSR, Supplemental HPSR, and Second Supplemental HASR/HPSR, consistent with the requirements of the PA (Authority and FRA 2011e, 2012c).

³ Survey levels are defined in the National Park Service's *Archeology and Historic Preservation: SOI's Standards and Guidelines* (NPS 2008) and in the California Office of Historic Preservation's *Instructions for Recording Historical Resources* (OHP 1995).

The surveys included consideration of the presence of potential ethnographic resources, which are considered eligible for inclusion in the National Register as TCPs when they are rooted in a community's history, are important in maintaining the continuing cultural identity of the community, and meet criteria for evaluation and integrity. One such property was identified in Bakersfield. SHPO requested additional information about the property, which was reported in the survey of the Bakersfield Hybrid Alternative, during review of the first Supplemental HASR (Authority and FRA 2012c). In response, the property was evaluated by an ethnographer and it was identified as a TCP in a property-specific ethnographic evaluation and in the Second Supplemental HASR (Authority and FRA 2013a).

The intensive surveys also identified resources that required evaluation because they had not previously been studied. These resources were evaluated for potential eligibility for listing in the NRHP and CRHR, and for their potential to be considered historical resources for the purposes of CEQA. These resource evaluations were either documented on full formal evaluation forms, or were subject to "streamline documentation" if they met the criteria as defined by Attachment C of the PA. Evaluation of these resources concluded that they are not eligible for listing in the NRHP or CRHR, and that they are not historical resources for the purposes of CEQA. These results were presented in the HASR, Supplemental HASR, and Second Supplemental HASR/HPSR, as required by the PA.

Historic architectural resource surveys were conducted from public rights-of-way, except in cases where the property owners were contacted to provide entry to a property not adequately visible from a public right-of-way. For these parcels, access was arranged in the manner specified in the project protocol for such contact. Of the hundreds of historic architectural resources subject to survey, only two parcels were not accessible or visible for field survey photography. In these cases, detailed property histories were prepared following standard practices and the inaccessibility was noted on the recordation forms. Otherwise, the inventory was completed for the entire survey population. Details of the historic architectural survey are provided in the HASR, HPSR, Supplemental HASR/HPSR, and Second Supplemental HASR/HPSR (Authority and FRA 2011d, 2011e, 2012b, 2012c, 2013).

Determination of Effect on Cultural Resources

The analysis of potential effects on cultural resources is based on the Criteria of Adverse Effect described in regulations implementing Section 106 of the NHPA at 36 C.F.R. 800.5. Under these regulations, an undertaking has an effect on a historic property when the undertaking may alter, directly or indirectly, the characteristics of the property that may qualify the property for inclusion in the NRHP [36 C.F.R. Part 800.5(a)]. An effect is considered adverse when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Although similar to the criteria discussed here from a Section 106 perspective, the significance criteria for establishing the level of impact under CEQA are provided in Section 3.17.3.4, below.

Consideration is given to all qualifying characteristics of a historic property during effects analysis, including those that may have been identified subsequent to the original evaluation of the property's NRHP eligibility. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

Adverse effects on historic properties include but are not limited to:

- Physical destruction of or damage to all or part of the property.
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access that is not

consistent with the Secretary's Standards for the Treatment of Historic Properties (36 C.F.R. 68) and applicable guidelines.

- Removal of the property from its historic location.
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.
- Neglect of a property that causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native American tribe or Native Hawaiian organization.
- Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Effects analysis also considered potential effects to ethnographic resources. Intensity of impacts on ethnographic resources may relate to access and use, as well as physical modifications, to traditionally important places. While traditionally associated with Native American cultural practices, such as communal gathering locations or mythology, TCPs can be relevant for any group that associates a location with cultural tradition, sense of place, or specific values.

Paleontological Resources

Public agencies must treat a historical or cultural resource identified as significant through survey per PRC Section 5024.1, including paleontological resources, as significant unless the evidence demonstrates that they are not historically, culturally, or scientifically significant. Paleontological resources (fossils) are the remains or traces of prehistoric plants and animals. Fossils are important scientific and educational resources because of their use in (1) documenting the presence and evolutionary history of particular groups of now-extinct organisms, (2) reconstructing the environments in which these organisms lived, and (3) determining the relative ages of the strata in which they occur and the geologic events that resulted in the deposition of the sediments that entombed them.

To develop a baseline paleontological resource inventory of the study area (1 mile surrounding the project features) and to assess the potential paleontological productivity of each stratigraphic unit present, qualified paleontologists reviewed the published and available unpublished geological and paleontological literature and compiled, synthesized, and evaluated stratigraphic and paleontological inventories. These methods are consistent with Society of Vertebrate Paleontology (SVP 1995) guidelines for assessing the importance of paleontological resources in the study area. No subsurface exploration was conducted for this assessment.

Geologic maps and reports covering the bedrock and surficial geology of the project vicinity were reviewed to determine the exposed and subsurface rock units, to assess the potential paleontological productivity of each rock unit, and to delineate their respective areal distribution in the study area. Available aerial photographs of the study area were also examined to aid in determining the areal distribution of distinctive sediment and soil types.

The number and locations of previously recorded fossil sites from rock units exposed in and near the study area and the types of fossil remains each rock unit has produced were evaluated based on the paleontological literature review. The literature review was supplemented by archival records searches conducted at the Museum of Paleontology at the University of California,

Berkeley (UCMP), the Los Angeles County Museum of Natural History (LACM), and the San Bernardino County Museum (SBCM) for additional information regarding the occurrence of fossil sites and remains in and near the study area.

The field survey, which included visual inspection of exposures of potentially fossiliferous strata in the study area, was conducted to document the presence of sediments suitable for containing fossil remains and the presence of any previously unrecorded fossil sites. The field survey for this assessment was conducted during several site visits between November 2009 and April 2010. During the field survey, stratigraphy was observed in road cuts, recent excavations, and the banks of drainage diversions, groundwater recharge basins, storm-water retention basins, streams, irrigation canals, ditches, and ponds.

Impacts on paleontological resources were analyzed qualitatively, based on professional judgment and consistent with the methods recommended by the Society of Vertebrate Paleontology (SVP 1995).

Fossil materials are usually buried in subsurface geologic units rather than exposed at the ground surface; therefore, the presence of paleontological resources is uncertain until project earthwork has begun. Thus, impact analysis for paleontological resources is based on probabilities of effect. The two-phase process described below was used to take these uncertainties into account:

- Assess the likelihood that the sediments affected by a project's implementation contain scientifically important, nonrenewable paleontological resources that could be directly or (in very rare cases) indirectly affected. This likelihood is considered to be proportionate to a geologic unit's paleontological sensitivity.

According to the identified degree of sensitivity, formulate and implement measures to mitigate potential adverse impacts. Mitigation measures are normally not recommended for sediment with low or no sensitivity, and are usually recommended for sediment with high paleontological sensitivity.

3.17.3.2 Agency, Native American, and Public Outreach

The Fresno to Bakersfield Section has an Outreach Plan (January 2011) and an Agency Coordination Plan (2009) to organize coordination through the project development process. The PA, developed in coordination with the ACHP and SHPO, describes the Native American consultation process. Consultation with the SHPO, ACHP, *Sociedad Juárez Mutualista Mexicana*, and the California NAHC and representatives of Native American tribes regarding potential impacts on archaeological and historic architectural properties, cultural sites, and prehistoric archaeological sites has been ongoing throughout this project, and it will continue as the project progresses.

Agency Outreach

The FRA initiated coordination with the California SHPO in January 2009 to discuss the development of an environmental method for the California HST, review adopted mitigation measures from the program EIR/EIS, and discuss the need for an MOA. The FRA and SHPO concluded that a PA should be prepared for the entire California HST project and that MOAs should be prepared for each section. The FRA subsequently prepared a PA in consultation with the SHPO and ACHP and invited local agencies to consult in the Section 106 process. The PA was fully executed by the SHPO, FRA, Authority, and ACHP in July 2011. Table 3.17-2 summarizes outreach to other federal, state, regional, or local agencies that may have responsibilities for historic properties and may want to review reports and findings for an undertaking within their jurisdiction.

Table 3.17-2
 Summary of Outreach Efforts to Identify Other Consulting/Concurring Parties

Entity	Date of Invite Letter from HSRA	Response
Consulting/Concurring Party Invitation Letters of December 16, 2011		
City of Fresno	December 16, 2011	Wish to be consulting/concurring party to MOA
State of California Department of Parks and Recreation	December 16, 2011	Wish to be consulting/concurring party to MOA
City of Bakersfield, Mayor	December 16, 2011	
Bakersfield City School District	December 16, 2011	--
City of Shafter	December 16, 2011	Wish to be consulting/concurring party to MOA
Consulting/Concurring Party Invitation Letters of April 15, 2013		
ENTITIES IN FRESNO COUNTY		
Bureau of Reclamation	April 15, 2013	--
Fresno County Public Works and Planning	April 15, 2013	--
Fresno Irrigation District	April 15, 2013	--
ENTITIES IN KINGS COUNTY		
Kings County Board of Supervisors	April 15, 2013	--
City of Hanford Planning Commission	April 15, 2013	--
City of Corcoran Planning Department	April 15, 2013	Wish to be consulting/concurring party to MOA
The People's Ditch Company	April 15, 2013	--
Corcoran Irrigation District	April 15, 2013	--
Last Chance Water Ditch Company	April 15, 2013	--
ENTITIES IN TULARE COUNTY		
Tulare County Resource Management Agency	April 15, 2013	--
ENTITIES IN KERN COUNTY		
City of Bakersfield	April 15, 2013	Wish to be consulting/concurring party to the MOA
City of Bakersfield Economic and Community Development		--
Bakersfield City School District	April 15, 2013	--

Table 3.17-2
 Summary of Outreach Efforts to Identify Other Consulting/Concurring Parties

Entity	Date of Invite Letter from HSRA	Response
County of Kern, Planning Department	April 15, 2013	--
City of Shafter	April 15, 2013	Wish to be consulting/concurring party to MOA
City of Wasco Community Development	April 15, 2013	--
Consulting/Concurring Party Invitation Letters		
Hanford Cemetery District	October 22, 2013	--

Native American Outreach

Native American outreach began with an initial letter to the tribes in October 2009. Formal consultation between FRA and federally recognized tribes began in February 2010. Because TCPs associated with Native American cultures are more likely to occur in rural settings—the most common setting for the Fresno to Bakersfield Section—the focus of the effort was to identify TCPs in the Native American community.

The NAHC provided a list of Native American tribes and individuals representing a given tribe in the project corridor. They were contacted to request information on the proposed project relative to Native American concerns. The following list indicates the various tribes whose representatives were contacted. Those listed in bold are federally recognized tribes also involved in government-to-government consultation initiated by the FRA.

- **Big Sandy Rancheria⁴ of Mono Indians**
- Choinumni Tribe of Yokuts
- **Chowchilla Tribe of Yokuts**
- Chukchansi Tribe
- Chumash Council of Bakersfield
- **Cold Springs Rancheria of Mono Indians**
- Dumna Tribal Government
- Dumna Wo-Wah Tribal Government
- Dunlap Band of Mono Indians
- Eshom Valley Band of Indians
- Kawaiisu Tribe
- Kern Valley Indian Council
- Kings River Choinumni Farm Tribe
- Kitanemuk and Yowlumne Tejon Indians
- **North Fork Rancheria**
- North Valley Yokuts Tribe
- **Picayune Rancheria of Chukchansi**

⁴ The Spanish word “ranchería” refers to the workers' quarters of a rancho, and has become extended into English to mean a native village.

- Rancheria of Mono Indians
- **Santa Rosa Tachi Tribe**
- Sierra Nevada Native American Coalition
- Southern Sierra Miwok Nation
- **Table Mountain Rancheria**
- **Tejon Indian Tribe**
- Traditional Choinumni Tribe
- Tubatulabals of Kern Valley
- **Tule River Indian Tribe**
- Wukchumni Tribe

Table 3.17-3 summarizes the outreach with Native American tribes undertaken to date for the state-wide HST projects, including the development of the PA and MOA for the Merced to Fresno Section, which preceded the Fresno to Bakersfield Section in terms of the planning process.

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Initial search conducted for Native American Tribes in the project study area.	March 2009	Informational search undertaken for broad area.	—
Invitations sent to attend scoping meeting.	March 2009	Fact sheet on project sent out.	Informal
NAHC Sacred Lands search.	April–May 2009	NAHC contacted to request a search of the Sacred Lands file for the project corridor and a list of groups and individuals who might have information on cultural resources in the project APE.	—
Letters sent by the Authority/JV to individual contacts provided by NAHC.	October 2009	—	Informal
Telephone contacts.	November 2009	A phone call and a follow-up call were placed to each contact provided by the NAHC requesting comment or information.	Informal
Tribal teleconference #1, which included FRA, ACHP, SHPO, and federally recognized tribes.	December 15, 2010	First tribal teleconference with federally recognized tribes to discuss the Section 106 approach, and solicit input from tribes.	Informal
Second NAHC Sacred Lands search.	January 2010	A second request was sent to reflect changes to the original alignment sent in April 2009.	—
Letter initiating government-to-government consultation mailed from FRA to federally recognized tribes.	February 25, 2010	Responses received from the Fernandeno Tataviam Band of Mission Indians (March 8, 2010), the Pala Band of Mission Indians (March 16, 2011), the Pechanga Temecula Band of Luiseno Indians (March 30, 2011), the San Manuel Band of Serrano Mission Indians (March 21, 2011), the Soboba Band of Luiseno Indians (March 8, 2011), and the United Auburn Indian Community (March 17, 2010).	Formal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Authority- and FRA-hosted informational meeting with Native American tribes and groups at Visalia Convention Center.	July 22, 2010	Organized meeting in Visalia to provide a forum for the community to give feedback. No Native American representatives attended.	Informal
Authority- and FRA-hosted informational meeting with Native American tribes and groups at Caltrans offices in Fresno.	August 16, 2010	Representatives from Dumna, Amah Mutsun, and Choinumni tribes and Big Sandy Rancheria attended or participated by phone. Authority and FRA representatives presented project information.	Informal
Letter follows up on the initial request for government-to-government coordination between the FRA and federally recognized tribes; letter issues an invitation to participate in a telephone conference scheduled for December 15, 2011; mailed from FRA to federally recognized tribes.	December 6, 2010	No written responses received.	Informal
Telephone conference #1 for coordination between the FRA, ACHP, and federally recognized tribes.	December 15, 2010	Representatives from Soboba, Santa Rosa Rancheria, and Pechanga participated by phone and presented concerns with the draft PA content. FRA hosted the call, and the ACHP participated.	Informal
Letter from FRA to federally recognized tribes summarizes the December 15, 2010, conference call as a "productive session" and issues an invitation to a second telephone conference planned for January 19, 2011. The draft PA was enclosed with this letter, and the FRA invited participation in the development of the PA and the forthcoming draft MOA template.	December 28, 2010	Responses received from the Pechanga Temecula Band of Luiseno Indians (February 18, 2011) and the Soboba Band of Luiseno Indians (February 24, 2011).	Informal
Tribal teleconference #2, which included FRA, ACHP, SHPO, and federally recognized tribes.	January 19, 2011	FRA hosted a tribal teleconference to discuss comments on the draft PA and next steps.	Informal
Teleconference with Pechanga Band of Luiseno Mission Indians (FRA/ Authority/SHPO/ACHP/Pechanga).	February 17, 2011	Requested by Pechanga to discuss the draft PA content.	Informal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Letter sent from FRA to federally recognized tribes invites tribes to meet with the FRA to consult about the HST System between June 20 and 24, 2011, in the project area.	May 27, 2011	California Valley Miwok Tribe responded on June 17, 2011.	Request for Formal Consultation
Authority- and FRA-hosted informational meeting with Native American tribes and groups in Fresno.	June 1, 2011	<p>Meeting convened by the Authority and FRA in Fresno, California, to update tribal representatives regarding status of cultural resources investigations, to request representatives to delineate areas of interest and potential responsibility, and to obtain input regarding concerns and/or interests. Questions and concerns offered by attendees addressed monitoring during construction, repatriation of human remains, the source of aggregate for construction, and general environmental inquiries.</p> <p>Representatives from the federally recognized Big Sandy Rancheria and the Cold Spring Rancheria, both with interests in the Fresno to Bakersfield Section study area, attended the meeting; representatives from the non-federally recognized Southern Sierra Miwuk Nation and the Sierra Nevada Native American Coalition, who share interests in the area, were also in attendance.</p>	Informal
Federal Government to Native American Tribal Government consultation.	June 22–23, 2011	FRA representatives consulted with representatives from the San Manuel Band of Serrano Mission Indians and Soboba Band of Luiseno Indians on June 22, 2011. FRA representatives consulted with representatives from the Pechanga Temecula Band of Luiseno Indians on June 23, 2011.	Formal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Authority- and FRA-hosted informational meeting with Native American Tribes and groups in Fresno.	July 27, 2011	Representatives from all tribal entities that were identified by the NAHC and through coordination efforts over the past 2 years were invited to this meeting. Meeting involved representatives from both the Merced to Fresno and the Fresno to Bakersfield sections, as tribal areas overlap in the Fresno portion of both projects. Representatives from the following federally recognized tribes attended the meeting: North Fork Rancheria, Tule River Tribe, Picayune Rancheria, and Table Mountain Rancheria. Representatives from the following non-federally recognized groups attended the meeting: Traditional Choinumni and North Fork Mono.	Informal
Letter sent from FRA to federally recognized tribes to inform them of the Authority staff recommendation of the "Hybrid" Alternative as the preferred route for the Merced to Fresno Section of the HST System.	December 12, 2011	Responses received from the Pala Tribal Historic Preservation Office (December 29, 2011) and the Shingle Springs Rancheria Band of Miwok Indians (January 5, 2012).	Informal
Public meeting regarding preferred alternative.	December 13, 2011	Representatives from all tribal entities, including federally recognized tribes, groups, and individuals identified by the NAHC and through coordination efforts over the past 2 years, were invited to this meeting by telephone outreach and mailings.	Informal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
<p>Letter from Authority inviting all local, state, and federal tribes to an informational meeting to discuss the staff-recommended preferred alternative for the Merced to Fresno Section of the HST System. Subsequent follow-up phone calls and/or emails were made to all invitees to encourage attendance.</p>	<p>December 21, 2011</p>	<p>Informational meeting invitation to all local, state, and federal tribes to discuss the staff-recommended preferred alternative for the Merced to Fresno Section of the HST System. Other topics noted for discussion included updates and changes to the project since July 2011; updates on and the status of cultural resource investigations; discussion of potential impacts on known archaeological sites; strategies for conducting archaeological surveys in areas where access was denied; processes for future involvement in an MOA; input on the presence of traditional cultural sites or sensitive areas within the project area; and tribal concerns and comments.</p>	<p>Informal</p>
<p>Authority- and FRA-hosted informational meeting with Native American tribes and groups regarding the selection of the Hybrid Alternative as the preferred route for the Merced to Fresno Section of the HST System, the status of technical reports and compliance documents, and input from interested Native American groups and individuals.</p>	<p>January 10, 2012</p>	<p>Representatives from all tribal entities, including federally recognized tribes, groups, and individuals identified by the NAHC and through coordination efforts over the past 2 years, were invited to this meeting through telephone outreach and mailings.</p> <p>Meeting was convened by the Authority in Fresno, California, to update tribal representatives regarding status of cultural resources investigations and to request input regarding concerns and/or interests. Questions and concerns offered by attendees related to confidentiality of site information, monitoring during construction, and repatriation of human remains.</p> <p>Representatives from the following non-federally recognized tribal groups attended the meeting: Chowchilla Tribe of Yokuts, Eshom Valley Band of Wuksachi/Michahai, and Amah Mutsun Tribal Band of Costanoan/Ohlone. Also in attendance was one person with Yaqui/Apache affiliation. No federal tribes attended this meeting.</p>	<p>Informal</p>

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Email and phone conversation between Authority and Chairman/Speaker of the Eshom Valley Band of Indians.	January 11, 2012	Authority sent email to provide information requested by the Chairperson during the January 10, 2012, meeting. Authority received phone call in response to the email. The Eshom Valley Chairman indicated that his area of concern was the Fresno to Bakersfield Section of the HST. His primary concerns pertained to the treatment and disposition of human remains and the confidentiality of cultural resources.	Informal
Email from Authority to Chairperson of the Amah Mutsun Tribal Band of Costanoan/Ohlone Indians.	January 11, 2012	Authority sent email to provide information requested by the Chairperson during the January 10, 2012, meeting. Authority staff has had multiple conversations with the Amah Mutsun Chairperson since this time. It was confirmed by the Chairperson the he is interested in the San Jose to Merced Section of the HST System. His primary concerns pertained to the confidentiality of cultural resources, the treatment of human remains, Native American monitoring, and the avoidance of important Native American sites by the HST System.	Informal
Phone call from Chairperson of Chowchilla Tribe of Yokuts to Authority cultural resources staff.	January 12, 2012	As a follow-up to the January 10, 2012, tribal information meeting, the Chowchilla Tribal Chairperson indicated that he would be sending a map of his tribal territory and would be contacting Authority cultural resources staff when he is ready to schedule a meeting.	—
Authority sent a request to the NAHC for a third Sacred Lands search and an updated list of tribal contacts.	February 24, 2012	A third inquiry was sent to the NAHC to request the most updated contact information for both federal and non-federal tribes specific to the Merced to Fresno Section of the HST System for consultation on the development of the MOA.	Information request

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Response from NAHC to Authority.	March 8, 2012	The NAHC responded, indicating that a search of the Sacred Lands file revealed that Native American cultural resources were not identified in the project APE, but that such resources had been identified nearby. An updated list of local federal and non-federal tribes for the Merced to Fresno Section was provided by the NAHC.	Response to information request
Letter sent from FRA to federally recognized tribes in Merced, Madera, and Fresno counties requesting face-to-face consultation, issuing an invitation to participate as consulting parties to the MOA for treatment of historic properties, and requesting comments on the draft FOE pursuant to the PA.	March 14, 2012	Letter sent certified return receipt; six of seven return receipts have been received to date. As of the date of preparation of this EIR/S, one tribe, the California Valley Miwok Tribe, has accepted the invitation to be a Section 106 consulting party.	Request for Formal Consultation
Letter sent from Authority to all non-federally recognized tribal entities to solicit input on the draft FOE document and to invite participation in the development of the MOA and treatment plans.	March 14, 2012	Letter sent certified return receipt; 8 of 10 return receipts received to date. As of the date of preparation of this EIR/S, two tribes, the North Fork Mono Tribe and the Chowchilla Tribe of Yokuts, have accepted the invitation to be a consulting party on the development of the MOA and the treatment plans.	Formal invitation to participate in the development of the MOA/Treatment Plan.

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
<p>Authority and FRA hosted informational meetings with Native American tribes and groups regarding the EIR/EIS for the Fresno to Bakersfield Section of the HST System, the status of technical reports and compliance documents, and input from interested Native American groups and individuals.</p>	<p>October 9, 2012</p>	<p>Representatives from all tribal entities, including federally recognized tribes, groups, and individuals identified by the NAHC and through coordination efforts over the past 2 years were invited to these meetings through telephone outreach and mailings.</p> <p>Separate meetings, convened by the Authority in Visalia, California, were held for federally recognized tribes and tribes who are not federally recognized. The meetings were held to update tribal representatives regarding the status of cultural resources investigations; to provide information about development of the MOA for this HST section; and to request input regarding concerns and/or interests. Questions and concerns offered by attendees related to lack of communication with tribes during the cultural resources studies, monitoring during construction, and repatriation of human remains.</p> <p>Representatives from the following federally recognized tribal groups were present: Santa Rosa Tachi Rancheria and Big Sandy Rancheria of Mono Indians. Represented non-federally recognized tribes included the Kitanemuk and Yolumne Tejon Indians, the Kern Valley Indian Council, the Sierra Nevada native American Coalition, and one individual of Tubatulabal, Kawaiisu, Koso and Yokuts descent.</p>	<p>Informal</p>
<p>Follow-up letter from the FRA to the Chairperson of the Big Sandy Rancheria of Mono Indians.</p>	<p>October 26, 2012</p>	<p>FRA provided information requested by the Chairperson during the October 9, 2012, meeting. This included the PA; the M-F MOA and Treatment Plan; HST section alignment mapping; and the consulting party acceptance form for her to sign if she wishes to be a consulting party.</p>	<p>Informal</p>
<p>Follow-up letter from the Authority to the Chairperson of the Kitanemuk and Yowlumne Tejon Indians.</p>	<p>October 31, 2012</p>	<p>Authority provided information requested by the Chairperson during the October 9, 2012, meeting. Included with the letter were the PA; the M-F MOA and Treatment Plan; and HST section alignment mapping.</p>	<p>Informal</p>

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Letter sent to the Santa Rosa Tachi Tribe by the RC (AECOM) on behalf of the Authority.	February 8, 2013	Letter transmitting addendum ASR and Geoarchaeology maps, as requested by the Santa Rosa Tachi Tribe earlier in the week.	Informal
Authority presentation at the Caltrans Native American Advisory Committee (NAAC) quarterly meeting.	March 20, 2013	The Authority was invited by the Caltrans NAAC to present an update on the HST project at its quarterly meeting held in Woodland, CA. Tribal membership in the NAAC is statewide.	Informal
Email from the Authority to the Picayune Rancheria of Chukchansi.	March 21, 2013	Email to the tribal representative in response to an inquiry made to Rep. Denham's office regarding the tribes' concerns about the treatment of human remains if discovered during construction. M. McLoughlin provided detailed information regarding the PA and the MOA and ATP for the M-F Section, which detail the procedures and protocols for the treatment and disposition of Native American human remains. Information regarding the CA Public Resources Code and the Public Health and Safety Code as they pertain to Native American remains was also provided.	Information request
Letter sent by the Authority to individual contacts provided by the NAHC.	March 25, 2013	Letter to all tribes providing a status update of the cultural resources investigation for the F-B section.	Informal
Letter sent by the Authority to all non-federally recognized tribes provided by the NAHC for the F-B section.	March 28, 2013	Letter inviting all non-federal tribes in the F-B section to participate, if desired, as a consulting party to the development of the MOA and Archaeological Treatment Plan for the F-B section.	Formal
Letter sent by the FRA to all federally recognized tribes provided by the NAHC for the F-B section.	April 8, 2013	Letter inviting all federally recognized tribes in the F-B section to participate, if desired, as a consulting party to the development of the MOA and Archaeological Treatment Plan for the F-B section.	Formal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Phone call from the Cultural Resources Director of the Table Mountain Rancheria, to Authority cultural resources staff.	April 12, 2013	The Authority received a call from tribal representatives, who requested copies of cultural resources tech reports. The Authority committed to providing the reports and also provided the tribe with information regarding the PA, and the M-F MOA. The Authority also suggested tribal representatives contact FRA as well.	Information request
Email and mail submittals from the Authority to the Cultural Resources Director of the Table Mountain Rancheria.	April 19, 2013	The Authority sent several cultural technical reports to tribal representatives via express mail. The Authority also sent an email to Mr. Pennell notifying him that the reports have been mailed and to expect to receive them soon.	Information request
Authority presentation at the Caltrans Advisory Committee NAAC quarterly meeting.	May 8, 2013	The Authority was invited by the Caltrans NAAC to present an update on the HST project at its quarterly meeting held in Woodland, CA. Tribal membership in the NAAC is statewide.	Informal
Email from the Authority to the Cultural Resources Director of the Table Mountain Rancheria.	May 9, 2013	The Authority responded to an email from tribal representatives, who asked what Caltrans' involvement is in the HST project. The Authority explained that Caltrans is not a part of CAHSRA but that it communicates and consults with Caltrans regarding Caltrans' right-of-way or other interests.	Informal
Email from the RC (URS) on behalf of the Authority to individuals who had expressed interest in obtaining documents electronically.	June 5, 2013	Email informing individuals that the Authority has a sharepoint site in which cultural resource documents can be examined and reviewed for the project. Individuals contacted included representatives of the Kitanemuk and Yowlumne Tejon Indians; the Table Mountain Rancheria; and the Tule River Indian Tribe. The email invited these individuals to log onto the site, if they are interested in accessing the documents electronically.	Informal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Presentation at the Bureau of Indian Affairs, Central California Tribal Leadership Conference by the California State Transportation Agency (CalSTA) on behalf of the Authority.	June 12, 2013	The Authority was unable to attend the conference, so C. Farris of CalSTA gave a brief presentation about the HST project on behalf of the Authority. Fact sheets, the PA, and Authority cultural resources staff contact information were provided.	Informal
Meeting with Central Valley Yokuts Tribes, the Authority, and the FRA.	June 26, 2013	Meeting at the Tule River Reservation with several representatives of the Central Valley Yokuts Tribes (Tule River Tribe, Santa Rosa Tachi Tribe, Table Mountain Rancheria, Picayune Rancheria of Chukchansi) whereby the Authority and FRA presented a general overview of the HST project and discussed the project's status and schedule for the Central Valley. Maps and fact sheets were provided. Future communications and consultations were discussed. The tribes and the Authority agreed to meet in the future to review project maps and identify culturally sensitive areas to be considered during the environmental review.	Informal
Email meeting summary from the Authority to Central Valley Yokuts Tribes (Tule River Tribe, Santa Rosa Tachi Tribe, Table Mountain Rancheria, Picayune Rancheria of Chukchansi).	July 8, 2013	Email to Central Valley Yokuts Tribes providing a written summary of the meeting that took place on June 26, 2013. The Authority invited the tribes to provide potential meeting dates to review the project mapping and identify areas of concern to the tribes.	Informal
Email from the Authority to the Santa Rosa Tachi Tribe.	July 8, 2013	The Authority replied to an email from Santa Rosa Tachi Tribe, thanking her for providing cultural resources and sensitive site information to assist in HST planning.	Informal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Email from the Authority to the Santa Rosa Tachi Tribe.	July 16, 2013	Email from the Authority to Santa Rosa Tachi Tribe in response to an email from her indicating that the tribe is concerned about confidentiality and that she would like the cultural resource info that she provided to the Authority to remain confidential. The Tachi Tribe also requested project mapping for the sections in the Central Valley. The Authority responded that it will maintain confidentiality and would be happy to provide mapping.	Informal
Email from the Authority to the Tribal Archaeological Coordinator for the Tule River Indian Tribe.	July 18, 2013	Email exchange with Tule River representatives to confirm the points of contact for the tribe and to discuss a potential time for HSR to give a presentation to the tribe.	Informal
Email from the Authority to the Chairperson of the Picayune Rancheria of Chukchansi.	July 24, 2013	The Authority sent an email thanking the tribe for copying the Authority on their July 10th letter to the FRA requesting consulting party status for the HST project. The Authority acknowledged receipt of the letter and requested that the tribe confirm the individuals who would serve as the points of contact for cultural resources concerns.	Informal
Email from the Authority to the Cultural Resources Director of the Table Mountain Rancheria.	July 24, 2013	The Authority sent an email thanking the tribe for copying the Authority on their July 16th letter to the FRA requesting consulting party status for the HST project. The Authority acknowledged receipt of the letter and requested that the tribe confirm the individuals who would serve as the points of contact for cultural resources concerns.	Informal
Authority presentation at the Caltrans Advisory Committee NAAC quarterly meeting.	July 31, 2013	The Authority was invited by the Caltrans NAAC to present an update on the HST project at its quarterly meeting held in Valley Center, CA. Tribal membership in the NAAC is statewide.	Informal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Email from the Authority to the Tule River Indian Tribe.	August 6, 2013	Email exchange with representatives of the Tule River Tribe regarding coordinating a time to meet with the tribe to discuss cultural resources concerns along the alignment. The Authority indicated that it would also be happy to give a general presentation to the tribe regarding the HST project.	Informal
Email from the Authority to Lonora Graves, Caltrans Native American Liaison Branch and NAAC organizer.	August 7, 2013	The Authority sent an email with a variety of information about the Authority's Small/Disadvantaged Business program for distribution to all the members of the NAAC. This included information about upcoming free workshops on the subject. The information was then forwarded to the NAAC members by Ms. Graves' office on August 13, 2013.	Informal
Email from the Authority to the Santa Rosa Tachi Tribe.	August 8, 2013	Email response to the Tachi Tribe providing project update information, right-of-way access status, and coordination regarding adding the tribe to the Authority's sharepoint site.	Information request
Email from the Authority to Central Valley Yokuts Tribes (Tule River Tribe, Santa Rosa Tachi Tribe, Table Mountain Rancheria, Picayune Rancheria of Chukchansi).	August 13, 2013	The Authority provided information about upcoming job training for high-speed rail building and construction jobs.	Informal
Email from the Authority to the Cultural Resources Director of the Table Mountain Rancheria.	August 21, 2013	The Authority replied to an email inquiry from the Table Mountain Rancheria, which asked for copies of any new cultural reports generated since the last meeting. The Authority explained that there are currently no new reports to provide, but that the tribe would receive copies of any new tech studies as they become available.	Information request

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Email from the Authority to the Tule River Tribe, Picayune Rancheria of Chukchansi, Table Mountain Rancheria, Santa Rosa Tachi Tribe, North Fork Mono Tribe, Chowchilla Tribe, Cold Springs Rancheria, North Fork Rancheria, Big Sandy Rancheria, Eshom Valley Band of Wuksachi/Michahai, Dumna Wo-Wah Tribe, Pechanga Tribe, and San Pasqual Band.	August 28, 2013	Email to several representatives of tribes with whom the Authority had been recently working to encourage them to participate in the CalSTA's Tribal Listening Forum to be held on Sept. 4th to help provide input to the agency's tribal consultation policy that is going to be developed. Tribes had already received an invitation from CalSTA, but the Authority's email was intended to bolster participation.	Informal
Email from the Authority to the Santa Rosa Tachi Rancheria.	August 29, 2013	Email follow-up to the Tachi Tribe to inquire about whether or not the tribes had an opportunity to meet amongst themselves to discuss the HST project and if they would still like to meet with the Authority to review project maps and identify areas of sensitivity to avoid if possible.	Informal
Authority participation at the Tribal Listening forum held by CalSTA.	September 9, 2013	S. Allred and J. Morales attended the CalSTA's Tribal Listening Forum on behalf of the Authority. Mr. Morales addressed the tribes with a brief discussion about the Authority. Ms. Allred was identified as the Authority's Tribal Liaison. The Authority provided fact sheets and contact information to the tribes who attended the Listening Forum. All California Tribes were invited by the CalSTA to participate in a Tribal Listening Forum to provide comments and input to the development of the agency's tribal consultation policy.	Informal
Email from the Authority to the Wuksachi Tribe, Eshom Valley Band.	September 10, 2013	The Authority sent email to the Wuksachi Tribe due to the fact that letters and reports that the Authority sent the Tribe had been "Returned Unclaimed." The Wuksachi Tribal representatives had expressed interest in the HST project in the past, so the Authority's email was intended to confirm whether he is still interested and to ensure that the appropriate contact information for Mr. Woodrow is available.	Informal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Phone and email exchanges between the Authority and the Wuksachi Tribe, Eshom Valley Band.	September 13, 2013	The Authority received a return phone call from the Wuksachi Tribe in response to an email sent on September 10, 2013. The tribal representative indicated they are still interested in the project. The Authority sent an email follow-up to the phone call on September 13, 2013, which included maps, a letter detailing the project's status (which was previously mailed to the Wuksachi Tribe but was returned unclaimed), and a consulting party invitation form for the Wuksachi Tribe to sign if they wish to be a consulting party for the F-B section.	Informal
Email and letter from the Authority to Central Valley Yokuts Tribes (Tule River Tribe, Santa Rosa Tachi Tribe, Table Mountain Rancheria, Picayune Rancheria of Chukchansi).	September 19, 2013	The Authority sent an email to tribes indicating the GIS shape files for the Wye, M-F, and F-B sections have been mailed to each of the tribes. This information was provided as requested by the Santa Rosa Tachi Tribe so that the tribes can begin to identify areas of concern in relation to the HST alignment. The Authority invited the tribes to meet to discuss the maps and resources when the tribes are ready to do so.	Information request
Follow-up email from the Authority to the Wuksachi Tribe, Eshom Valley Band.	September 24, 2013	Follow-up email sent to the Wuksachi Tribe inquiring about whether they received all the documents sent and encouraging the tribe to sign and return the consulting party invitation if they wished to be a consulting party for the F-B section.	Informal
Follow-up phone call and email exchange between the Authority and the Co-Chairperson of the Kern Valley Indian Council.	November 19, 2013	The Authority called representatives of the Kern Valley Indian Council as a follow-up to the consulting party invitation letter that was sent in March for which there was no response from the tribe. The tribe indicated that it is, in fact, interested in being a consulting party. The Authority sent a follow-up email with the consulting party invitation form for the tribe to sign. The tribe promptly signed and returned the form.	Formal

Table 3.17-3
 Tribal Contacts and Consultation

Action	Date	Summary	Type
Email from the Authority to the Co-Chairperson of the Kern Valley Indian Council.	November 20, 2013	The Authority sent an email thanking the Kern Valley Indian Council for signing and returning the form. The email also provided a status of the project and description of upcoming submittals.	Informal
Follow-up email from the Authority to the Wuksachi Tribe, Eshom Valley Band.	November 20, 2013	The Authority sent another follow-up email inquiring about whether the Wuksachi Tribe would like to be a consulting party for the F-B section and to sign and return the consulting-party form if it is still interested in participating in the process. The email also provided an update as to the status of the FOE and the MOA for the F-B section.	Informal
Phone call and email to the Chairperson of the Kitanemuk and Yowlumne Tejon Indians.	November 20, 2013	The Authority called representatives of the Kitanemuk and Yowlumne Tejon Indians as a follow-up to the consulting party invitation letter that was sent in March for which there was no response. The Authority left a voice message for the representatives describing the status of the project and inquiring about whether the tribes would like to be a consulting party for the F-B section. The Authority followed the phone call with an email with an attached copy of the consulting party invitation letter sent to the tribes in March. The tribes were encouraged to sign and return the form if interested.	Informal
APE = Area of Potential Effects FOE = Finding of Effect JV = URS/HMM/Arup Joint Venture MOA = Memorandum of Agreement NAHC = Native American Heritage Commission PA = Section 106 Programmatic Agreement (Authority and FRA 2011a)			

In addition to the formal and informal agency outreach listed in Table 3.17-3, the initial communications with Native American tribes resulted in the following items:

- The NAHC reported that a search of the Sacred Land file had "indicated the presence of Native American cultural resources within a 0.5-mile radius of the project sites (APEs) in the Corcoran and Rio Bravo USGS quadrangle areas." The NAHC used the 0.5-mile radius to identify traditional properties that may exist within the vicinity of the project.
- Of the 53 mailings that the URS/HMM/Arup Joint Venture (JV) sent to Native American entities in October 2009, 4 were returned as undeliverable. An attempt was also made to contact each individual and group by telephone to ensure receipt of the letter and map. The results of the correspondence received and of the telephone conversations are summarized below.
- Written communications in response to the mailings were received from a respondent from the Picayune Rancheria of the Chukchansi Indians and the Chair of the Kawaiisu Tribe of the Tejon Reservation. Recognizing the inherent sensitivity of the study area, the Picayune Rancheria respondent commented that "other tribal entities ... would have a greater expertise concerning the cultural resources," but wished to be informed regarding "potential cultural disturbances, inadvertent discoveries, and the progress of the project." The Kawaiisu Tribe Chair voiced his appreciation for being kept apprised of project progress and requested additional information.
- Written comments were also received from the cultural resources manager of the Dumna Tribal Council. The comments, which described the Dumna Wo-Wah as wishing to participate in the Section 106 process as an interested party, were made in response to a letter that the HRA sent in May 2010 that described the Preliminary Alternatives Analysis.
- The director of the Cultural Department of the Santa Rosa Rancheria voiced concerns regarding the cultural resources in the project APE and indicated a desire to meet with the Authority concerning future monitoring of project activities and the formulation of an agreement to address burials.
- The Authority has continued outreach to non-federally recognized tribes; the Kern Valley Indian Council has responded wishing to be involved as a consulting party to the MOA.
- The federally recognized Native American tribes that have responded affirmatively to be consulting parties to the MOA include the Yokuts tribes (Santa Rosa Tachi Tribe, Table Mountain, Tule River, and Picayune Rancheria of Chukchansi). As planning proceeds, arrangements for additional meetings, correspondence, and phone calls with Native American individuals and groups will be organized by the Authority and FRA.

As mentioned above, the NAHC did not identify any traditional cultural properties that could be affected by the project. The Native Americans contacted by letter have not notified the Authority of any traditional cultural properties or other cultural resources that could be affected by the current project alternatives in this region.

Native American outreach activities are ongoing. Native American tribes will be consulted at each key decision point of the project in accordance with the framework provided in Attachment E of the PA. Tribal entities were notified of the initiation of the Section 106 process in 2009 and were consulted during the preparation of the PA between 2010 and its execution in 2011. Native Americans have also been consulted about the APE and about potentially sensitive cultural and archaeological resources. The Authority and FRA will continue to consult with Native Americans at each key decision point of the Section 106, CEQA, and NEPA processes, and Native American input will be integrated into the project planning process.

Contact with Other Interested and Consulting Parties

Consultation with interested parties has been ongoing throughout this project. The following potentially interested parties were contacted by letter in June 2010, and include area and local government planning departments, historic preservation programs, historical societies, libraries, and museums. As per PA stipulation V.A., these interest groups and interested individuals will be invited to comment on the treatments proposed, and those with demonstrated interest in the project will be invited to participate as consulting parties.

- Fresno City and County Historical Society
- City of Fresno Historic Preservation Program
- Fresno County Landmarks and Records Advisory Commission
- Clovis-Big Dry Creek Historical Society
- Meux Home Museum
- Reedley Historical Society & Museum
- Society for California Archaeology
- Historic Preservation Commission City of Bakersfield
- Kern County Museum
- Beale Memorial Library
- Shafter Depot Museum / Shafter Historical Society
- Delano Historical Society and Heritage Park
- Dust Bowl Historical Foundation
- Southern San Joaquin Valley Information Center
- Kern County Historical Society
- County of Kern, Planning Department
- City of Shafter Planning Department
- Minter Field Air Museum
- Wasco Museum
- City of Wasco Community Development
- Kings County Board of Supervisors
- City of Corcoran Planning Department
- City of Hanford Planning Commission
- Kings County Library
- Tulare County Resource Management Agency
- Tulare County Museum
- Tulare County Historical Society
- Tulare Public Library
- Alta District Historical Society
- Colonel Allensworth State Historic Park
- Board of Sociedad Juárez Mutualista Mexicana (contacted August 2013)

Four responses to the interested parties notification letter have been received to date: Gilbert Gia of the Kern County Historical Society; Bill Secrest, Jr., local history librarian for the Fresno County Public Library; Donna L. Kunz, Bakersfield economic development director; and Karana Hattersley-Drayton, historic preservation project manager for the City of Fresno. The respondents noted existing local resource surveys and specific historic architectural resources that merited consideration, and requested more detailed project mapping.

As required by Section 106, and in response to comments received from interested parties, QIs confirmed that all historic architectural resources noted in the responses were included in the studies conducted for this project and that all local surveys and inventories were consulted. The identification and evaluation of these and all historic architectural resources were presented in the HASR, HPSR, Supplemental HASR, Supplemental HPSR, and Second Supplemental HASR (Authority and FRA 2011d, 2011e, 2012b, 2012c, 2013). Comments regarding the maps were

noted and will be addressed during continuing consultation with interested parties. No additional responses have been received to date.

As detailed above in Table 3.17-2, a subsequent mailing on December 16, 2011, invited those entities contacted to participate as consulting parties during initial resource identification efforts. Letters were also sent on April 15, 2013, and October 22, 2013, to other potential consulting/concurring parties. This process resulted in the identification of additional consulting/concurring parties, including the State of California Department of Parks and Recreation, the City of Shafter, and the City of Corcoran. The Sociedad Juárez Mutualista Mexicana will also be a consulting/concurring party in relation to the Salón Juárez TCP. The following includes a complete listing of the entities who have elected to become consulting/concurring parties to the MOA, to date.

- Advisory Council on Historic Preservation
- California Department of Parks and Recreation
- City of Bakersfield
- City of Corcoran
- City of Fresno
- City of Shafter
- Sociedad Juárez Mutualista Mexicana
- Kern Valley Indian Council
- Picayune Rancheria of Chukchansi
- Santa Rosa Tachi Tribe
- Table Mountain Rancheria
- Tule River Tribe

3.17.3.3 Methods for Evaluating Impacts under NEPA

In considering whether an action may “significantly affect the quality of the human environment,” an agency must consider, among other things, the unique characteristics of the geographic area, such as proximity to historic or cultural resources [40 C.F.R. 1508.27(3)], and the degree to which the action may adversely affect districts, sites, linear features, landscapes, buildings, structures, or objects listed, or eligible for listing, in the NRHP, or may cause loss or destruction of significant scientific, cultural, or historical resources [40 C.F.R. 1508.27]. Cultural resource impact assessment findings presented are consistent with 36 C.F.R. Part 800.5, applying the NHPA Section 106 effects determination criteria of Adverse Effect, No Adverse Effect, or No Effect to historic properties. The same methods used to identify and evaluate historic properties, as described in Section 3.17.3, were similarly applied to all aspects of the cultural environment that are not considered NRHP-eligible properties. Evidence or information that suggested both the existence of and impacts to these resources were incorporated into the analysis.

Pursuant to NEPA regulations (40 C.F.R. 1500-1508), project effects are evaluated based on the criteria of context and intensity. Context means the affected environment in which a proposed project occurs. Intensity refers to the severity of the effect, which is examined in terms of the type, quality, and sensitivity of the resource involved, location and extent of the effect, duration of the effect (short- or long-term), and other consideration of context. Beneficial effects are also considered. When no measurable effect exists, impact is found not to occur. The intensity of adverse effects is the degree or magnitude of a potential adverse effect, described as negligible, moderate, or substantial. Context and intensity are considered together when determining whether an impact is significant under NEPA. Thus, it is possible that a significant adverse effect may still exist when the intensity of the impact is determined to be negligible or even if the impact is beneficial.

Assessments of impacts on paleontological resources are based on the probability that fossils will be encountered during ground disturbance and on the probable scientific importance of the affected fossils. The context for evaluating project impacts on paleontological resources can range from site-specific, for individual finds or concentrations of fossil evidence, to regional, in instances where a fossil-bearing geologic unit is broadly impacted by the project.

An impact of negligible intensity under NEPA includes the damage or destruction of a fossil or fossils that cannot be identified, such as casts and molds of roots and animal burrows, or a fossil or fossils that are out of stratigraphic context. An impact of moderate intensity is the damage or destruction of a fossil or fossils possessing less scientific importance because they are abundant and well collected or because they are poorly preserved. Moderate-intensity impacts also could occur when an impacted sedimentary unit is known to yield only widely dispersed and relatively scarce paleontological material. A project impact of substantial intensity would include the damage or destruction or loss to the scientific community through vandalism or unauthorized collection of a scientifically important fossil or fossils (e.g., vertebrate fossils).

For paleontological resources, adverse impacts are further described in terms of the degree or magnitude where the adverse effect is thus determined to be negligible, moderate, or substantial. It is possible that a significant adverse impact may occur when, on balance, the impact is negligible or even beneficial.

For the purposes of cultural resources, the evaluation of project impacts under NEPA is not the same as the evaluation of project effects under Section 106. The ACHP stated in the preamble of the revised Section 106 regulations (ACHP 2004:49) that the rules contain "no significance or materiality limitations," such as those contained in the NEPA that limit most of that statute's key provisions only to actions that might significantly affect the environment. In contrast, the ACHP Section 106 rules seek to require agencies to examine all effects of any intensity, whether or not the effects are significant. Where there is an alteration of a historic property, any diminishment of any aspect of its historic integrity, however measured and whatever the intensity of the effect, can support a finding of "adverse effect." As a result, any reduction in the intensity of an impact through mitigation would not necessarily reduce an adverse effect to a "no effect." That is, although actions determined to have an adverse effect under Section 106 and 36 C.F.R. 800 may be mitigated, the effect remains adverse. Consequently, because Section 106 exists as the governing process for establishing the criteria for determining an adverse effect on historic properties, as opposed to NEPA, for the purposes of the analysis presented in this chapter of the EIR/EIS, the intensities of a particular impact under NEPA are not discussed; rather, the conclusions based on Section 106 criteria regarding whether an impact will be adverse or not are provided.

3.17.3.4 Methods for Evaluating Impacts under CEQA

Based on CEQA guidelines, the project would result in a significant impact on cultural or paleontological resources if it would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- Disturb any human remains, including those interred outside of formal cemeteries.

State CEQA guidelines use the following definitions to analyze impacts on historical or archaeological resources:

- Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (Section 15064.5[b][1]).
- The significance of a historical resource would be materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that convey its historic significance or justify its inclusion in, or eligibility for, the NRHP, CRHP, or local registers (Section 15064.5[b][2][A–C]).

3.17.4 Affected Environment

This section describes the cultural and paleontological resources within the APE/study area for the Fresno to Bakersfield Section alternatives and those present at the proposed HMF sites.

3.17.4.1 Archaeological Resources

As a result of local geomorphic processes—which have buried or destroyed archaeological sites throughout the region—there are limitations to the understanding of the prehistory of the southern San Joaquin Valley. Despite these limitations, there is a long history of archaeological research that informs current understanding of the prehistory of the region. Research conducted within the southern San Joaquin Valley has resulted in the identification and definition of a number of temporal components, periods, or phases that reflect prehistoric human lifeways and land use patterns. This research has predominately focused on sites situated along the ancient shoreline of Buena Vista Lake (Fredrickson and Grossman 1977; Gifford and Schenck 1926; Hartzell 1992; Riddell 1951; Walker 1947; Wedel 1941) and in the Tulare Basin area (Angel 1966; Hewes 1941; Siefkin 1999).

Recent archaeological research conducted by Hartzell (1992) at sites along the southwestern margin of Buena Vista Lake (Wedel Site #1 and #2; CA-KER-116) and near Buena Vista Slough (CA-KER-180 and CA-KER-1611) has resulted in the refinement of the lakeshore’s chronological sequence as it relates to the Holocene epoch. A similar approach was taken by Siefkin and colleagues (Siefkin et al. 1996) for the neighboring Tulare Basin area. Cumulatively, these studies provide definition of three broad temporal periods for the larger southern San Joaquin Valley area: (1) Early Holocene, (2) Middle Holocene, and (3) Late Holocene. While no single cultural-historical framework currently exists that represents the entire prehistoric record for the Central Valley, this chronological sequence best describes the cultural changes for the purposes of this document. Table 3.17-4 depicts the concordance with the following sequence and other frequently used chronologies for the San Joaquin Valley and the Central Valley as a whole.

Table 3.17-4
 Prehistoric Cultural Periods

Dates	Temporal Period	Cultural Period	Sub-Period
A.D. 500–1850 (Protohistoric, Contact Period, Historic)	Late Holocene	Late Prehistoric	
2,000 B.C.–A.D. 500			Upper
3,000–2,000 B.C.	Middle Holocene	Archaic	Middle
5,000–3,000 B.C.			Lower
10,000–5,000 B.C.	Early Holocene	Paleo-Indian	
Sources: Fredrickson [1983] 1986; Hartzell 1992.			

Early Holocene (12,000 to 7000 B.P.; 10,000 to 5000 B.C.)

The earliest period of human use of the southern San Joaquin Valley dates to approximately 12,000 years ago (10,000 B.C.). During this time, the archaeological record suggests that native peoples lived in camps around lake margins and relied extensively on lake-related resources (i.e., fish, turtle, freshwater mollusks, and waterfowls) and terrestrial mammals.

Populations are considered to have been small, based on the absence of imported items and the use of local resources from within a relatively restricted area centered on the lake marshes and the surrounding plains and foothills. Late Pleistocene/Early Holocene cultural deposits found in the Tulare Lake and Buena Vista Lake basins indicate that forms of large hunting-related tools characterized the assemblage (Hartzell 1992:317–331; Siefkin 1999:50). Also noted with these artifacts were species of extinct megafauna, although direct cultural association has not been proven (Siefkin 1999:49).

Fluted points have yet to be identified at Buena Vista Lake, a factor that Sutton (1996) correlates with the absence of a lake habitat during the early human occupation of the southern San Joaquin Valley. Artifact distribution at Tulare Lake, however, indicates that water levels were lower during the Late Pleistocene, a trend that was likely reflected by Buena Vista Lake (Wallace and Riddell 1988:89). Siefkin (1999:51) considers the modern archaeological emphasis on the upper shorelines a more reasonable answer to the current lack of fluted points and other Paleo-Indian remains at Buena Vista Lake.

Middle Holocene (7000 to 4000 B.P.; 5000 to 2000 B.C.)

Few well-stratified archaeological deposits from the southern San Joaquin Valley date to this period. The paucity of such sites has been attributed to fluctuating lakeshores and the movement of campsites to locations above or below areas that have been previously studied by archaeologists (Hartzell 1992:318; Siefkin 1999:52).

This period is characterized by assemblages that are similar to Windmill Pattern sites in the northern part of the San Joaquin Valley, including extended burials without funerary objects, Pinto projectile points, and charmstones; however, some local deposits more closely resemble the Oak Grove and other millingstone complexes of southern California, with millingstones, handstones, and flake scrapers (e.g., Gerow 1974; Gifford and Schenck 1926; Hartzell 1992; Siefkin 1999; Wallace 1954:120–121). While conclusions are tenuous based on the very limited assemblages for this time, this may suggest cultural affiliation with the northern parts of the Central Valley (Windmill) as well as southern California and the coast (Oak Grove).

From archaeological evidence, it appears that year-round acquisition of fauna occurred at lakeshore sites, and many logistical bases were set up along lakeshores. Rises above the lakes were likely used by hunting parties to retool weaponry and/or process game (Hartzell 1992:320).

Late Holocene (4000 B.P. to 150 B.P.; 2000 B.C. to A.D. 1850)

In contrast to earlier periods, the archaeological record of the Late Holocene period is significantly more complex. During the Late Holocene period, with the lowering of water levels and greater alkalinity in the area lakes (resulting in less abundant and reliable resources), a residential mobility pattern of land use began. This strategy involved more frequent moves, where an entire population or group traveled to resource areas.

Notable technological changes include the introduction of the hopper mortar, changes in *Olivella* shell bead forms, and the use of asphaltum in small quantities (Fredrickson [1983] 1986; Hartzell 1992:326). Also introduced into the tool kit were Cottonwood series projectile points, bi-pointed bone objects used as fish hooks, steatite H-shaped line holders manufactured from soapstone,

and tule-covered clay ball net weights. Late-Holocene–period sites often contain freshwater mussels, turtle remains, ground stone, and marine shell beads (Peak and Associates 1991), and they are generally found on knolls between ephemeral drainages (Hartzell 1992:328; Moratto 1984:189). Mortuary patterns included flexed or semi-flexed burials, somewhat similar to the Late Horizon of the Central Valley sequence.

The protohistoric period of the Late Holocene, dating from roughly 500 B.P. (A.D. 1500) to the ethnographic period, is represented by a diversified artifact assemblage. Common implements included baked clay objects, triangular projectile points, elaborate bone work, bowl hopper mortars, *Olivella* disk beads, *Haliotis* beads and ornaments, clamshell disk beads, and small steatite pendants and carvings (Fredrickson [1983] 1986).

3.17.4.2 Historic Archaeological Resources

Historic archaeological sites in California are places where human activities were carried out during the historic period, generally defined as beginning with contact in the mid-eighteenth century and ending approximately 50 years ago. Some of these are of Native American origin during the historic period, but most are the result of Spanish, Mexican, Asian, African-American, or Anglo-American activities. Most historic archaeological sites are domestic sites, places where houses formerly stood, and they tend to contain the types of household goods reflecting the economic standing and ethnic identity of their occupants. Remains of ceramic, metal, and glass containers and dishes are most common, together with remains of the materials used in house construction—nails, brick, plate glass. Historical archaeological sites can also be nonresidential, resulting from ranching, farming, mining, transportation, and other commercial and industrial activities. Some historical sites, like the Stoil town site (CA-TUL-2950H/P-54-4737), represent a confluence of human activities, including industrial, transportation, and residential. Human burials dating to the historic period may also be considered archaeological resources.

Ethnographic Setting

The present-day southern San Joaquin Valley is in the homeland of the Southern Valley Yokuts (Wallace 1978:448, 449), a geographic division of the much larger Yokuts linguistic group, who occupied the entire San Joaquin Valley and adjoining Sierra Nevada foothills (Kroeber 1907, 1925, 1963; Latta 1977; Newman 1944). Yokutsan is one of four Penutian linguistic stocks, which included Costanoan (Ohlonean), Miwok (Utian), Wintu, Nomlaki, and Patwin (Wintuan), and the Maidu, Nisenan, and Koncow (Maiduan) (Shiple 1978).

In contrast to the typical California cultural grouping known as the tribelet, the Yokuts were organized into “true tribes,” in that each had “a name, a dialect, and a territory” (Heizer and Whipple 1971:370). Kroeber (Kroeber 1925:474) estimated that as many as 50 Yokuts tribes may have originally existed, but that only 40 were “sufficiently known to be locatable” at the time of his survey. Each tribe inhabited an area averaging “perhaps 300 square miles,” (777 square kilometers) or about the distance one could walk in any direction in half a day from the center of the territory. Some Yokuts tribes only inhabited a single village, while others occupied several (Kroeber 1925:474–475).

The Southern Valley Yokuts territory was centered near the basins of Tulare, Buena Vista, and Kern lakes, their connecting sloughs, and the lower portions of Kings, Kaweah, Tule, and Kern rivers. Sixteen subgroups, each speaking a different dialect of the Yokut language, made up the Southern Valley Yokuts, and included the Apyachi, Choynok, Chuxoxi, Chunut, Hewchi, Hometwoli, Hoyima, Koyeti, Nutunutu, Pitkachi, Tachi, Telamni, Tulamni, Yawelmani, Wowol, and Wechihit. Three of the groups—the Tachi, Chunut, and Wowol—claimed the shores of Tulare Lake, while the Nutunutu inhabited the swampy area north of Tulare Lake, south of Kings River. The Wimilchi, Wechihit, and Apyachi occupied the area to the north of Kings River; the Apyachi

lived near the river's outlet on the western side of the valley, and the Wimilchi and Wechihit lived to the east. The Choynok occupied an area east of Tulare Lake in the Kaweah River Delta, southwest of the Telamni and Choynok groups. The Koyeti's territory was in the swampy sloughs of the Tule River. The Tulamni occupied Buena Vista Lake, while the Chuxoxi lived in the channels and sloughs of the Kern River Delta. The Hometwoli occupied the area surrounding Kern Lake, while the Kawelmani lived to the northeast near Kern River and Poso Creek (Wallace 1978:449).

Subsistence strategies focused on fishing, hunting waterfowl, and collecting shellfish, seeds, and roots. Fish species commonly hunted included lake trout, chubs, perch, steelhead, salmon, and sturgeon. Waterfowl were mainly caught in snares and nets. Plant foods played a key part in the Yokuts diet; the most important resource was tule, whose roots and seeds were eaten. Other plant foods included various species of grasses, clover, fiddleneck, and alfilaria. Acorns were not readily available, and groups often journeyed into foothill zones to trade for the nut (Wallace 1978:450).

Southern Valley Yokuts generally placed their settlements on top of low mounds near major watercourses, and constructed two types of permanent residences. The first was an oval, single-family dwelling with wooden framing covered by tule mats. The second type was a long, steep-roofed communal residence that housed at least 10 families. Other structures included granaries and a communally owned sweathouse (Wallace 1978:450, 451).

Southern Valley Yokuts relied heavily on tule reeds for making woven baskets and mats. Basketry tools, such as awls, were manufactured from bone (Wallace 1978:451, 452). Flaked stone implements included projectile points, bifacial and unifacial tools, and edge-modified pieces. Ground stone tools consisted of mortars, pestles, handstones, and millingstones.

Of particular relevance to the Bakersfield area was the Yowlumne tribe, a subset of the Yokuts, who occupied a number of village locations throughout the southern San Joaquin Valley. The Yowlumne tribe reportedly occupied the village of "Woilo at the site of the town of Bakersfield" (Kroeber 1925: 482). According to Latta (1977), the location of Woilo was reported to be on a knoll between present-day 16th and F streets and Mercy Hospital at 16th and C streets. This former village site is further discussed in the following subsection.

Archaeological Resources in the APE

Prehistoric Sites

As discussed in Section 3.17.3, the records of all recorded sites within a 0.25-mile radius of the APE were obtained from the SSJVIC. Based on this archival review and research, 23 previously recorded prehistoric archaeological sites are within 0.25 mile of the archaeological APE. Of these, two sites, CA-KER-2507 and CA-TUL-473, were previously identified within the archaeological APE. CA-KER-2507, recorded in 1989, was identified as a village site with willow huts based on written accounts from the 1890s, before railroad construction (Ptomey and Wear 1989). However, based on the original site record, this site was destroyed by the construction of the Santa Fe Railroad, and no evidence of the site currently exists. CA-TUL-473/P-54-473 (Davis and Cursi 1977) is described as a "sparse scatter of lithic debitage [i.e., sharp-edged waste material left over when someone creates a stone tool] and artifacts spread over a plowed field." Given the proximity of this site to Tulare Lake and the degree of agricultural activity over the past century at this location, CA-TUL-473 was probably a large site that has been disturbed, with the material redistributed over an even larger area than the original site boundaries.

To provide a background of the types of archaeological sites that occur in the area, a few examples of the sites identified, all within 0.25 mile of the project or its vicinity, are discussed below.

One site, CA-KIN-88/P-16-212, which is about 4 miles north of Corcoran, is situated along the paleo-shoreline of Tulare Lake. CA-KIN-88/P-16-212, which was originally recorded in 2000 and tested in 2003 (Fogerty and Calicher 2003), was described as a surface concentration of lithics and shellfish fragments. The distribution of lithics and shell covered an area of 136,000 square feet. The extent and concentrations of shells with a surface scatter of lithic debitage suggest that this site functioned as a seasonal resources procurement activity area. The flaked stone debitage included obsidian, which suggests the manufacture or resharpening of nonlocal materials because obsidian is not locally available.

Although CA-TUL-1613, or the Creighton Ranch site, is located about 1 mile east of the APE, it merits discussion because the dataset gathered from this site emphasizes the significance of the marshy margins of Lake Tulare to prehistoric inhabitants, and shows the potential for prehistoric sites in that area. Dillon excavated this site in 1989 (Dillon 2000; Porcasi 2000). The contents of the site revealed large quantities of lake fish, freshwater clam, and turtle as well as large and small mammals. The data obtained at this site suggest that the occupants shifted their subsistence patterns relative to ecological changes.

The Creighton Ranch site is 5 miles due west of CA-TUL-90 (which was a cemetery mound site excavated and reported by Warren and McKusick [1959]) and 20 miles northwest of CA-KER-74, another burial site (Riddell 1951). The Creighton Ranch site, which dates to 1700 B.P., was contemporaneous with these two sites (Dillon 2000). The large quantities of living refuse and organic remains at TUL-1613 indicate the focus of the activities was food procurement and preparation rather than the habitation-related material identified at the two sites to the west, TUL-90 and KER-74. The APE is located between these two types of sites (food procurement/processing and habitation/burial), suggesting potential sensitivity for multiple archaeological site types in the portion of the APE near Tulare Lake. Clearly the shoreline zone of Tulare Lake was heavily used, in large part because of the ease of access to abundant and unique lacustrine (lake-related) resources in an otherwise semi-arid ecological setting.

Historic Archaeological Sites

Five previously recorded historic archaeological sites are within 0.25 mile of the archaeological APE (one of which is within the archaeological APE) and are listed in Table 3.17-5. The National Register eligibility of these sites was not determined by the recorders.

Table 3.17-5
 Previously Recorded or Known Historic Archaeological Sites
 Within 0.25 Mile of the Archaeological APE

State Site Identifier (P#)	Resource Name (assigned by recorder)	Period	Description
N/A	Fresno Chinatown	Historic	19th century brick basements; household domestic artifacts
15-3029	Original Rosedale town center (CA-KER-3029H)	Historic	The site is a flat, open field designated as the original Rosedale town site.
15-9016	Centennial Garden (CA-KER-5614H)	Historic	Historic trash pits associated with houses on the property, dating from 1890–1940.
54-4346	LSA-DEL-430-S-1 (CA-TUL-2650H)	Historic	Structural remains and refuse of a possible home site, dating from 1914–1945.
54-4347	LSA-DEL-430-S-2 (CA-KER-2651H)	Historic	Dense refuse deposit, dating from 1914–1945.

Table 3.17-5
 Previously Recorded or Known Historic Archaeological Sites
 Within 0.25 Mile of the Archaeological APE

State Site Identifier (P#)	Resource Name (assigned by recorder)	Period	Description
54-4737	Stoil Site (CA-TUL-2950H)	Historic	Standard Oil Company pumping and rail station; historic refuse dating to 1910s.
APE = Area of Potential Effects			

Two previously recorded archaeological sites are within the APE. CA-TUL-2950H/P-54-4737 is the former location of Stoil, a Standard Oil Company pumping/rail station (Orfila 2010). Levees have been constructed around the perimeter of the site, and it is periodically used as a water retention basin by the Alpaugh Irrigation District. P-54-68 is a sparse historic trash scatter along a roadside.

Field surveys were conducted for historic archaeological resources in the same manner as for prehistoric archaeological sites.

In addition to the above previously recorded resources, residents have reported the existence of "extensive underground tunnels and block-long basements that run the entire length and depth of Chinatown" on both sides of the railroad tracks (CRI 2011). The website of the City of Fresno's Planning and Development Department indicates that an investigation of the Chinatown tunnels was conducted using ground-penetrating radar (GPR) in 2008, and the results were reported in the Fresno Chinatown Project Extended Phase I Study (J & R Environmental Services 2007) and a neighborhood survey of Chinatown called the "Chinatown Historic Resources Survey" (Architectural Resources Group 2006; City of Fresno 2012).

In November 2011, a request to the SSJVIC was issued to determine whether any formal reports on the tunnels in Fresno had been submitted; SSJVIC staff did not identify any submitted information regarding Fresno's Chinatown.

Sanborn fire insurance maps for Fresno's Chinatown were reviewed for any evidence of tunnels or underground anomalies. The Sanborn maps were created for the City of Fresno for the years 1885, 1888, 1898, 1906, 1918, 1948, and 1950. The only evidence of a tunnel in any of the maps reviewed is associated with the Pacific Coast Seeded Raisin Company, which shows a "tunnel for raisin conveyer under street to Plant No. 5" from Plant No. 6 that crossed Tulare Street north of G Street (Sanborn 1918: Sheet 62).

The Authority and the JV contacted the City of Fresno's Planning and Development Department about the alleged tunnels in Chinatown and the reports mentioned on the website. In response, the City of Fresno provided a letter-report prepared by J & R Environmental Services (2007) that summarizes the preliminary findings. A copy of the Chinatown Historic Resources Survey was also obtained from the website of the City of Fresno.

The Chinatown Historic Resources Survey encompassed the blocks bounded by Mariposa, Inyo, E, and G streets (Architectural Resources Group 2006). The survey was undertaken to develop an accurate inventory of the existing historic resources for management purposes, because the area has been "particularly impacted by demolition and redevelopment projects" (Architectural Resources Group 2006:2). Research for the project was extensive; however, the investigation

produced “no evidence...to substantiate the existence of tunnels” in Fresno’s Chinatown (Architectural Resources Group 2006:58).

The letter report summarizing the preliminary results of the GPR investigations did not substantiate the presence of tunnels in Fresno’s Chinatown (Hattersley-Drayton 2012). Although the GPR survey showed underground anomalies in various locations, archaeological investigations of these anomalies showed no true tunnels or doorways suggesting tunnels (Hattersley-Drayton 2012). Instead, the anomalies were expansive, partitioned basements (such as those at F Street and Kern Street) or appeared to be the 4- to 10-inch water pipe running the length of China Alley, as depicted on various Sanborn maps (for example, Sanborn 1906: Sheet 26; 1918: Sheet 62). The results appear to have been characterized as “inconclusive” because J & R Environmental Services was not able to access the anomalies on China Alley encountered during the GPR survey to confirm that they are remnant water pipes (Hattersley-Drayton 2012). Nevertheless, the evidence suggests that no tunnels are present.

Additional study in the Chinatown area of Fresno was conducted in October 2013 by the archaeological team working on the Merced-Fresno Section. Archaeological investigations included mechanical trenching to remove the modern deposits to reach the historic surface, as well as hand excavation once an intact feature was encountered. Several intact archaeological features were identified during investigations including, intact building foundations and archaeological deposits.

1535 Fresno Street

At 1535 Fresno Street (Wildcat Enterprises), an intact brick foundation and staircase leading to a subterranean basement/cellar was discovered. A discrete archaeological deposit that included household and personal artifacts was identified within the stairway feature. Artifacts included porcelain doll parts, a union pin, bottle fragments, sea shells, buttons, Chinese ceramic fragments, and miscellaneous household items.

China Alley

At the northeast corner of China Alley and Tulare (Quan Property), the complete remains of the 19th century brick basements and foundations, representing at least three buildings, were discovered deeply buried at this location. The brick basement walls, footings, and concrete floors of the 19th century buildings were uncovered and documented during the investigations at depths ranging from 3 feet to 8 feet below the modern surface. A complete fireplace feature constructed within a basement wall was also discovered. Historic artifacts were identified associated within these basements.

Archival research and artifact analysis is currently in progress and significance assessments for the archaeological features are not yet available. The identification of subsurface archaeological features within downtown Fresno confirms the initial assessment within the Merced to Fresno Archaeological Treatment Plan Addendum (Authority and FRA 2013x) that the downtown Fresno area is sensitive for buried archaeological features and that future assessments will be necessary to determine the eligibility of these resources for listing in the NRHP or the CRHR. Work outlined in the treatment plan addendum is currently ongoing and is scheduled to be completed in mid-2014.

Field Surveys: Results

Two prehistoric archaeological sites (HST-A-TUL-1 and HST-A-TUL-3) were identified and one historic archaeological site (CA-TUL-2950H) was re-identified within the APE during the spring 2010 pedestrian survey, and one historic archaeological site (HW-JR-1) was identified within the APE during the winter 2011 survey (see Table 3.17-6). The sites are described in detail below.

The two prehistoric sites, HST-A-TUL-1 and HST-A-TUL-3, intersect with the BNSF Alternative. The one historic archaeological site, HW-JR-1, intersects with the Hanford West Bypass 1 and 2 alternatives. The previously recorded and re-identified historic archaeological site, CA-TUL-2950H/P-54-4737, intersects with the Allensworth Bypass Alternative. As discussed above, the areas surrounding Corcoran and Allensworth were in prehistoric times highly attractive locales given their proximity to the Tulare Lake shoreline.

A large number of isolated artifacts, which are defined by the PA (Attachment D), as finds consisting of fewer than three items per 100 square meters (1,076 square feet), were identified during the surveys. Although isolates are exempt from evaluation (see Attachment D of the PA for the California HST System [Authority and FRA 2011a]), these types of deposits are also not considered historical resources or unique archaeological resources under the CEQA Guidelines. The location and nature of the isolates encountered on the surface during the pedestrian survey may be noteworthy with regard to the prehistoric occupation sequence in the Central Valley. Although the original context of the isolates has changed, their overall distribution at a landscape level may provide information about settlement patterns in the Central Valley in general and in the South San Joaquin Valley in particular.

The following sections describe the nature of both newly and previously recorded archaeological sites within the APE as well as the determinations of eligibility for listing according to the NRHP and the CRHR criteria. For additional site details and information, see the *California High-Speed Train Fresno to Bakersfield ASR* (Authority and FRA 2011c) and the *California High-Speed Train Fresno to Bakersfield Supplemental ASR* (Authority and FRA 2012a).

Table 3.17-6 summarizes the identified archaeological resources within the APE, by alternative.

Table 3.17-6
 Archaeological Resources within the APE

Resources	Description	National Register Eligibility	SHPO Concurrence Response	Alternatives						
				BNSF	Hanford West Bypass ^a	Corcoran Bypass ^b	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
Newly Recorded Resources										
HST-A-TUL-1	Prehistoric deposit	Determined Ineligible	Concurred 02/06/2012	X	—	—	—	—	—	—
HST-A-TUL-3	Prehistoric deposit	Determined Ineligible	Concurred 02/06/2012	X	—	—	—	—	—	—
HW-JR-1	Historic foundations	Determined Ineligible	Concurred 04/02/2012	—	X	—	—	—	—	—
Previously Recorded Resources										
CA-TUL-2950H/ P-54-4737 (Stoil Site)	Historic settlement	Determined Ineligible	Concurred 02/06/2012	—	—	—	X	—	—	—

Table 3.17-6
 Archaeological Resources within the APE

Resources	Description	National Register Eligibility	SHPO Concurrence Response	Alternatives						
				BNSF	Hanford West Bypass ^a	Corcoran Bypass ^b	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
CA-TUL-473	Prehistoric deposit	Not Determined ^c	Additional information requested; resubmittal of findings pending access 04/02/2013	—	—	—	X	—	—	—
P-54-68	Historic deposit	Not Determined	Additional information requested; resubmittal of findings pending 04/02/2013	X	—	—	—	—	—	—
CA-KER-2507	Prehistoric deposit	Not Determined ^c	Additional information requested; data gathering pending 02/06/2012	—	—	—	—	—	X	—

^a All references to the Hanford West Bypass in this section refer to the combined footprints of all four Hanford West Bypass options. See Chapter 2 for a discussion of the individual alternatives.
^b Includes the Corcoran Elevated Alternative.
^c PTE not obtained at time of survey; original site records indicate these resources are severely disturbed or destroyed (see text below).
 Acronyms:
 APE = Area of Potential Effects
 BNSF = BNSF Railway
 PA = Section 106 Programmatic Agreement (Authority and FRA 2011a)
 — = no known resources present

HST-A-TUL-1 (BNSF Alternative)

This resource is a sparse lithic scatter composed primarily of chert,⁵ with a small percentage of obsidian.⁶ During initial field recording, eight pieces of debitage were identified (six of these were chert and two were obsidian). Flakes were dominantly tertiary or thinning flakes, suggesting late-stage tool manufacture, with one larger secondary chert flake and one piece of chert shatter. In

⁵ Chert refers to a cryptocrystalline form of quartz used for the manufacture of stone tools.

⁶ Obsidian refers to a jet black to gray to brown naturally occurring volcanic glass formed by rapid cooling of viscous lava.

addition to the flakes, one tool (Artifact-1), a large chert stemmed projectile point⁷ base modified into a knife, was observed.

The site was located along a dirt agricultural access road that parallels the BNSF railroad tracks, over a length of approximately 246 feet by approximately 33 feet (the width of the road). The field adjacent to the west was planted in wheat and the visibility was poor; thus, it was unknown whether the site may extend into the agricultural field. During reconnaissance surveys another site, HST-A-TUL-2, was recorded in another dirt road on the western side of the same field (approximately 492 feet to the west). HST-A-TUL-2 consisted of 12 chert flakes in a dirt agricultural road. Given the poor surface visibility in the field, it was considered possible that HST-A-TUL-1 and HST-A-TUL-2 may be two components of a single site, or alternatively, both sites may be the result of redeposition during grading of the roads.

Execution of a presence/absence testing program consisted of 12 STUs excavated at HST-A-TUL-1 to depths of 60 to 80 cm and at least two sterile levels. Cultural materials were recovered from seven of these units, with no increase in artifact density or type as compared with the surface constituents. Substantial ground disturbance from agricultural activities was noted in all units to depths of 40 to 60 cm. In addition, 21 STUs were excavated at HST-A-TUL-2 using the same methodology. Cultural materials were recovered from 11 of these units with similar results to HST-A-TUL-1. In addition to the STUs, two backhoe trenches were excavated on the site to a depth of approximately 4 meters below surface. No artifacts, cultural features, or potentially culturally sensitive paleosols were identified in the trenches. Because flakes were found in the field separating HST-A-TUL-1 and HST-A-TUL-2, the two sites that were initially recorded separately during reconnaissance surveys have been combined into a single site: HST-A-TUL-1.

HST-A-TUL-1 was determined ineligible for listing on the NRHP due to a lack of integrity and lack of potential to yield information important in prehistory. Extensive long-term agricultural activity, including disking and plowing, has caused substantial ground disturbance that precludes the site's potential to yield data relevant to the site's occupation. The SHPO concurred with this finding (Letter correspondence, Milford Wayne Donaldson, February 6, 2012).

HST-A-TUL-3 (BNSF Alternative)

This resource consists of a sparse lithic scatter composed primarily of chert and obsidian debitage. In total, 63 chert flakes, 29 obsidian flakes, 3 basalt flakes, 1 chert projectile point tip, 3 chert biface fragments, 3 obsidian biface fragments, 1 *Olivella* "wall" bead, and 1 stone (heat-treated chalcedony) bead were identified over an area of approximately 107,639 square feet. Given the predominance of small late-stage chert and obsidian flakes, the site appears to be focused on lithic tool production, particularly biface manufacture/reduction. The absence of larger primary flakes and the minimal presence of cores and secondary flakes indicate that raw-material procurement and initial reduction occurred elsewhere before transport to this site.

The cultural constituents of HST-A-TUL-3 were found almost exclusively in numerous dirt agricultural access roads along the eastern and southern edges of a planted wheat field and between two smaller fallow parcels south of the wheat field. Although ground surface visibility was generally poor in the wheat field, large portions of the field adjacent to the roads had good ground visibility (80% or better), and no cultural deposits were observed there. Siltation in the field from multiple periods of irrigation and evaporation may partially explain the lack of visible artifacts in bare portions of the field. Also, artifacts may have been displaced to the road from a more central location as a result of transport by vehicle tires and grading.

⁷ Projectile point refers to an arrowhead, atlatl, or spear point, typically made of stone and used in hunting activities.

The only diagnostic artifacts identified are the *Olivella* and stone bead, although temporal associations of these artifacts in the Tulare Lake region are not well-established. In addition to the cultural constituents, three non-human fossilized bone fragments (flange, cranial, and long bone) were identified on the surface of the site.

Execution of an XPI testing program consisted of three STUs excavated within the APE at HST-A-TUL-3 to depths of 20 to 32 inches to two sterile levels. A single flake was recovered from one unit; substantial ground disturbance was noted in all units to depths of 20 inches. In addition to the STUs, three backhoe trenches were excavated across the site to depths of approximately 13 feet. No artifacts, cultural features, or potentially culturally sensitive paleosols were identified in the trenches.

HST-A-TUL-3 is not eligible for listing on the NRHP due to a lack of integrity. Extensive long-term agricultural activity, including disking and plowing, has caused substantial ground disturbance that prevents the addressing of important research questions relevant to the site's occupation. Consequently, the site is not considered a significant resource for the purposes of CEQA; nor does it qualify as a historic property under Section 106. The SHPO concurred with this finding (Letter correspondence, Milford Wayne Donaldson, February 6, 2012).

HW-JR-1 (Hanford West Bypass 1 and 2 Alternatives)

This resource consists of an unreinforced-concrete, raised perimeter foundation (stem wall) with several associated structural features and sparse domestic and agricultural artifacts. The primary foundation is made of poor-quality aggregate and cement, and measures 28 feet (north/south) by 37.5 feet (east/west), with approximately 9 inches exposed above the ground surface. No foundation bolts are present, and only a small section of 2- by 4-inch mudsill is present, with 16 penny wire-cut nails. Along the western edge of the foundation are two low, finished concrete steps that indicate the entrance to the structure. Also present is a sash weight that indicates the structure had double-hung wood windows. In the northeast corner of the interior space of the structure is a concrete-lined depression measuring 11 feet square and at least 4 feet deep. This may represent a cellar or tank. At the back (east) of the structure is a small, raised brick pad (measuring 7 feet square) and a well/water pump. One olive, one persimmon, and one orange tree are adjacent to the structural remnants. Few diagnostic artifacts are located in the vicinity of the structural remains, but these include bed springs, casters, and other domestic debris. A building is shown on the location of the site on the 1926 and 1954 Hanford 7.5-minute quadrangle maps. Given the lack of discrete artifact concentrations and a lack of association with significant persons or events, the site is not eligible for the NRHP/CRHR. The site is not a significant resource for the purposes of CEQA, and it does not qualify as a historic property under Section 106. The SHPO concurred with this finding (Letter correspondence, Carol Roland-Nawi, April 2, 2013).

CA-TUL-2950H/P-54-4737 (Allensworth Bypass Alternative)

CA-TUL-2950H/P-54-4737 is the former location of Stoil, a Standard Oil Company pumping/station train depot (Orfila 2010).

This site consists of a sparse, widely dispersed scatter of historic-era (late nineteenth- and early twentieth-century) domestic debris along and in a seasonal wetland/detention pond owned by the Alpaugh Irrigation District. The site is adjacent to the eastern side of the BNSF tracks.

During the field survey, URS re-identified CA-TUL-2950H/P-54-4737 and observed surface artifacts and features that appear to represent the remnants of a domestic occupation; the debris is characterized by concrete and brick structural elements and ceramic sewer pipe. Domestic artifacts include whiteware (5), soda and condiment bottle glass (7), broken, unmarked red bricks (13), glazed redware sewer pipe fragments (15) concrete fragments (11), solarized glass

(3), a milk glass fragment (1), a metal chair frame (1), butchered bone (3), and clamshell (1). Smaller artifacts are concentrated along the shoreline of the detention pond. Portions of a remnant concrete road or driveway are visible on the surface of the site. The road is lined with old, mature palm trees. Aside from the concrete-paved road or driveway, no intact features were identified, and none of the observed artifacts appear to be associated with distinct features.

The area has been modified to create a retention basin and conveyance channels. Ground surface visibility was poor because of dense vegetation, siltation, and erosion throughout the detention pond. Documentary evidence suggests that Stoil was sporadically used and occupied and that the site failed to survive in the face of economic and industrial developments in the first half of the twentieth century. Multispectral single-aperture radar aerial imagery depicts grading disturbance throughout the site, which is confirmed further by the observation of artifacts dating to Stoil's occupation period in the sidewalls of the retention basin levees. As mentioned above, the site was identified by Orfila (2010), who concluded that the area that represented Stoil did not possess sufficient data potential to qualify as a historical resource under CEQA. The County of Tulare prepared a Mitigated Negative Declaration that used this conclusion to support a less-than-significant impact finding associated with a proposed solar power project. In summary, extensive modification by the Alpaugh Irrigation District and the location's current usage as a water retention basin have compromised the integrity of the ephemerally occupied CA-TUL-2950H/P-54-4737; therefore, this site is not a significant resource for the purposes of CEQA, and it does not qualify as a historic property under Section 106. The SHPO concurred with this finding (Letter correspondence, Milford Wayne Donaldson, February 6, 2012).

P-54-68 (Hanford West Bypass 1 and 2 Alternatives)

This site was recorded as a ditch and a sparse scatter of historic-era refuse that had no clear associations with important research questions or individuals of importance in California history. The recorder indicated that the site was not a significant site. Therefore, this site is not considered a historical property under Section 106 or a historical resource under CEQA. Comments received from SHPO in April 2013 requested further research on this property in order to adequately address its historic significance, specifically the ditch identified and whether there is evidence of any larger associations with important water conveyances in the area. Research on the ditch, including an examination of aerial photographs dating to 1961 and topographic maps dating to 1954, revealed that the site area was occupied by an orchard in 1972 and the ditch did not exist at that time. Aerial photographs from 1980 depict the area under construction and the ditch in place. Therefore it can be surmised that the ditch was constructed sometime between 1972 and 1980; it is likely that it was built towards the latter end of that period in conjunction with commercial development of the acreage. As a result, the ditch is less than 50 years old and, therefore, is exempt from evaluation for National Register of Historic Places eligibility per Appendix D of the California High Speed Train Programmatic Agreement. The ditch is also not considered an historical resource under CEQA.

CA-TUL-473 (Allensworth Bypass Alternative)

This site was recorded by Davis and Cursi (Davis and Cursi 1977); it is described as a "sparse scatter of lithic debitage and artifacts spread over a plowed field." Given the proximity of this site to Tulare Lake, it was probably a large site that has been disturbed and re-deposited over a large area. Due to the amount of re-deposition or spreading the site has experienced, no intact or discrete deposit at this location is currently recorded. The site area is currently the location of bermed holding ponds that are flooded as part of Alpaugh Irrigation District activities, and the resource therefore considered destroyed. As such, this site is not considered a significant resource for the purposes of CEQA, and the initial assessment is that it does not qualify as a historic property under Section 106. However, upon submitting this conclusion to the SHPO, the SHPO responded that not enough information is available to determine whether the site is eligible

for the NRHP, or hence the CRHR, until additional testing is conducted at the site. As a result, and as part of the overall Section 106 responsibilities directed by the PA, and the MOA, additional surveys and potential testing will take place at the location of CA-TUL-473 and vicinity. As mentioned, the general vicinity of the site is located in a sensitive archaeological region given the proximity to Tulare Lake and the abundant resources the lake likely provided in prehistory. Once more data are available, a more comprehensive evaluation of the site's integrity and importance will be determined as described below under the mitigation measures.

CA-KER-2507 (Bakersfield South)

This site was known anecdotally to have existed in the BNSF railroad yard in Bakersfield and, as stated in the site record (Ptomey and Wear 1989) and in Latta's (1977) definitive ethnography of the Yokuts, the site was destroyed by the construction of the railroad. As discussed in Section 3.17.4.2, the site was originally identified in historic accounts as a "small group of shelters" located on a "sandy hill." This hill was leveled for the construction of the Santa Fe Railroad in the 1890s, thus destroying all evidence of the site, the location of which has been associated with the village of *Woilu* (Latta 1949:46–47). Access to the area was restricted; it is an actively used switchyard of the BNSF. Consequently, the area was not surveyed for this project. The area is also covered with gravel and/or pavement. However, as part of the planning for the now defunct Amtrak station at this location, a series of 21 trenches and 20 auger testing sites were performed by Chase (1994) to determine if subsurface components exist related to CA-KER-2507 or *Woilu*. The subsurface testing was conducted in a 6-acre area just south of 16th Street between D Street and Pine Street. The entire testing program did not identify any archaeological deposits to depths of 5 feet.

Although documentary evidence suggests that the site existed on a hill that was completely leveled and destroyed, the area is on the actively accreting fan of the Kern River and is considered to have high geoarchaeological sensitivity (Authority and FRA 2012a). As such, construction in this area has the potential to disturb previously unrecorded subsurface archaeological deposits.

Given both the previously reported destruction of the site and the results of the subsequent subsurface testing, this site is thought to no longer exist. However, the SHPO concluded that not enough information is available to determine whether the site is eligible for the NRHP, or hence the CRHR, until additional testing is conducted at the site. This work will be conducted when legal access to the parcel is obtained as outlined below under mitigation measures (Cul-MM#5).

3.17.4.3 Historic Architectural Resources

Historic properties and historical resources are elements of the built environment that are listed in, or eligible for, the NRHP or CRHR, or are considered historical resources for the purposes of CEQA. These elements reflect important aspects of local, state, or national history and can be buildings, structures, objects, sites, districts, or landscapes. Examples of the types of historic properties or historical resources of the built environment within the APE include dwellings, industrial buildings, commercial buildings, downtown districts, farms, canals, rural landscapes, dams, bridges, roads, and other facilities.

The NRHP uses the National Register eligibility criteria (36 C.F.R. 60.4) to evaluate significance, described in 3.17.2, Laws, Regulations, and Orders. In addition to being significant under one or more of the criteria, a historic property must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Context of Historic Architectural Resources

The historic architectural resources inventoried and evaluated for this project reflect the major historical events and trends of development within the study corridor, which stretches from downtown Fresno through rural Kings and Tulare counties and terminates in unincorporated Kern County, east of the city of Bakersfield. The typical historic architectural property types date from the latter part of the nineteenth century through the mid-twentieth century. Although the historic period began with a series of expeditions by Martín, Moraga, Dezalvidea, Ortega, Palomares, and others, who entered and explored parts of the northern San Joaquin Valley during the Spanish Period (1769 to 1822), none of the historic architectural resources within the APE for this project are associated with these early explorations or with the earliest immigrants who settled in this interior valley during either the Spanish or the Mexican Period (1822 to 1848). The routes of explorations and trails between early settlements formed some of the basis for future transportation routes, but did not leave extant built-environment resources in the APE.

The combination of vast expanses of irrigable land and a mild climate greatly influenced land use and development patterns in the southern San Joaquin Valley. This setting attracted pioneering irrigation and railroad systems that proved to be two major factors that drove development of the built environment in the Fresno to Bakersfield Corridor, an area that was otherwise sparsely inhabited during the historic era prior to California statehood. The Gold Rush also stimulated economic development and settlement, and it was the combined influence of irrigated agriculture (developed as early as the 1850s in the San Joaquin Valley), and the arrival of the first railroad in the 1870s that profoundly reshaped the existing, largely unpopulated valley. Subsequent events and trends beginning at the turn of the twentieth century—such as the rise of oil production in Kern County, federal-state water development projects in the Central Valley, and widespread adoption of the automobile and ensuing highway construction—amplified and extended the late-nineteenth-century built environment already existing in the Fresno to Bakersfield Corridor (Authority and FRA 2012b, 2012c).

The construction of the buildings, structures, and other property types of the built environment is related to these general historical patterns of development in the four counties along the Fresno to Bakersfield Corridor and intersected by the APE: Fresno, Kings, Tulare, and Kern. Some of the surveyed properties in this area are directly related to changes and to expansion of the rail lines that parallel the APE, and some are industrial, commercial, or institutional properties and resources, but most are agricultural and/or residential. The survey area covers a large region that includes portions of four counties, with most of the historic architectural resources located in or near the urban areas in and around Fresno and Bakersfield. The few resources located in the rural areas are either in the unincorporated counties or in the small communities of Hanford, Corcoran, Wasco, and Shafter. Unincorporated areas in and near the corridor include Oleander, Bowles, Conejo, and Laton in Fresno County; the Mussel Slough or Lucerne area, including Grangeville and Armona, in Kings County; and Angiola and Allensworth in Tulare County.

Irrigation and railroad features represent some of the earliest history of the area, and these linear systems intersect the APE at various locations throughout the Fresno to Bakersfield corridor. The irrigation structures are either the pioneering systems of the 1870s or 1880s, or are modern successors that brought reliable water sources to the largely arid region, while the rail lines of the Southern Pacific and Atchison, Topeka & Santa Fe railroads provided early transportation linkages that spurred development of both towns and agriculture in the valley.

Similarly, residential development in the APE reflects both the population growth and social evolution of the region, from the earliest farmsteads and homesteads, to urban and suburban development of the mid-twentieth century. This evolution is indicative of the increasingly urbanized towns and cities of the southern San Joaquin Valley, such as Bakersfield and Fresno, which became major population centers, but also the steady development of the smaller

communities, such as Corcoran (Kings County) or Shafter (Kern County). Whether big or small, these communities spawned schools, government offices, and other public facilities to serve valley residents. The range of commercial and industrial construction also reflects the social, ethnic, and economic complexity of the region, and includes hotels, retail, industrial complexes, and agricultural processing (Authority and FRA 2012b, 2012c).

Historic Architectural Resources in the APE

The surveys conducted for the Fresno to Bakersfield Section of the HST identified 62 historic architectural resources that are listed, determined eligible for listing, or eligible for listing in the NRHP and/or CRHR and are reported in the *California High-Speed Train Fresno to Bakersfield: Historic Property Survey Report (HPSR)* (Authority and FRA 2011e), the *California High-Speed Train Fresno to Bakersfield: Supplemental Historic Property Survey Report (Supplemental HPSR)* (Authority and FRA 2012c), the *California High-Speed Train Fresno to Bakersfield: Second Supplemental Historic Architectural Survey Report (Second Supplemental HASR)* (Authority and FRA 2013a), and the *California High-Speed Train Fresno to Bakersfield: Second Supplemental Historic Property Survey Report (Second Supplemental HPSR)* (Authority and FRA 2013b), as required in the Section 106 Programmatic Agreement (Authority and FRA 2011a). Of these resources, 35 were listed, have been determined eligible for listing, or appear to be eligible for listing in the NRHP. These 35 historic properties are also considered to be historical resources for the purposes of CEQA. Of the 62 historic architectural resources addressed in the HPSR and Second Supplemental HASR/HPSR, 27 are not eligible for listing in the NRHP, but are listed or eligible for listing in the CRHR or local government registers or inventories. As such, these 27 are considered historical resources for the purposes of CEQA. The 62 historic architectural resources identified in the HPSR, Supplemental HPSR, and Second Supplemental HASR/HPSR that are either historic properties (Section 106) or historical resources (CEQA), or both, are shown in Table 3.17-7, which is organized by alternative. The table indicates which of the properties or resources are in proximity to which Fresno to Bakersfield HST alternatives.

The vast majority of the overall built-environment survey population (both eligible and ineligible resources) dates to the twentieth century. Of the 62 historic properties/historical resources listed below, about 23% were constructed during the nineteenth century, specifically between 1870 and 1899. Roughly 77% of these historic properties/historical resources date to the twentieth century, with about one-third built between 1900 and 1919, and about 46% dating between 1920 and 1961.

Designed in a range of styles and using various materials, most of the historic architectural resources in the APE have been altered over time, as continuous use and changing stylistic and functional mandates required new forms. Most residential and railroad-related buildings dating to the nineteenth century are wood frame and display Italianate or Queen Anne styles typical of the Victorian Era, while commercial buildings are often brick and feature more restrained Classical details. Commercial buildings continued to feature modest Classical features into the twentieth century, joined by Art Deco and various Modern styles, as well as by unadorned utilitarian buildings through the mid-twentieth century. Residential buildings dating after 1900 are largely wood frame construction, with the few exceptions in masonry. Rural homes built between 1900 and the 1930s in the Fresno to Bakersfield Section of the HST were generally one to two stories high, in either modest bungalow or Spanish Eclectic styles. Urban and suburban single-family homes from the same time period feature the same architectural styles, but tend to be one story. The mid-twentieth century brought one-story Ranch and Minimal Traditional styles to the residential construction in the APE in both rural and urban areas.

Many of the historic architectural resources surveyed are related to the long history of agricultural development in the San Joaquin Valley. The APE passes through one rural historic landscape district, the Washington Irrigated Colony Rural Historic Landscape, which is located in

southern Fresno County and was identified as a historic landscape in 1992. The contributors to the historic landscape district that are located within the APE include three farmsteads, dozens of agricultural parcels, the orthogonal street grid, and segments of two irrigation canals: the Washington Colony and the North Branch of the Oleander canals. The APE also passes a rural historic district known as Colonel Allensworth State Historic Park in unincorporated Tulare County. This former African American town also includes restored residences and other buildings within the park boundary. The APE also includes the Salon Juarez, a NRHP traditional cultural property associated with the Sociedad Juarez Mutualista Mexicana, a mutual aid society for immigrants from the Juárez area of Mexico. The property is associated with the early development and social structure of Bakersfield's Mexican immigrant and Mexican-American community.

Three other historic canal structures are located in the APE in addition to those discussed above. Two irrigation canals related to the early settlement and agricultural development of the Mussel Slough region in rural Kings County were identified as individually eligible. Peoples Ditch and Last Chance Ditch are earthen canals with direct important associations with pioneering irrigation and agriculture as well as with the events of May 1880, when a long-standing land dispute between local farmers and the Southern Pacific Railroad culminated in the Mussel Slough Tragedy. The segments of the canals within the APE that retain sufficient integrity to this period of significance (from the 1870s to 1880) are historic architectural resources. The Friant-Kern Canal is a water conveyance system completed in the early 1950s as a part of the historic Central Valley Project that delivers irrigation water in Fresno, Tulare, and Kern counties.

Other types of historic architectural resources identified in the APE include public, institutional, and commercial buildings and infrastructure dating to the 1930s and 1940s. The buildings and structures dating to this period are typically concrete or masonry, and frequently employ Art Moderne styling. The development of schools, government centers, and research facilities in the study area was a response to rising populations and new mandates for city, county, and state governance, as well as to the importance of agricultural technology, during the post-war era. These buildings and structures were often concrete or metal frame, and either International or Modern in style or simply utilitarian, such as the historic Union Avenue corridor in Bakersfield. All of these property types convey the general development history in and near the APE that evolved from a largely undeveloped agricultural hinterland to an economically and socially diverse region of California (Authority and FRA 2012c).⁸

⁸ Full descriptions and evaluations of the eligible survey population properties are included in the HPSR, Supplemental HPSR, and Second Supplemental HASR/HPSR (Authority and FRA 2011e, 2012c, 2013a, 2013b), as well as the DPR 523 forms for each historic architectural resource.

Table 3.17-7
 Significant Historic Architectural Resources by Alternative

Map ID#	APN	Resource Name and Address	City County	Alternative											
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 and 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
1	46620407	Budd & Quinn Showroom/Fresno Body & Fender Works 1560 H St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
2	46620406	Budd & Quinn 1514–1518 H St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
3	46620514	H.E. Jaynes & Son 1454 H St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
4	46620513	H.E. Jaynes & Son 1452 H St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
5	46620219 46620220	Parker Nash Building 1460–1462 Broadway	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
6	46620207	1416 Broadway	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
7	46620505	Mayflower Hotel 1415–1417 Broadway	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
8	46620511	Benham Ice Cream/Dale Bros. Coffee Building; Dale Bros. Coffee Sign 1420 H St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
9*	46621401	Hotel Fresno 1257 Broadway	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
10*	46621212	Crest Theater 1160 Broadway Plaza	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
11*	46706508T	Fresno Fire Department Station No. 3 1406–1430 Fresno St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
12*	46706208	Basque Hotel/EA Walrond Building 1102 F St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
13*	46703038S	Southern Pacific Railroad Depot 1033 H St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
14*	46621307	Bank of Italy 1015 Fulton Mall	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
15*	46710301	First Mexican Baptist Church 1061 E St	Fresno, Fresno	—	X	—	—	—	—	—	—	—	—	—	—
16*	46707401	Bank of America 947–951 F St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
17	46707101	1528–1548 Tulare St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—

Table 3.17-7
 Significant Historic Architectural Resources by Alternative

Map ID#	APN	Resource Name and Address	City County	Alternative											
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 and 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
18	46704012S	Pacific Coast Seeded Raisin Company/Del Monte Plant No. 68 1626 Tulare St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
19	46704024S	Hobbs Parsons Produce Building 903–911 H Street	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
20*	46828101	Radin-Kamp Department Store 959 Fulton Mall	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
21	46707402	Peacock Department Store 937-945 F St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
22	46707402	H. Sargavak Building 942 Fagan Alley	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
23	46707116	938–952 F St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
24	46707102	Haruji Ego Family Building 956 China Alley	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
25	46707201	Komoto’s Department Store and Hotel 1536–1542 Kern St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
26	46707208	Dick’s Shoes Building (Dick Avakian Shoe Repair) 1522–1526 Kern St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
27*	46707206	Azteca Theatre 836–840 F St	Fresno, Fresno	X	X	—	—	—	—	—	—	—	—	—	—
28	46828611	Liberty Laundry 1830 Inyo St	Fresno, Fresno	—	X	—	—	—	—	—	—	—	—	—	—
29	46828604	Baskin’s Auto Supply Sign 729 Broadway	Fresno, Fresno	—	X	—	—	—	—	—	—	—	—	—	—
30	46708220T	California Packing Corp, water tower 503 G St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—

Table 3.17-7
 Significant Historic Architectural Resources by Alternative

Map ID#	APN	Resource Name and Address	City County	Alternative											
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 and 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
31*	46709234	Vartanian Home 362 F St	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
32*	46702013	Holt Lumber 1916 S. Cherry Ave	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
33*	—	South Van Ness Entrance Gate 2208 S. Van Ness Ave (vicinity)	Fresno, Fresno	X	—	—	—	—	—	—	—	—	—	—	—
34*	multiple	Washington Irrigated Colony Rural Historic Landscape	Fresno	X	—	—	—	—	—	—	—	—	—	—	—
34a*	—	Washington Colony Canal	Fresno	X	—	—	—	—	X	—	—	—	—	—	—
34b*	33425016	6422 S. Maple Ave	Fresno	X	—	—	—	—	X	—	—	—	—	—	—
34c*	—	North Branch of Oleander Canal	Fresno	X	—	—	—	—	X	—	—	—	—	—	—
34d*	33511042	7887 Maple Ave	Fresno	X	—	—	—	—	X	—	—	—	—	—	—
34e*	33511011	7870 S. Maple Ave	Fresno	X	—	—	—	—	X	—	—	—	—	—	—
35*	—	Last Chance Ditch	Kings	—	—	X	—	X	—	—	—	—	—	—	—
36*	009100020000	13148 Grangeville	Kings	—	—	—	—	X	—	—	—	—	—	—	—
37*	009070049000	9860 13th Ave	Kings	—	—	X	—	X	—	—	—	—	—	—	—
38*	018102111000	12501 Lacey Blvd	Kings	—	—	X	—	X	—	—	—	—	—	—	—
39*	—	Peoples Ditch	Kings	X	—	—	—	—	—	—	—	—	—	—	—
40*	028220018000	17780 10th Ave	Kings	—	—	—	—	X	—	—	—	—	—	—	—
41*	028202004000	Lakeside Cemetery Kent Ave	Kings	X	—	—	—	—	—	—	—	—	—	—	—
42*	030184010000	Zuniga's Tortilleria 901 Flory Ave	Corcoran, Kings	X	—	—	—	—	—	X	—	—	—	—	—
43*	331100030 331130003 331141004 331151011 331161020 333350041	Allensworth Historic District 4129 Grant Dr	Earlimart (vicinity), Tulare	X	—	—	—	—	—	—	—	—	—	—	—
44*	02703008	Santa Fe Depot 150-200 Central Valley Hwy	Shafter, Kern	X	—	—	—	—	—	—	—	—	—	—	—

Table 3.17-7
 Significant Historic Architectural Resources by Alternative

Map ID#	APN	Resource Name and Address	City County	Alternative											
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 and 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
45*	02707028	San Francisco & San Joaquin Valley Railroad Section House 434 Central Valley Hwy	Shafter, Kern	X	—	—	—	—	—	—	—	—	—	—	—
46*	08909029	Joe O'Brien Stables 1320 E. Lerdo Hwy	Shafter, Kern	—	—	—	—	—	—	—	—	—	X	—	—
47*	—	Friant-Kern Canal	Kern	X	—	—	—	—	—	—	—	—	—	X	X
48*	00405201	Harvey Auditorium, Bakersfield High School 1241 G St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	—	X
49	00641104	1300-1316 H St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	—	X
50	00641206	1310-1312 Eye St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	—	X
51*	00629001	Kern County Civic Administrative Center 1315-1415 Truxtun Ave	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
52	00639102	1401-1409 K St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
53	00646003	1323 K St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
54	00645002	1323 L St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
55	00644026	1330 L St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
56	00644025	1326 L St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
57*	00643002 00643003	Stark/Spencer Residence 1321 N St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
58*	—	Union Avenue Corridor	Bakersfield, Kern	X	—	—	X	—	—	—	—	—	—	X	X
59*	01728004	Sociedad Juárez Mutualista Mexicana TCP 815 E. 18th St	Bakersfield, Kern	—	—	—	—	—	—	—	—	—	—	—	X
60*	01726007	1031 E. 18th St	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
61*	01749014	San Joaquin Cotton Oil Company 1660 E. California	Bakersfield, Kern	X	—	—	—	—	—	—	—	—	—	X	X
62*	14113025	2509 E. California	Bakersfield, Kern	—	—	—	—	—	—	—	—	—	—	X	—

Notes:
 * = Map ID# (with asterisk) indicates a resource that is both a Section 106 historic property and a historical resource for the purposes of CEQA (listed, determined eligible for listing, or eligible for listing in the NRHP and/or CRHR, or as defined in CEQA Guidelines 15054.5). All others are considered historical resources for the purposes of CEQA only, and are not historic properties under Section 106.
 X = significant historic architectural resource in or adjacent to this alternative, within the APE for the project; see Table 3.17-11, below, for impacts.
 — = Property is not located in or adjacent to this alternative
 Acronyms:
 APN = Assessor Parcel Number
 CRHR = California Register of Historical Resources
 NRHP = National Register of Historic Places

The surveys conducted for the Fresno to Bakersfield Section of the HST also identified 376 built-environment resources that were more than 50 years old at the time of survey and did not meet the criteria for listing in the NRHP or CRHR at the local, state, or national level. The evaluations of these resources are presented in the HASR (Authority and FRA 2011d), the Supplemental HASR (Authority and FRA 2012b), and the Second Supplemental HASR/HPSR (Authority and FRA 2013), as required in the Section 106 Programmatic Agreement (Authority and FRA 2011a).

The historic architectural resources addressed in the HASR, HPSR, and their supplemental reports (Authority and FRA 2011d, 2011e, 2012b, 2012c, 2013a, 2013b) were evaluated using the NRHP and CRHR significance criteria in compliance with the PA (Authority and FRA 2011a).⁹ The 349 historical architectural resources are not eligible for listing in the NRHP, and as such, are not addressed in this EIR/EIS. Also, none of these resources are eligible for listing in the CRHR or in local government registers or inventories, and none are considered a historical resource for the purposes of CEQA. Effects to historic properties in downtown Fresno (north of Los Angeles Street to about Amador Street), which were evaluated in the original Fresno to Bakersfield Historic Property Survey Report (HPSR) (Authority and FRA 2011e), are addressed in the Supplemental FOE report for the Merced to Fresno Section (Authority and FRA 2013c).

Figure 3.17-1 (Sheets 1 through 17) shows the general location of the 62 historic architectural resources addressed in the HPSR that are listed, determined eligible for listing, or that are eligible for listing in the NRHP and/or CRHR or that are otherwise considered historical resources under CEQA. Table 3.17-7 lists the 62 historic architectural resources by alternative/option.

The 62 historic architectural resources described in the following paragraphs are described below, by alternative, from north to south. To differentiate between the types of historic status, the historic properties are given the "NRHP" designation, and the historical resources are given the "CEQA" designation. These properties possess historic significance and retain sufficient historic integrity to convey their significance, or were otherwise previously identified as historical resources by a local government.

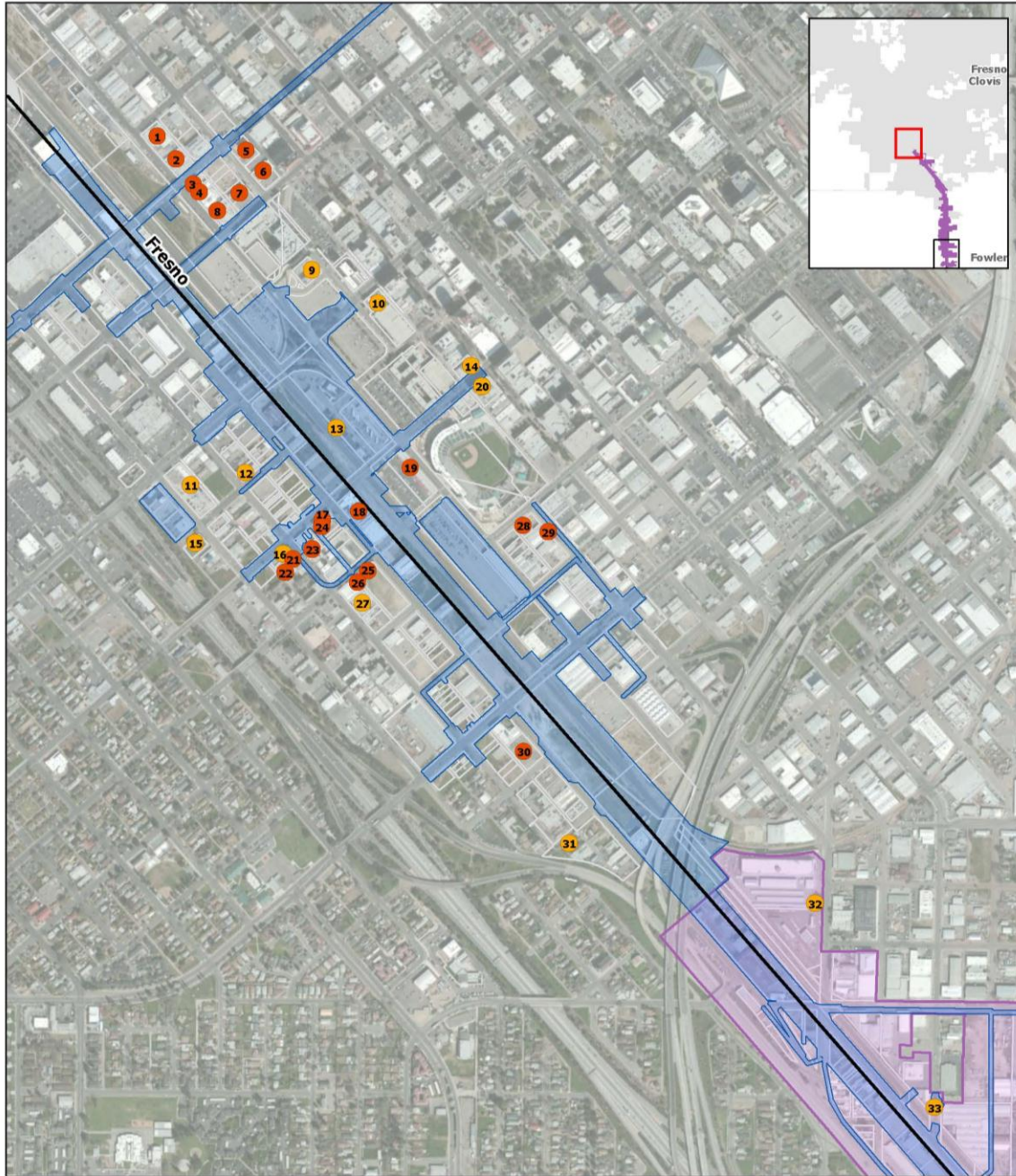
BNSF Alternative

City of Fresno

The following historic architectural resources are in the city of Fresno within the APE for the BNSF Alternative.

- Budd & Quinn Showroom/Fresno Body & Fender Works, APN: 466-204-07, 1560 H Street, Fresno; map ID #1 (CEQA). Constructed in 1929, this single-story warehouse was identified in a local survey as eligible for the CRHR and Fresno Local Register as a contributor to a CEQA-only historic warehouse district, a cluster of warehouses with distinct architectural details. Also, the building is individually eligible for the Fresno Local Register for its association with early automobile services and agricultural implement sales and its Spanish Revival architectural elements.
- Budd & Quinn, APN: 466-204-06, 1514–1518 H Street, Fresno; map ID #2 (CEQA). The Budd & Quinn building is a single-story brick warehouse, with minimal Classical Revival elements such as a modest cornice; the building was constructed in 1922. A local survey identified the building as eligible for the Fresno Local Register as a contributor to a CEQA-only historic warehouse district, a cluster of warehouses with distinct architectural details.

⁹ Full descriptions and evaluations of the ineligible historic architectural resources are included in the HASR, Supplemental HASR, and Second Supplemental HASR/HPSR (Authority and FRA 2011d, 2012b, 2013a, 2013b) as well as the DPR 523 forms for each resource.

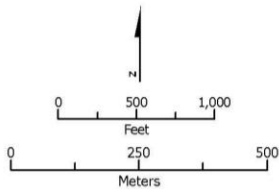


Source: URS/HMM/Arup JV, 2013; JRP, 2013.

Image source: ESRI

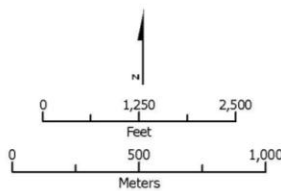
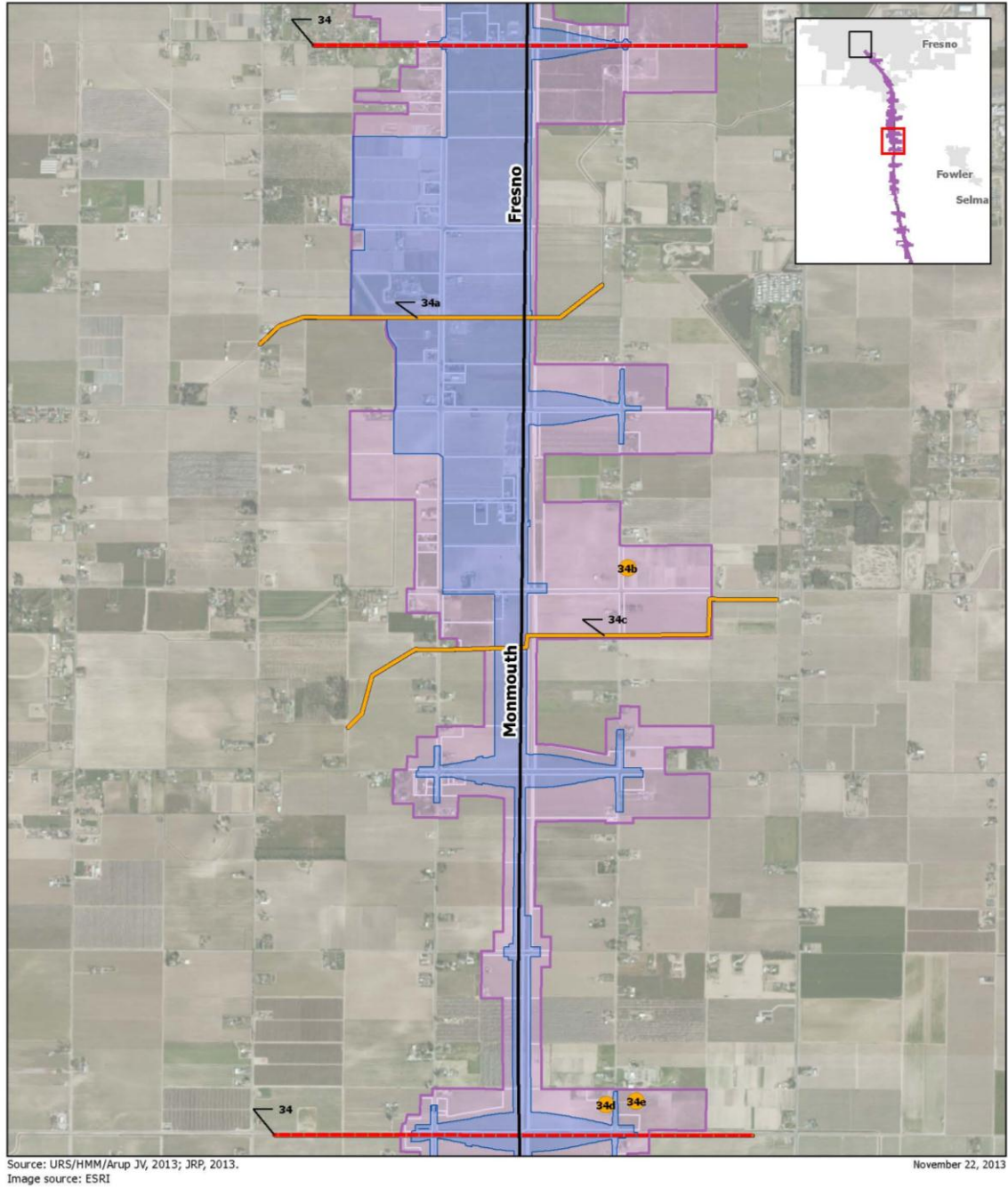
Note: Central Fresno contains previously surveyed historic architectural resources as part of the Merced-Fresno High Speed Rail Study.

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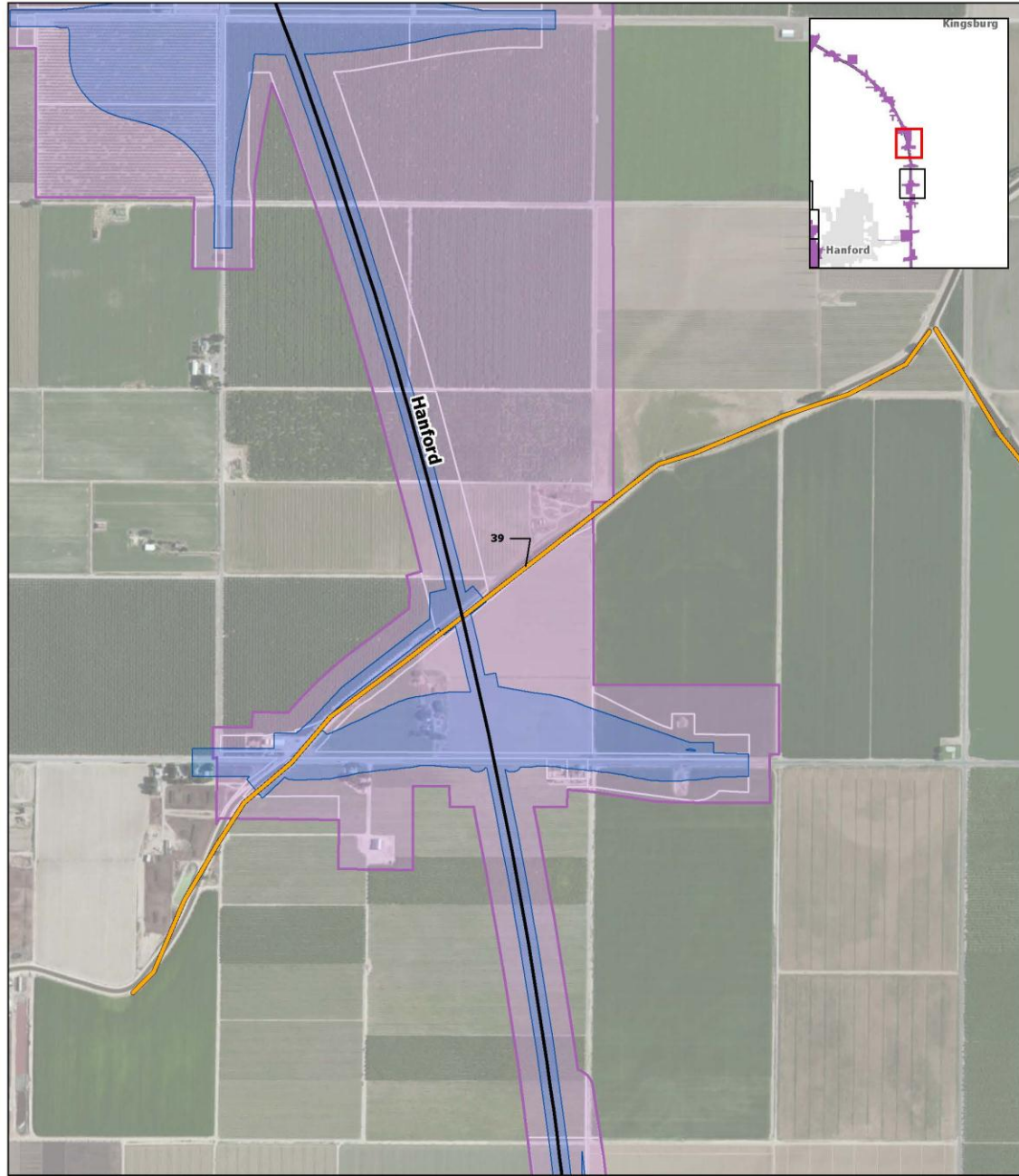
- # CEQA-only historical resource
- # Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 1 of 17



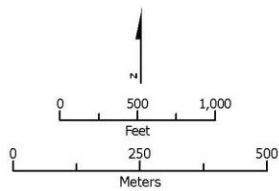
- CEQA-only historical resource
- Section 106 historic property
- - - Section 106 Historic Property (Rural Historic Landscape District)
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 2 of 17



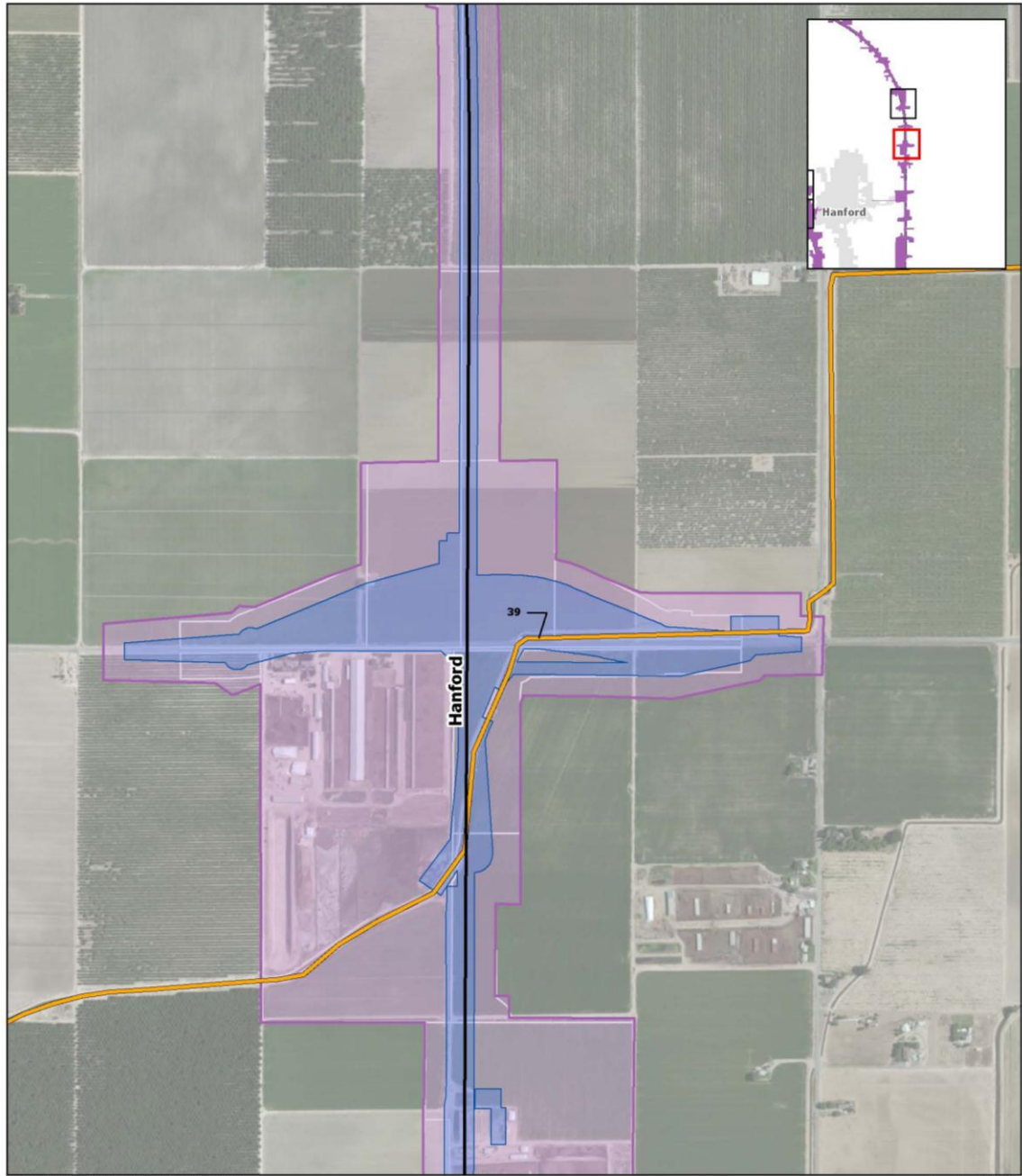
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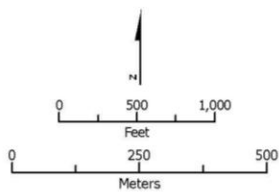
- CEQA-only historical resource
- Section 106 historic property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 3 of 17



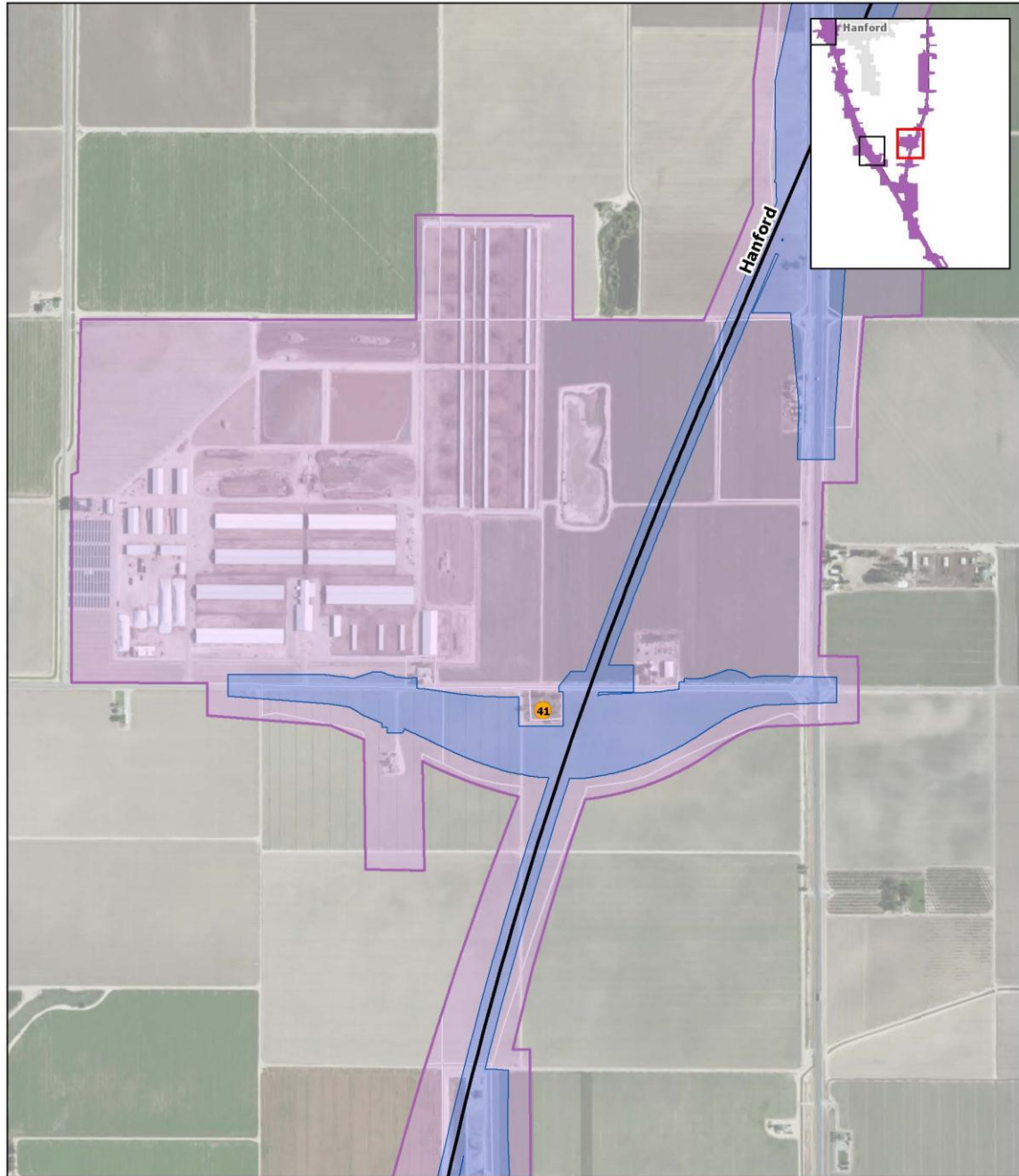
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 Image source: ESRI

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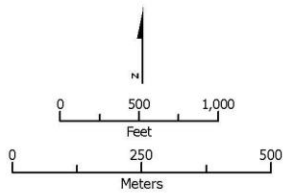
- CEQA-only historical resource
- Section 106 historic property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 4 of 17



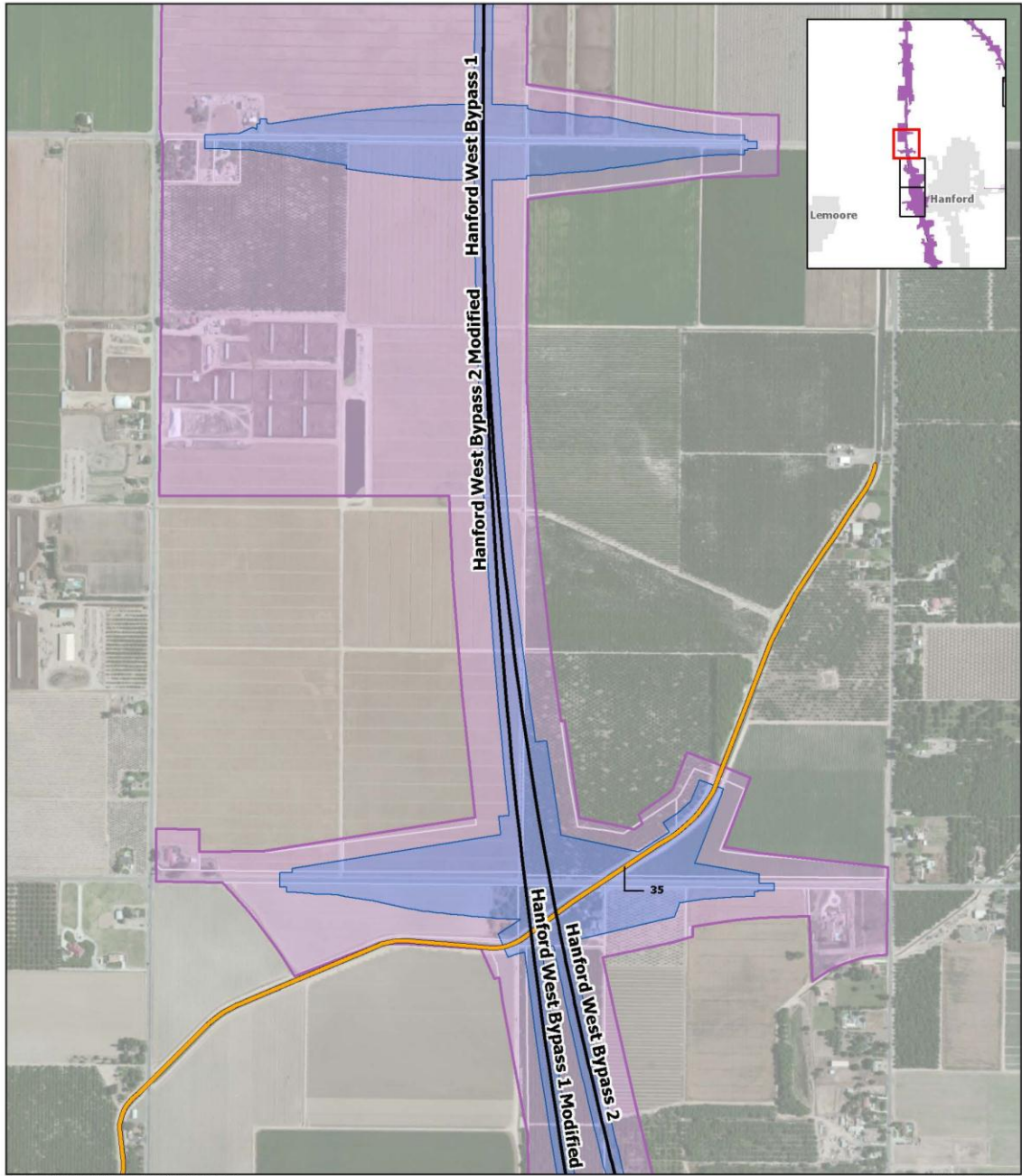
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 Image source: ESRI

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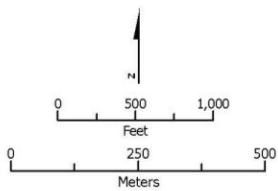
- CEQA-only historical resource
- Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 5 of 17



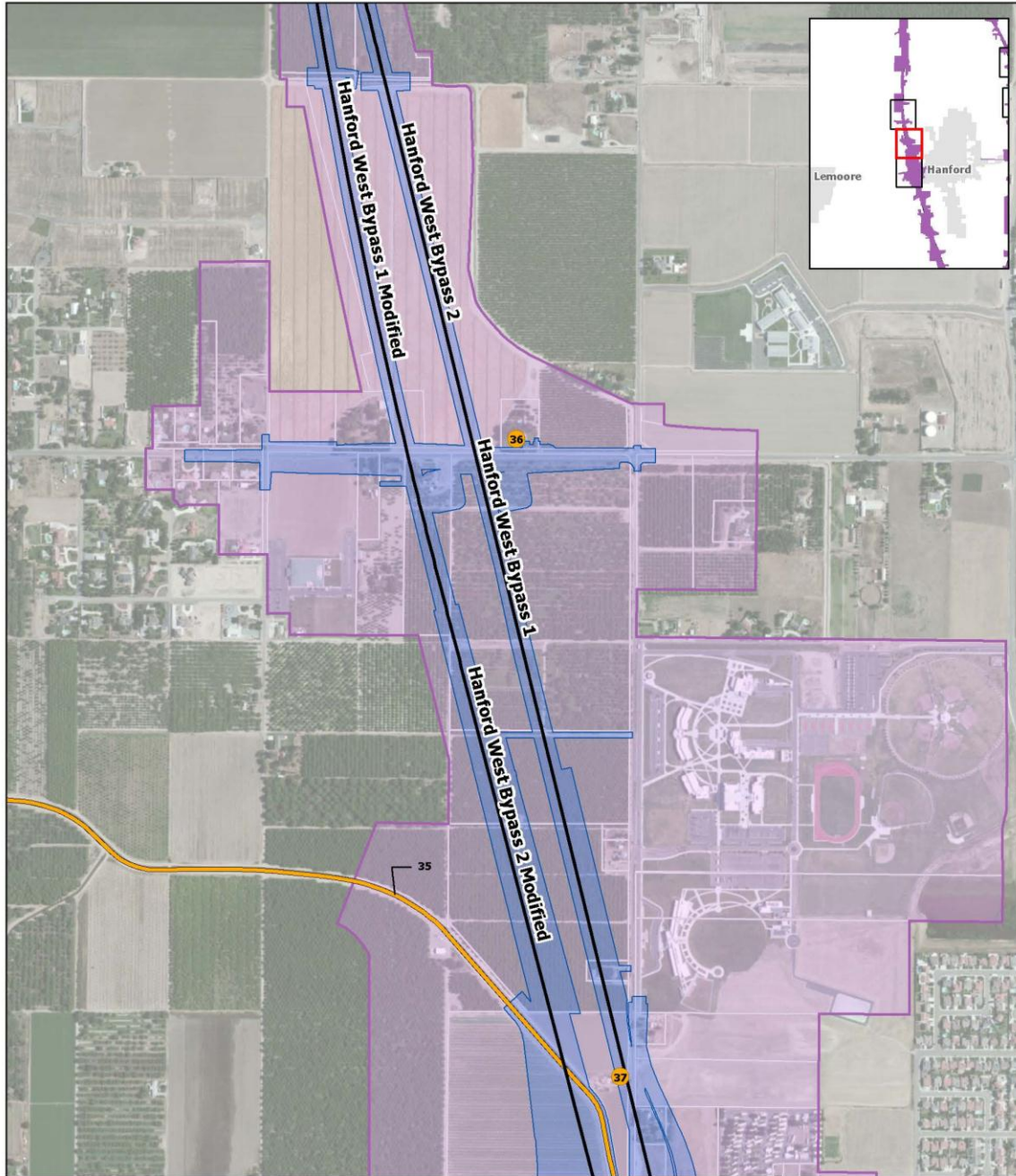
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 Image source: ESRI

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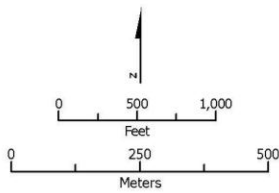
- CEQA-only historical resource
- Section 106 historic property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 6 of 17



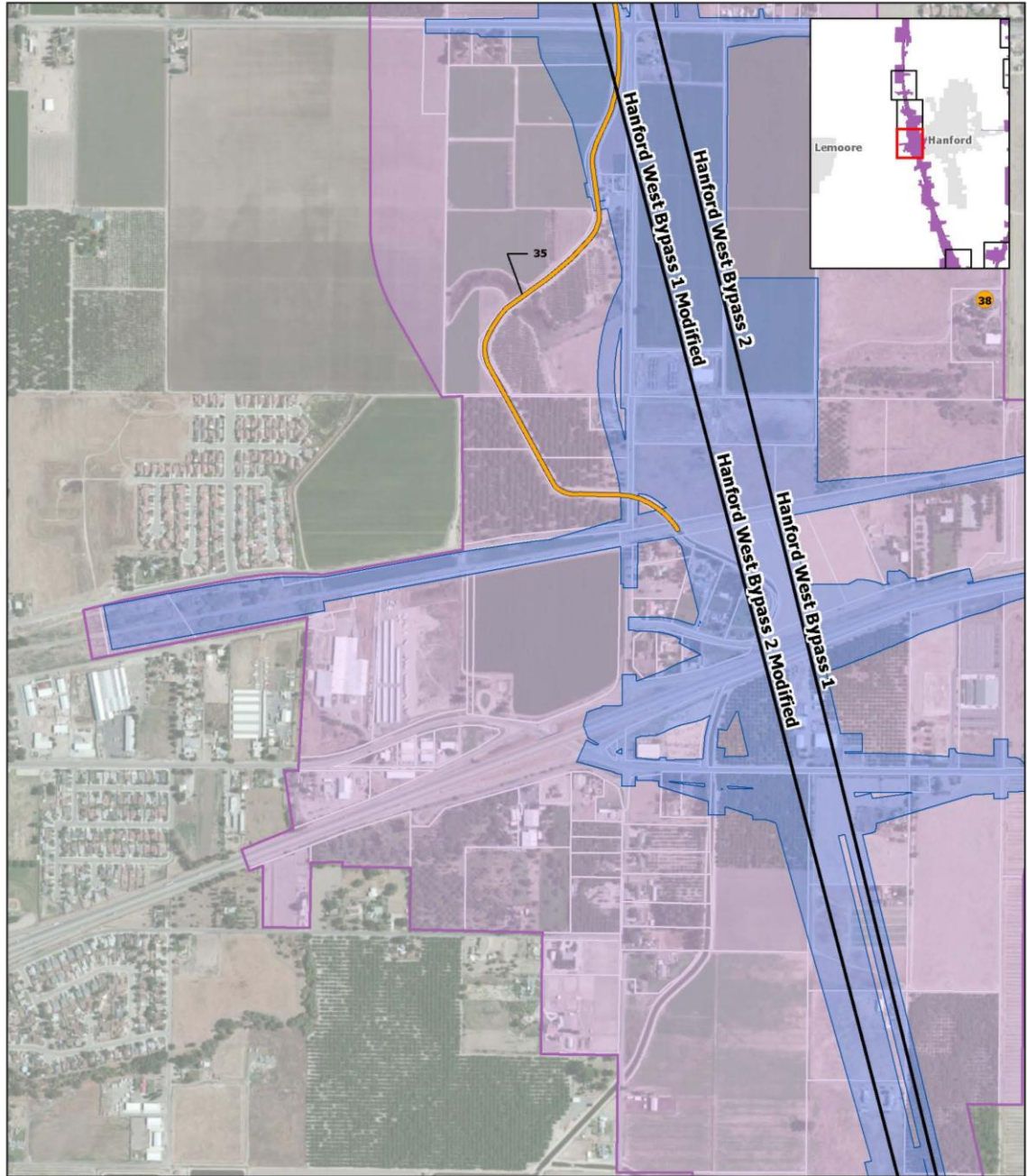
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November 22, 2013



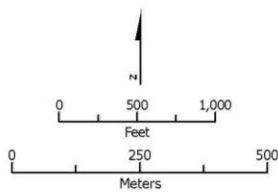
- CEQA-only historical resource
- Section 106 historic property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 7 of 17



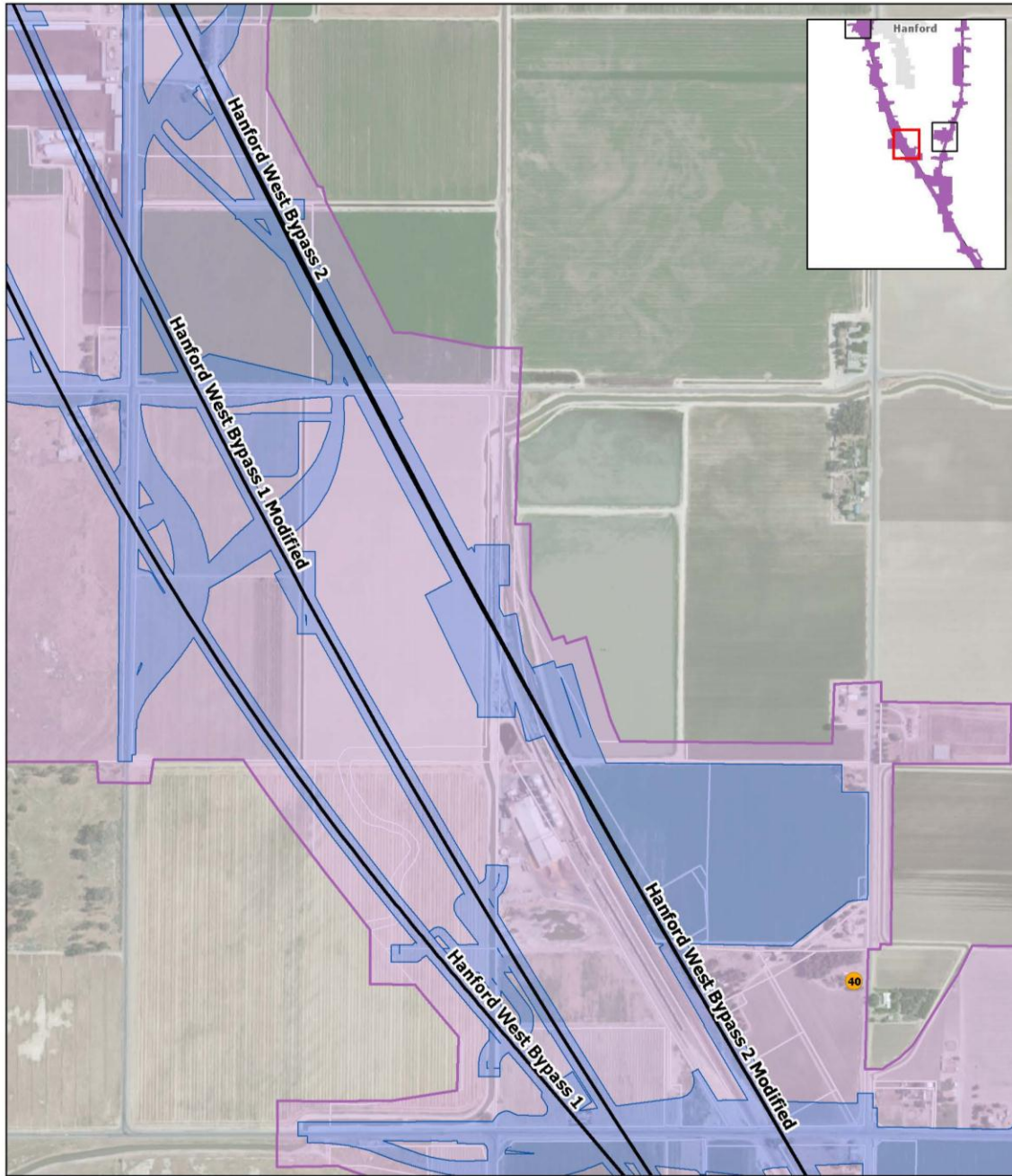
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 Image source: ESRI

November 22, 2013



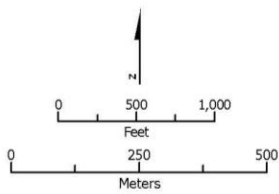
- CEQA-only historical resource
- Section 106 historic property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 8 of 17



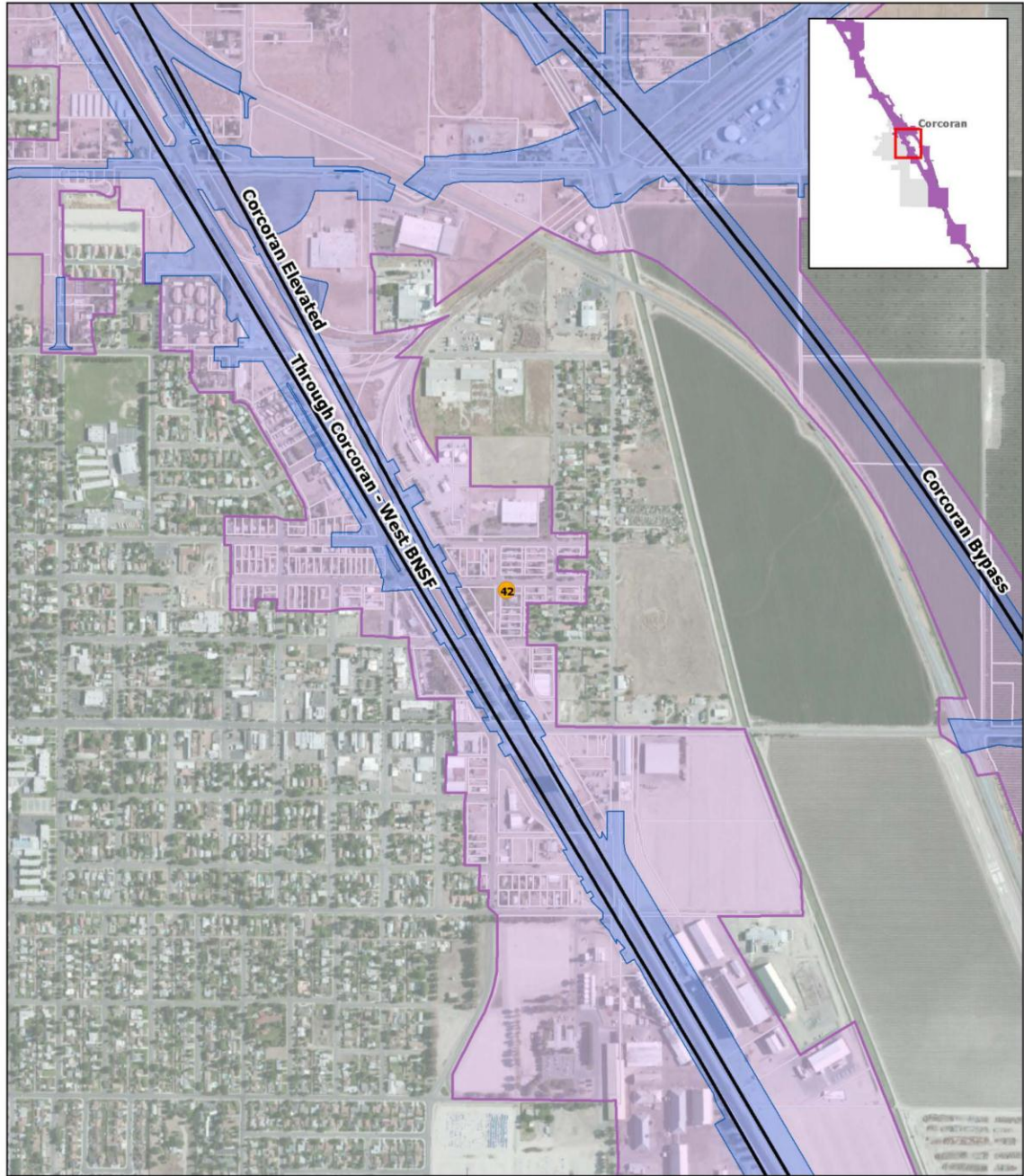
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November 22, 2013



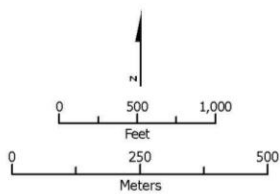
- CEQA-only historical resource
- Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 9 of 17



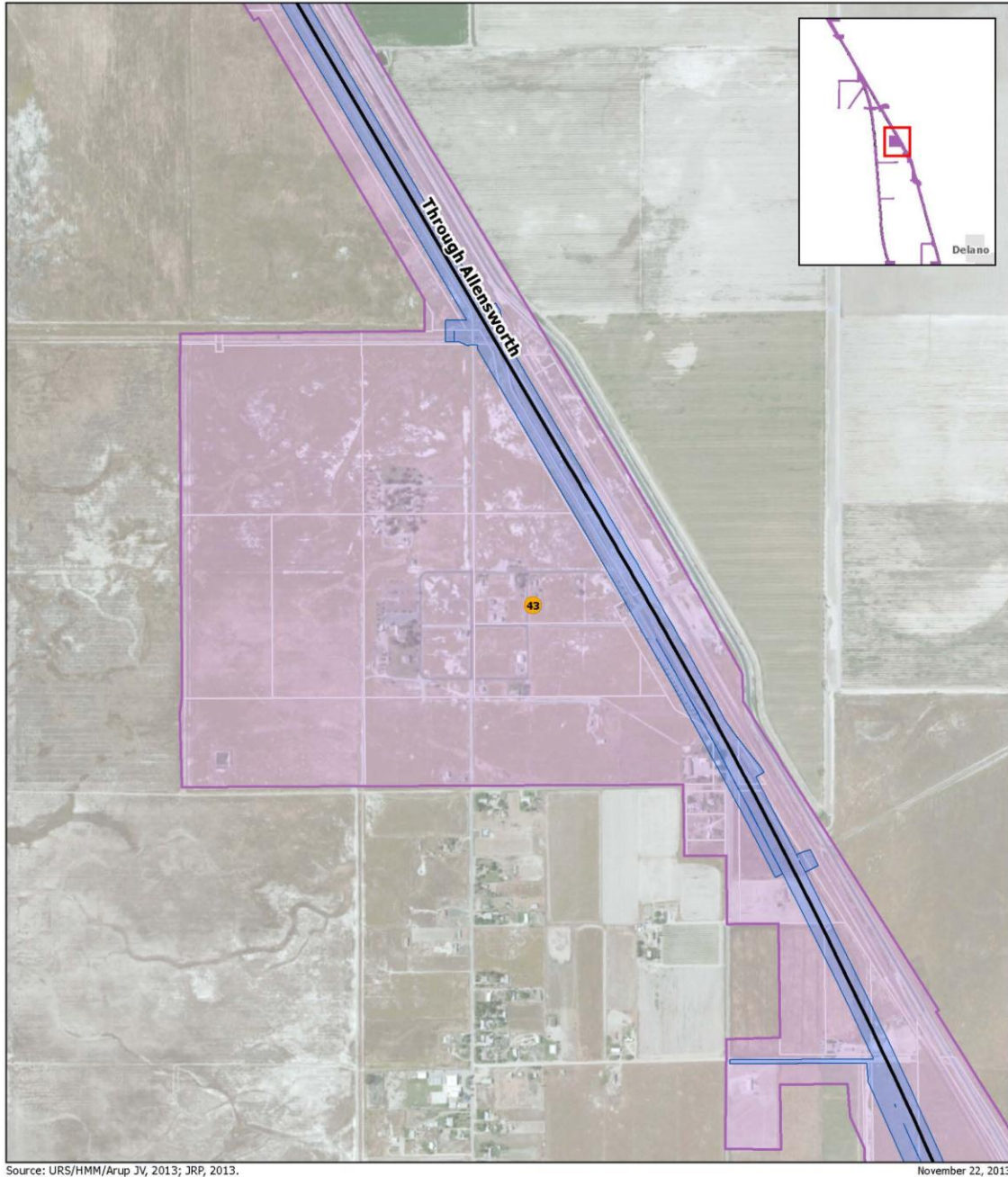
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 Image source: ESRI

November 22, 2013



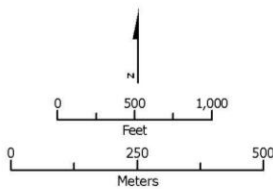
- CEQA-only historical resource
- Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 10 of 17



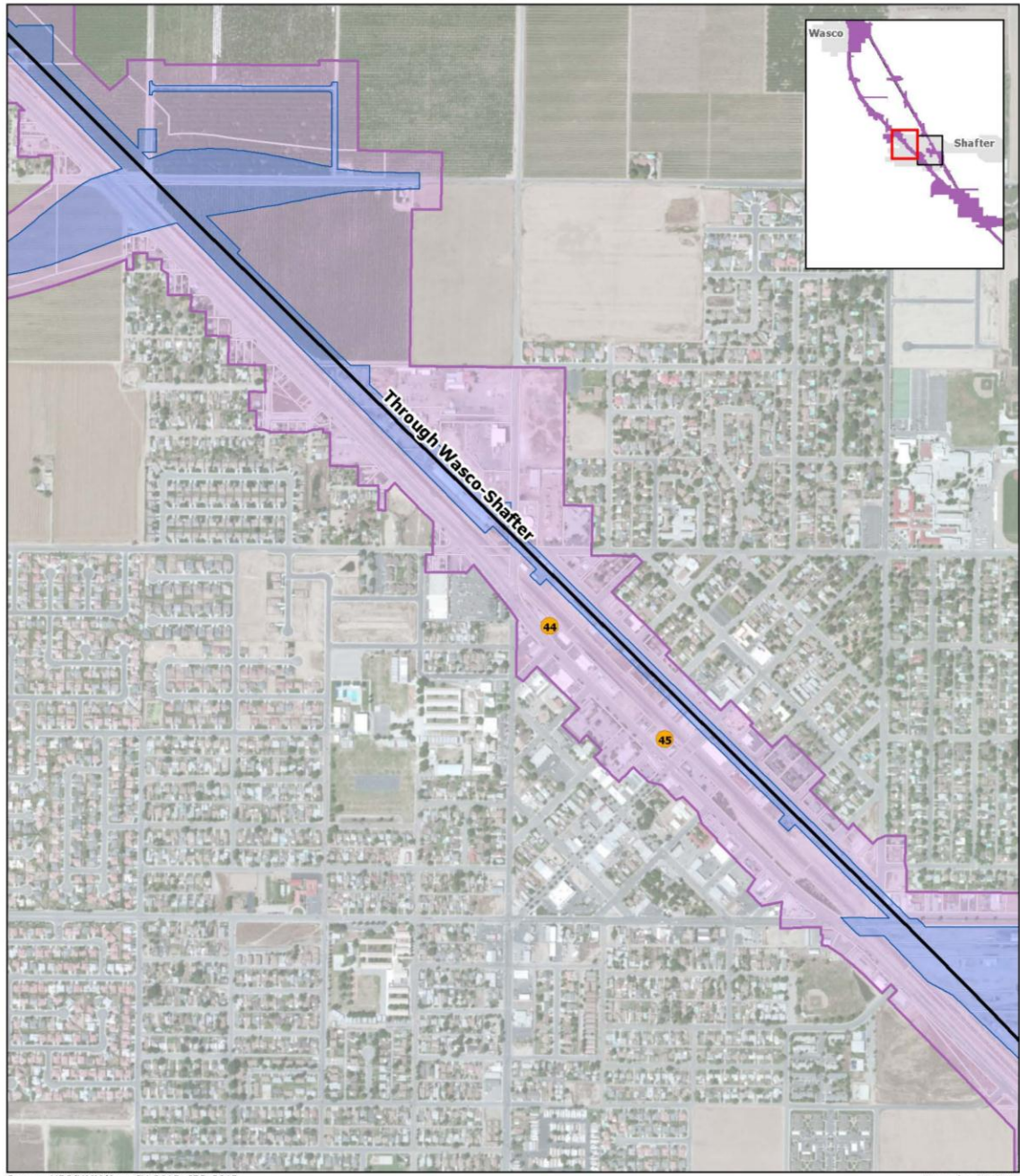
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November 22, 2013



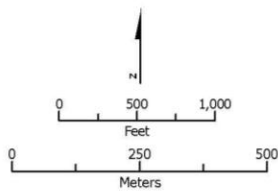
- ⊕ CEQA-only historical resource
- ⊕ Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 11 of 17



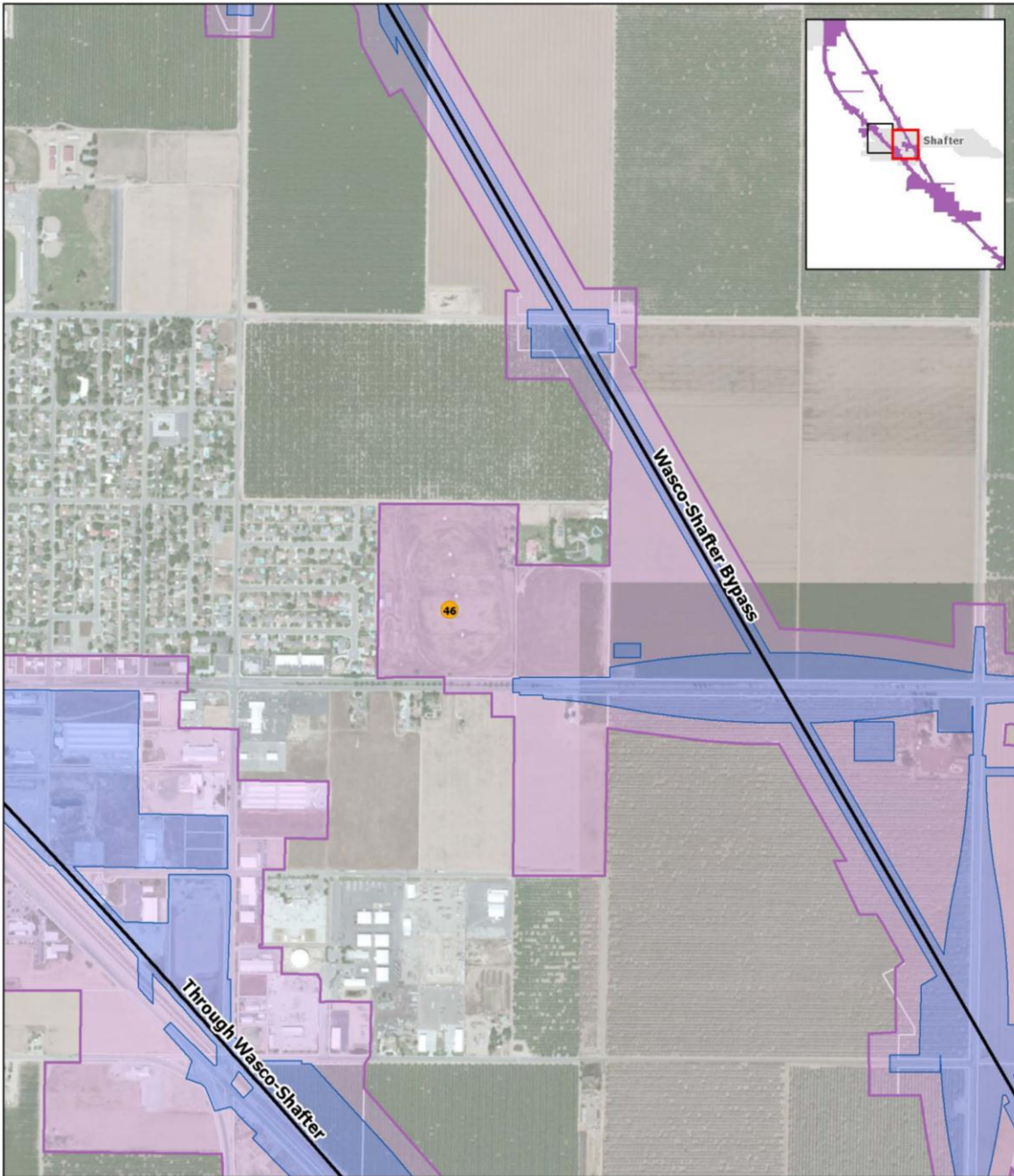
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 Image source: ESRI

November 22, 2013



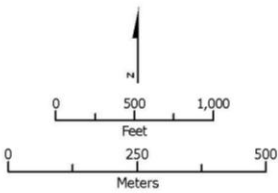
- CEQA-only historical resource
- Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 12 of 17



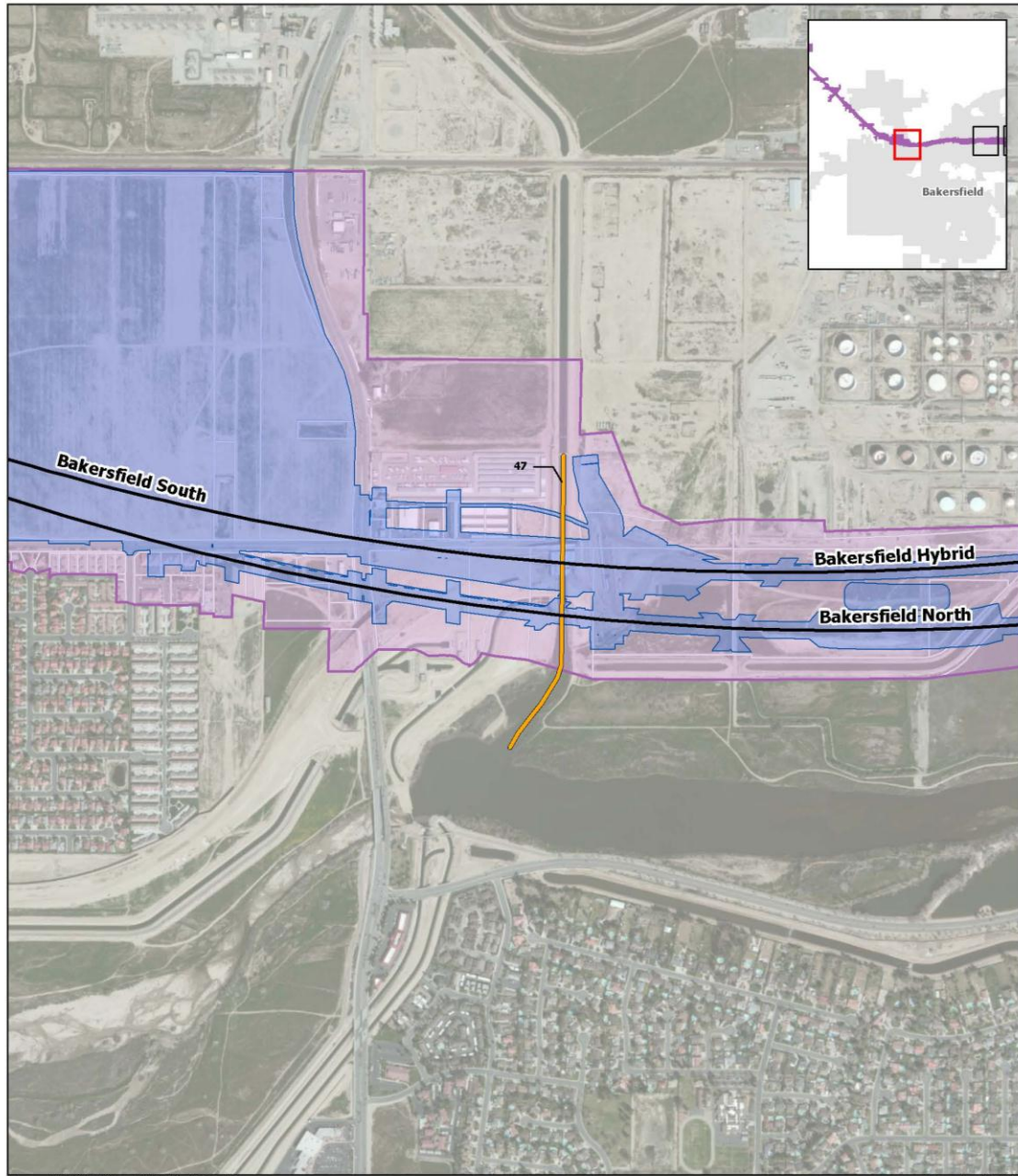
Source: URS/HMM/Arup JV, 2013; JRP, 2013.
 Image source: ESRI

November 22, 2013



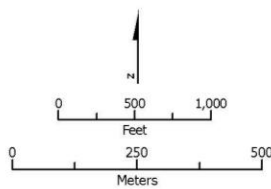
- CEQA-only historical resource
- Section 106 historic property
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 13 of 17



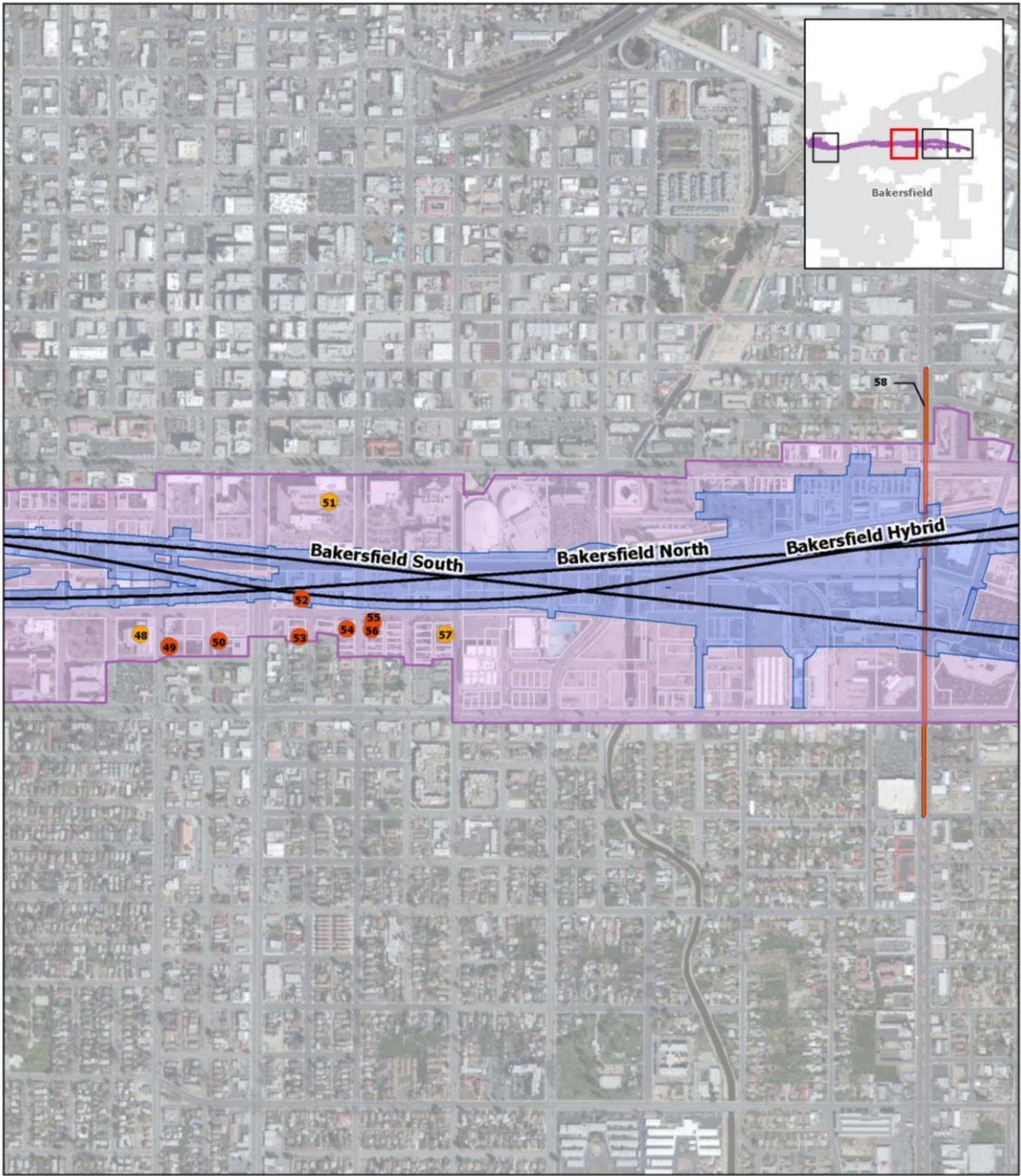
Source: URS/HMM/Arup JV, 2013; JRP, 2013.
 Image source: ESRI

November 22, 2013



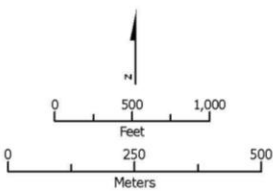
- ⊗ CEQA-only historical resource
- ⊗ Section 106 historic property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 14 of 17



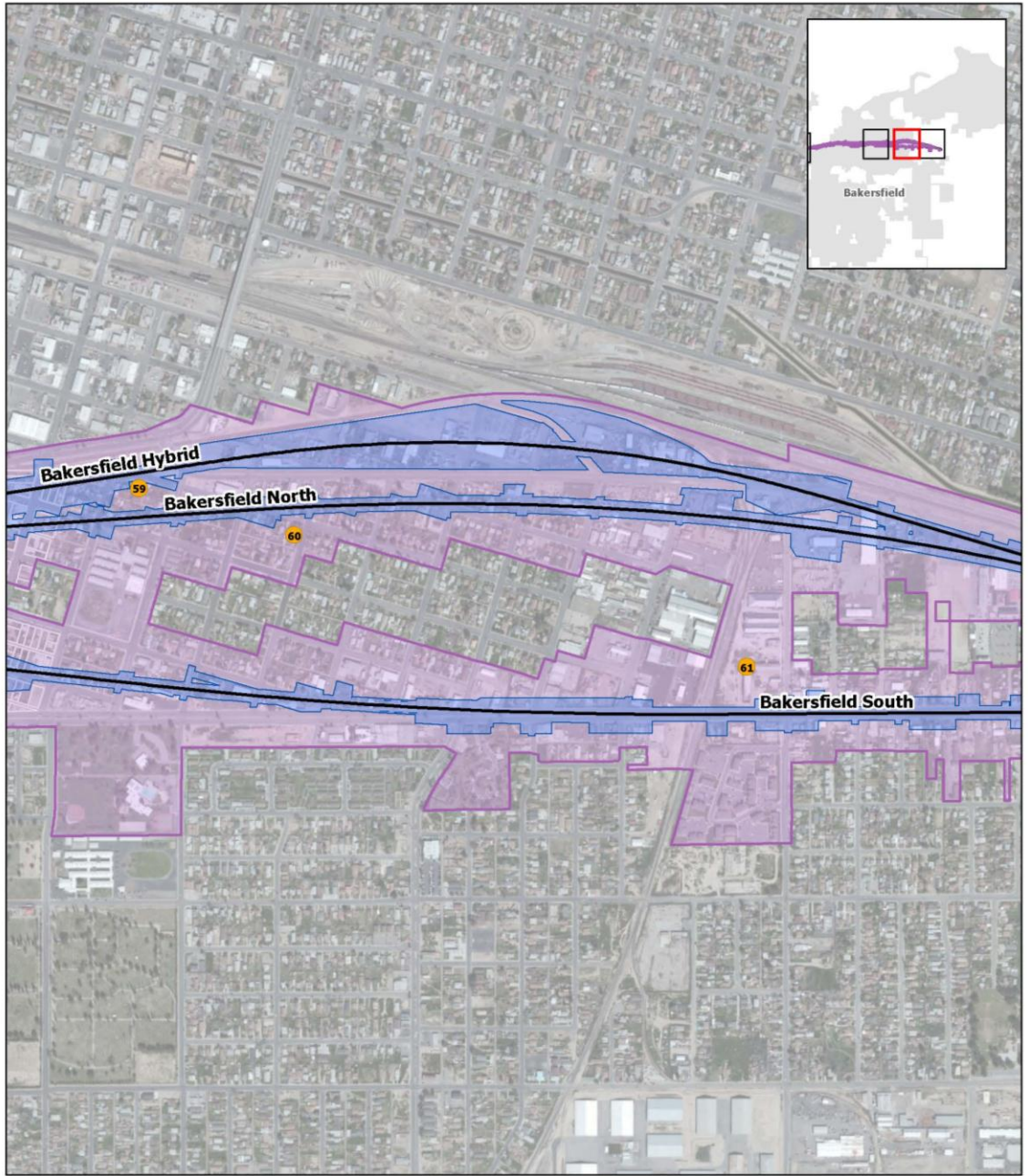
Source: URS/HMM/Arup JV, 2013; JRP, 2013.
 Image source: ESRI

November 22, 2013



- CEQA-only historical resource
- ⊗ Section 106 historic property
- Section 106 Historic Property (Union Avenue Corridor)
- Alternative alignments
- Architectural APE
- Alignment footprint
- Parcel

Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 15 of 17



Source: URS/HMM/Arup JV, 2013; JRP, 2013.
 Image source: ESRI

November 22, 2013

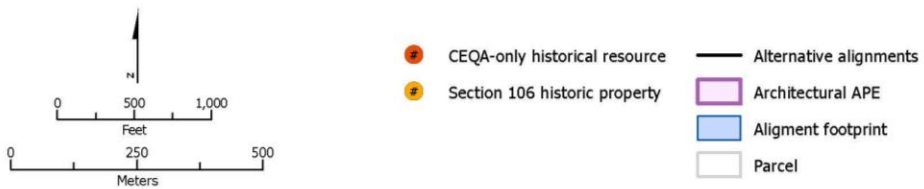
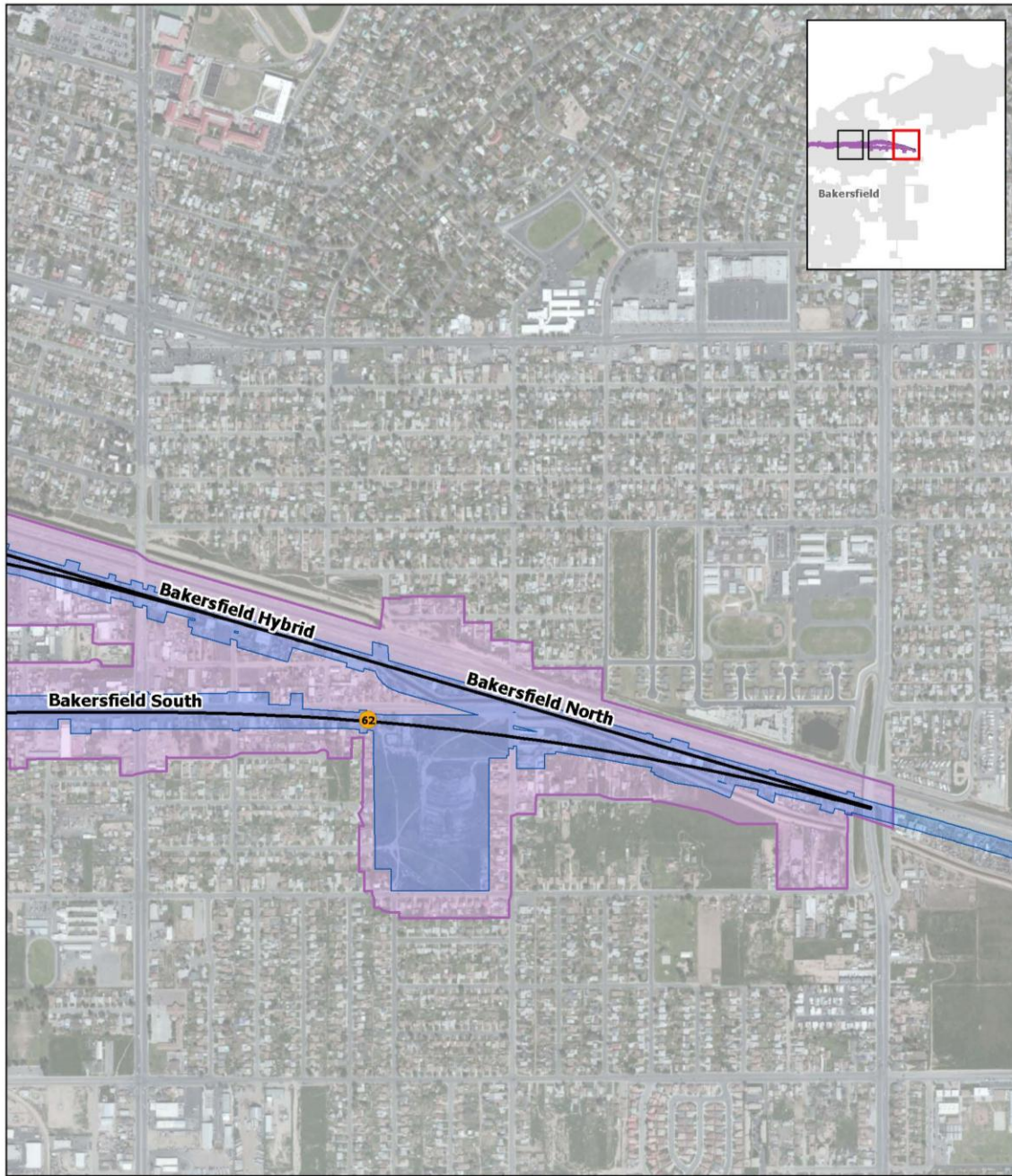


Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 16 of 17



Source: URS/HMM/Arup JV, 2013; JRP, 2013.
 Image source: ESRI

November 22, 2013

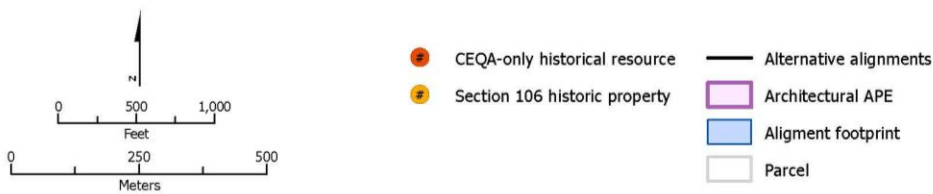


Figure 3.17-1
 Historic properties and historical resources within the architectural APE
 Sheet 17 of 17

- H.E. Jaynes & Son, APN: 466-205-14, 1454 H Street, Fresno; map ID #3 (CEQA). This single-story utilitarian warehouse was constructed in 1944. A local survey identified the former auto repair shop as eligible for the CRHR and Fresno Local Register as a contributor to a CEQA-only historic warehouse district, a cluster of warehouses with distinct architectural details.
- H.E. Jaynes & Son, APN: 466-205-13, 1452 H Street, Fresno; map ID #4 (CEQA). A local survey identified this 1928 modified warehouse as eligible for the CRHR and Fresno Local Register as a contributor to a CEQA-only historic warehouse district, a cluster of warehouses with distinct architectural details.
- Parker Nash Building, APNs: 466-202-19 and 466-202-20, 1460–1462 Broadway, Fresno; map ID #5 (CEQA). This brick building was constructed in two phases: as a single-story warehouse in 1913 and as a two-story Mediterranean Revival addition in 1934. This property is listed in the Fresno Local Register (Historic Property #226), largely because of its distinctive Mediterranean Revival architecture, and it may contribute to an as-yet-undocumented CEQA-only automotive historic district, a potential local thematic district.
- Former warehouse, APN: 466-202-07, 1416 Broadway, Fresno; map ID #6 (CEQA). This single-story brick warehouse features a main façade with Spanish Revival details on its stepped parapet. The building is a possible contributor to the CEQA-only historic warehouse district, a cluster of warehouses with distinct architectural details that is potentially eligible for the CRHR and potentially eligible for designation as a City of Fresno local historic district.
- Mayflower Hotel, APN: 466-205-05, 1415–1417 Broadway, Fresno; map ID #7 (CEQA). This three-story brick building has a flat parapet roof and is relatively unadorned. It is an example of “Streetcar Commercial” style, with modest period revival influences found in its symmetrical façade and lightly ornamented recessed entry. This building was identified in a local survey as being individually eligible for the CRHR and the Fresno Local Register.
- Benham Ice Cream/Dale Bros. Coffee Building, Dale Bros. Coffee Sign, APN: 466-205-11, 1420 H Street, Fresno; map ID #8 (CEQA). This three-story reinforced-concrete industrial building was constructed from 1912 to 1913 for the Benham Ice Cream Company and includes a prominent “Dale Brothers Coffee” coffee can sign on its roof installed by a later occupant. Both the building and the sign are listed in the Fresno Local Register (#248 and #247, respectively) for their association with Fresno’s commercial and economic development and as significant architectural representatives of commercial construction.
- Hotel Fresno, APN: 466-214-01, 1257 Broadway, Fresno; map ID #9 (NRHP). 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 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. The building is also listed on the CRHR and the Fresno Local Register of Historic Resources (#166).
- Crest Theater, APN: 466-212-12, 1160 Broadway Plaza, Fresno; map ID #10 (NRHP). 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 (and CRHR Criterion 3). The building was listed in the Fresno Local Register of Historic Resources in February 2011 (#270).

Fresno County

The following historic architectural resources are in the city of Fresno or unincorporated Fresno County within the APE for the BNSF Alternative.

- Baskin's Auto Supply Sign, APN: 468-286-04, 729 Broadway, Fresno; map ID #29 (CEQA). The neon Baskin's Auto Supply Sign, with its inverted triangular shape, was erected in 1953; it is listed in the Fresno Local Register (#263) as a heritage sign.
- Former CalPak Water Tower, APN: 46708220T, map ID #30 (CEQA). This metal-frame water tower and tank was built in 1935 as a portion of the large California Packing Corporation facility that was across the street. A local evaluation identified the tower and tank as eligible for listing in the CRHR and the Fresno Local Register for its association with the local fruit-packing industry and as a visual landmark.
- Vartanian Home, APN: 467-092-34, 362 F Street, Fresno; map ID #31 (NRHP). This farm complex, constructed in the 1890s, 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. The property is also eligible for the CRHR and is listed in the Fresno Local Register (#67).
- Holt Lumber Company, APN: 467-020-13, 1916 South Cherry Avenue, Fresno; map ID #32 (NRHP). This one-story, brick Italian Renaissance Revival office building, with classically influenced trim, was constructed in about 1920. It has been determined eligible for listing in the NRHP under Criterion C for its architecture as a distinctive example of an early-twentieth-century Italian Renaissance commercial building. The building is also eligible for the CRHR and is listed in the Fresno Local Register (#101).
- South Van Ness Entrance Gate, 2208 South Van Ness Avenue (vicinity), Fresno; map ID #33 (NRHP). 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 historical 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. The sign is also eligible for the CRHR and is listed on the Fresno Local Register (#82) and the Fresno County List of Historic Places (#136).
- Washington Irrigated Colony Historic Rural Landscape (a district); map ID #34 (NRHP). The Washington Irrigated Colony has been determined eligible for listing in the NRHP and CRHR as a rural historic landscape district with a period of significance of 1878 to 1910. The district is significant at the local level for its role as a pioneering irrigated agricultural colony and as a land development strategy that established a successful economic and physical template for subsequent San Joaquin Valley settlement (NRHP Criteria A and C; CRHR Criteria 1 and 3). The contributing features to the district consist of 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; and minor remaining street trees); 55 farmsteads; approximately 22 linear miles of open earthen canals; and the street grid and land ownership pattern based on the U.S. Land Survey system. Most of the landscape district is outside the APE for this project; however, a swath of land in the district along the proposed Fresno to Bakersfield Section—three contributing farmsteads, and two contributing irrigation canals—are in the APE. The contributing features are described below.

- Washington Colony Canal, Fresno County; map ID #34a (NRHP). 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. A previous survey identified the canal as eligible for the NRHP as a contributor to the Washington Irrigated Colony Historic Rural Landscape, and the canal has been determined eligible under Criteria A and C for its role in providing agricultural water for the settlement and development of the Washington Colony. The canal is also eligible for the CRHR as a contributing element of the NRHP historic district.
- 6422 S. Maple Avenue, APN: 334-25-016; map ID #34b (NRHP). 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 district and individually eligible for listing on the NRHP under Criteria A and C (and CRHR Criteria 1 and 3). Together with the other 54 farmsteads, the building is significant for its association with the founding and settlement of the Washington Irrigated Colony. Individually, the farmstead is a significant example of rural architecture in the Queen Anne style, as characterized by its residence and water tower, with decorative shingles, bay windows, and elaborate trim. The farmstead is also eligible for the CRHR as a contributing element of the NRHP historic district.
- North Branch of the Oleander Canal, Fresno County; map ID #34c (NRHP). 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 the canal has been determined eligible under Criteria A and C for its association with the settlement and agricultural development of the Washington Colony. The canal is also eligible for the CRHR as a contributing element of the NRHP historic district.
- 7887 S. Maple Avenue, APN: 335-11-042; map ID #33d (NRHP). 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 about 1900 during the period of initial settlement of this significant colony and is a contributor to the 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, its Folk Victorian architecture and simple plan illustrates the initial settlement period of the colony. The farmstead is also eligible for the CRHR as a contributing element of the NRHP historic district.
- 7870 S. Maple Avenue, APN: 335-11-011; map ID #33e (NRHP). 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 in 1911 at the close of the period of initial settlement of this significant colony and is a contributor to the 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, this rural residence and its Neoclassical architecture illustrates the initial settlement period of the colony. The farmstead is also eligible for the CRHR as a contributing element of the NRHP historic district.

Kings County

The following historic architectural resources are in unincorporated Kings County within the APE for the BNSF Alternative.

- Peoples Ditch, APN: n/a, rural Kings County; map ID #39 (NRHP). This property is an earth-lined irrigation canal system constructed by local farmers between 1873 and 1875; the

aggregate length of the main channel and branches totals 37 miles. The canal enabled significant agricultural development throughout 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 for their important role in the successful agricultural settlement pattern in the Mussel Slough region in the 1870s that developed and endured through the establishment of the 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 deadly conflict that arose out of the land disputes between San Joaquin Valley settlers and the Southern Pacific Railroad. The segments in the APE for the BNSF Alternative are also eligible for the CRHR (Criterion 1). The portions of the canal in the APE for the Hanford West Bypass alternatives do not retain integrity and are not eligible for listing in either the NRHP or the CRHR.

- Lakeside Cemetery, APN: 028-202-004-000, Kent Avenue, rural Kings County; map ID #41 (NRHP). This historic property is a 1.5-acre rural cemetery approximately 7 miles south of Hanford; the cemetery features masonry and concrete grave markers, lawn, and shade trees. Established in the 1870s as the first cemetery in the region serving pioneer families (Williams-Schlater 2005), 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 ultimately became the Lakeside District. The cemetery meets the NRHP qualifications under Criteria Consideration D for cemeteries for its important association with pioneer settlers in this portion of Kings County. This property is also eligible for the CRHR (Criterion 1).

Tulare County

The following historic architectural resource is in unincorporated Tulare County within the APE for the BNSF Alternative.

- Allensworth Historic District, APN: 331-100-030 and many other APNs, 4129 Grant Drive, Earlimart (vicinity); map ID #43 (NRHP). Colonel Allensworth State Historic Park encompasses Allensworth Historic District, an area of about 60 acres that includes 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 Allensworth Historic District is listed in the NRHP (NRHP Reference No. 72000263, certified on February 23, 1972) and is significant under Criterion A within the context of agriculture, education, politics, religion, military, literature, and social history. The town was founded in 1908 and developed in the 1910s. The district is also significant under Criterion B for its association with the town's founder, Colonel Allen Allensworth. Contributing elements of the historic district include the elementary school, Colonel Allensworth's residence, Grosse's Drugstore, a railroad ticket office, and Singleton's General Store and Post Office. The property is also listed in the CRHR.

City of Shafter

The following historic architectural resources are in the city of Shafter within the APE for the BNSF Alternative.

- Santa Fe Freight Depot, APN: 027-03-008, 150–200 Central Valley Highway, Shafter; map ID #44 (NRHP). 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 (NRHP Reference No. 82002187, certified on January 19, 1982) and is significant 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. The property is also listed in the CRHR (Criterion 3).

- San Francisco & San Joaquin Valley Railway Section House, APN: 027-070-28, 434 Central Valley Highway, Shafter; map ID #45 (NRHP). This building is a small, wood-frame, folk-style residence with Craftsman details that was constructed in 1898. It was one of the first buildings constructed in Shafter, and it is associated with the establishment of the San Francisco & San Joaquin Valley railroad. This rail line is historically important because its arrival in the San Joaquin Valley in the 1890s broke the Southern Pacific Railroad's monopoly in the region. The building has been determined eligible for the NRHP under Criterion A for its association with the founding of Shafter. The building is also eligible under Criterion C as an example of a section house built by the San Francisco & San Joaquin Valley Railway. The building is eligible for the CRHR (Criteria 1 and 3).

Kern County and City of Bakersfield

The following historic architectural resources are in unincorporated Kern County and in the city of Bakersfield within the APE for the BNSF Alternative.

- Friant-Kern Canal, APN: n/a, Kern County; map ID #47 (NRHP). The Friant-Kern Canal is a 152-mile-long gravity-fed earth- and concrete-lined canal built between 1946 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). The canal facilitated the expansion of irrigated lands on the east side of the central-southern reaches of the Central Valley, and these lands developed into some of country's top-producing agricultural counties. This property is also eligible for the CRHR (Criterion 1).
- Harvey Auditorium, Bakersfield High School, APN: 004-052-01, 1241 G Street, Bakersfield; map ID #48 (NRHP). The Harvey Auditorium at Bakersfield High School 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 the work 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. The building is also eligible for the CRHR (Criterion 3).
- 1300–1316 H Street, APN: 006-411-04, 1300–1316 H Street, Bakersfield; map ID #49 (CEQA). This multi-unit residential building was constructed in the Craftsman style between 1912 and 1920. A local survey identified the building as eligible for the Bakersfield Register of Historic Places for its architectural design.
- 1310–1312 Eye Street, APN: 006-412-06, Bakersfield; map ID #50 (CEQA). A local survey identified this 1926 Tudor-style duplex as eligible for the Bakersfield Register of Historic Places for its distinct architectural design.

Hanford West Bypass 1 and 2 Alternatives

The following historic architectural resources are in unincorporated Kings County within the APE for the Hanford West Bypass 1 and 2 alternatives.

- Last Chance Ditch, rural Kings County; map ID #35 (NRHP). This property is an earth-lined irrigation canal that diverts water from the Kings River; the canal was initially constructed by

the Last Chance Water Ditch Company in 1873–1874. Running south through the area west of Hanford, the main ditch is about 6.5 miles long and splits into three branches that continue another 5 or 6 miles to the west and south. A roughly 0.7-mile segment of the main ditch and an approximately 2.4-mile section of the ditch’s eastern branch are in the APE for this project. The Last Chance Ditch has been determined eligible for the NRHP at the state level of significance under Criterion A for its important role in the successful agricultural settlement pattern in the Mussel Slough region in the 1870s that developed and endured through the establishment of the 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 in 1880 that led to the Mussel Slough Tragedy, a deadly conflict that arose during land disputes between San Joaquin Valley settlers and the Southern Pacific Railroad. This property is also eligible for the CRHR (Criterion 1).

- 13148 Grangeville Boulevard, APN: 910-002-0000, Kings County; map ID #36 (NRHP). This large two-story rural residence has an attached water tank house; the residence was constructed in the late 1910s. This property has been determined eligible for listing in the NRHP under Criterion C for its architectural style 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. This property is also eligible for the CRHR (Criterion 3).
- 9860 13th Avenue, APN: 009070049000, Kings County; map ID #37 (NRHP). This farm complex consists of a two-story Queen Anne–style residence, the 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 important association with pioneering agricultural settlement of the Mussel Slough area that achieved success through the establishment of the secure irrigation water supply delivered by Last Chance Ditch and the other local pioneering canal systems. The house is also eligible under Criterion C as a significant local example of folk Queen Anne–style architecture. This property is eligible for the CRHR (Criteria 1 and 3).
- 12501 Lacey Boulevard, APN: 018102111000, Kings County; map ID #38 (NRHP). 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 onsite 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. This property is also eligible for the CRHR (Criterion 3).

Hanford West Bypass 2 Alternative

The following historic architectural resource is in unincorporated Kings County within the APE for the Hanford West Bypass 2 Alternative.

- 17780 10th Avenue, APN: 028220018000, Kings County; map ID #40 (NRHP). This Craftsman Bungalow residence is in Guernsey, in unincorporated Kings County. Built in 1920, the house features an attached water tank house, and the farmstead includes a detached garage and shed. This property has been determined eligible for listing in the NRHP under NRHP Criterion C for a design that includes an attached tank house. The design 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. This property is also eligible for the CRHR (Criterion 3).

BNSF Alternative and Corcoran Elevated Alternative

The following historic architectural resource is in the city of Corcoran within the APE for the BNSF Alternative and the Corcoran Elevated Alternative.

- Zuniga's Tortilleria, APN: 030-184-010-000, 901 Flory Avenue, Corcoran; map ID #42 (NRHP). Zuniga's Tortilleria is a one-story concrete-block building constructed circa 1950. The building has been determined to be eligible for the NRHP under Criterion A at the local level for its important association with the cultural practices of Corcoran's Mexican-American residents. The building reflects the cultural role of women of Mexican descent 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 woman-operated, especially of Mexican descent, business from the mid-twentieth century. The building is also eligible for the CRHR (Criterion 1).

Wasco-Shafter Bypass Alternative

The following historic architectural resource is in the city of Shafter within the APE for the Wasco-Shafter Bypass Alternative.

- Joe O'Brien Stables, APN: 089-090-29, 1320 East Lerdo Highway, Shafter; map ID #46 (NRHP). This property consists of a horse track, a stable area with five buildings, and a residential area with two houses, two detached garages, and a storage building, all of which were constructed in about 1956. The stable complex has been determined eligible for the NRHP under Criterion B for its association with the famous and highly successful harness racer Joe O'Brien. The property served as his training base during his period of prominence in the sport in the late 1950s. The property is also eligible for the CRHR (Criterion 2).

BNSF Alternative, Bakersfield South Alternative, and Bakersfield Hybrid Alternative

The following historic architectural resources are in unincorporated Kern County and in the city of Bakersfield within the APE for the BNSF Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative.

- Kern County Civic Administration Center, APN: 006-29-001, 1315-1415 Truxtun Avenue, Bakersfield; map ID #51 (NRHP). This property consists of a large county government complex with a U-shaped layout of four buildings that was 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 after the devastating earthquakes that hit the area in the summer of 1952. This successful redevelopment project spurred many additional projects. The complex 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 precast Mo-Sai panels, louvers, and aluminum-frame windows to provide a cohesive design for the 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 court building is associated with the 1968 hunger strike and protests held there 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. The complex is also eligible for the CRHR under Criteria 1 and 3.

- APN: 006-391-02, 1401–1409 K Street, Bakersfield; map ID #52 (CEQA). This property consists of three bungalow residences constructed in 1913. A local survey identified the buildings as eligible for the Bakersfield Register of Historic Places for their bungalow architectural design.
- APN: 006-460-03, 1323 K Street, Bakersfield; map ID #53 (CEQA). This property consists of a Georgian Revival style apartment building and a small bungalow residence and garage constructed circa 1921. A local survey identified the apartment building as eligible for the Bakersfield Register of Historic Places for its architectural design.
- APN: 006-450-02, 1323 L Street, Bakersfield; map ID #54 (CEQA). This single-story bungalow residence constructed circa 1912 to 1920 was identified in a local survey as eligible for the Bakersfield Register of Historic Places for its bungalow architectural design.
- APN: 006-440-26, 1330 L Street, Bakersfield; map ID #55 (CEQA). This single-story residential bungalow constructed in 1920 was identified in a local survey as eligible for the Bakersfield Register of Historic Places for its bungalow architectural design.
- APN: 006-440-25, 1326 L Street, Bakersfield; map ID #56 (CEQA). A local survey identified this 1920 single-story bungalow residence as eligible for the Bakersfield Register of Historic Places for its bungalow architectural design.
- Stark/Spencer Residence, APN: 006-430-02, 006-430-03, 1321 N Street, Bakersfield; map ID #57 (NRHP). 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. The property is also eligible for the CRHR (Criterion 3) and is listed in the Bakersfield Register of Historic Places.
- Union Avenue Corridor, Bakersfield; APN: n/a; map ID #58 (NRHP). This segment of State Route 204 (old U.S. 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 as part of a Caltrans study that concluded the roughly 6-mile segment of old U.S. 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 the 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. The property has also been determined to be eligible for the CRHR (Criterion 1).
- Salon Juarez (Sociedad Juarez Mutualista Mexicana), APN: 017-280-03, 815 E. 18th Street, Bakersfield; map ID #59 (NRHP). 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. The property is also eligible for the CRHR (Criterion 1).
- 1031 East 18th Street, APN: 017-260-07, Bakersfield; map ID #60 (NRHP). 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 and the cutaway bay that has wide window surrounds and decorative crowns. The building has been determined to be eligible for listing in the NRHP under Criterion C as an important local example of Folk Victorian architecture. The property is also eligible for the CRHR (Criterion 3).

- San Joaquin Cotton Oil Company, APN: 017-490-14, Bakersfield; map ID #61 (NRHP). The former San Joaquin Cotton Oil Company property was a cotton oil and cotton products production complex established in the 1920s during the founding years of the cotton industry in the region. The property includes a steel water tank, seven steel-frame and metal-sided buildings, and a number of wood-framed and wood-sided buildings. The property has been determined eligible for listing in the NRHP under Criterion A at the local level of significance for its direct and important role in the early cotton industry in Kern County (the property played a crucial role in expanding the demand for cotton and related products during the 1920s, an increase in demand that led the commodity to become a major crop in Kern County). The complex is also eligible for the CRHR (Criterion 1).
- 2509 East California Street, APN: 141-130-25, Bakersfield; map ID #62 (NRHP). This small wood-frame Folk Victorian residence was constructed in about 1898; it 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. The property is also eligible for the CRHR (Criterion 3).

Fresno Station (BNSF Alternative)

The following historic architectural resources are in the city of Fresno within the APE for the Fresno Station.

- Fresno Fire Department Station No. 3, APN: 467-065-08T, 1406–1430 Fresno Street, Fresno; map ID #11 (NRHP). This property consists of the main two-story stucco exterior fire house that has five truck bays, incised speedlines, and Moderne-style lettering of the station number and a secondary one-story shop building that has a similar Moderne-style façade on a masonry structure with a clerestory ridge dormer. The station was completed in 1939. The buildings have been determined eligible for listing in the NRHP and the CRHR (CHRIS status code 3S). The property is eligible under Criteria A and C (and Criteria 1 and 3) at the local level because it is a significant example of a Works Progress Administration project in Fresno, and it is a significant local example of the Streamline Moderne architectural style. The property also includes a training tower built in 1952 that is not NRHP- or CRHR-eligible. This property is listed in the Fresno Local Register of Historic Resources (#213).
- Basque Hotel/E.A. Walrond Building, APN: 467-062-08, 1102 F Street, Fresno; map ID #12 (NRHP). 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 traditions. The building is also eligible for the CRHR (Criterion 1).
- Fresno Southern Pacific Railroad Depot, APN: 467-030-38S, 1033 H Street, Fresno; map ID #13 (NRHP). 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 (NRHP Reference No. 78000665, certified on March 21, 1978). 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 (CRHR Criteria 1 and 3), with its prominent rounded turret, flared roof line, arched windows, and eave brackets. The depot property was automatically listed in the CRHR, and it is listed in the Fresno Local Register (#11). The Pullman Shed is a reinforced-concrete shallow-gable roof structure with open-sided walls with louvers 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 because it is significant under Criterion A for its association with early-twentieth-century passenger rail service in Fresno and under Criterion C for its rare construction type (CRHR Criteria 1 and 3). The Pullman Shed has also recently been added to the Fresno Local Register.

- Bank of Italy, APN: 466-213-07, 1015 Fulton Mall, Fresno; map ID #14 (NRHP). The Bank of Italy building is an eight-story Italian Renaissance Revival building with an ornate terracotta and brick exterior constructed in 1918 with a 1928 addition. This property is listed in the NRHP (NRHP Reference No. 82000963, certified in January 1982) and is therefore also included in the CRHR. The building was listed 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 in Fresno. The building is also listed in the Fresno Local Register of Historic Resources (#123).
- First Mexican Baptist Church, APN: 467-103-01, 1061 E Street, Fresno; map ID #15 (NRHP). This two-story brick building was built between 1924 and 1929 and was reinforced in the 1960s. It has a restrained Mission Revival design that features a stepped parapet and a three-story bell tower. The property has been determined eligible under Criteria A and C (and CRHR Criteria 1 and 3) for its significant association with the local Mexican American community and as a significant local example of Mission Revival architectural style. The building is listed in the Fresno Local Register of Historic Resources (#23).
- Bank of America, APN: 467-074-01, 947–951 F Street, Fresno; map ID #16 (NRHP). This two-story, two-part commercial building, which was 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 (CRHR Criterion 1) at the local level as Fresno’s first Japanese-owned lending institution, which offered a valuable service to Fresno’s Japanese-American community, and under Criterion C (CRHR Criterion 3) for its restrained expression of the Spanish Mission Revival style. The building is listed in the Fresno Local Register of Historic Resources (#64).
- Commercial building, APN: 467-071-01, 1528 Tulare Street, Fresno; map ID #17 (CEQA). This 1895, two-story brick commercial building that houses multiple shops and residences was identified in a local survey as individually eligible for listing in the Fresno Local Register as one of the earliest remaining buildings associated with Fresno’s Chinatown and as a contributor to a potential CEQA-only Chinatown District, which is a notable grouping of commercial and social buildings in Fresno’s historically Chinese-dominated neighborhood.
- Pacific Coast Seeded Raisin Company/Del Monte Plant #68, APN: 467-040-12S, 1626 Tulare Street, Fresno; map ID #18 (CEQA). This dried-fruit-processing plant was originally constructed circa 1906 and heavily altered and expanded in 1946. A local survey identified the 1946 addition, a three-story reinforced-concrete processing building constructed in the International style, as eligible for listing in the Fresno Local Register for its architecture and association with California Packing Corporation, a major food processor.
- Hobbs Parsons Produce Building, APN: 467-040-24S, 903–911 H Street, Fresno; map ID #19 (CEQA). The Hobbs Parsons Produce Company building is a long single-story masonry building constructed in 1903 and rehabilitated in 2006. The building is listed in the Fresno

- Local Register (#169) and is a significant architectural representative of early local warehouse/commercial construction in Fresno.
- Radin-Kamp Department Store, APN: 468-281-01, 959 Fulton Mall, Fresno; map ID #20 (NRHP). This four-story reinforced-concrete commercial building, completed in 1925, has a 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 (CRHR Criterion 3) as an important local example of early-twentieth-century commercial architecture. The building is listed in the Fresno Local Register of Historic Resources (#124).
 - Peacock Department Store, APN: 467-074-02, 937–945 F Street, Fresno; map ID #21 (CEQA). This two-story brick commercial building has a stucco exterior. It was built circa 1910 and has undergone several alterations, including a façade replacement in 1932. A local survey identified this building as a possible contributor to a potential local Chinatown District, which is a notable grouping of commercial and social buildings in Fresno’s historically Chinese-dominated neighborhood. (The building at 942 Fagan Alley, below, is on the same legal parcel as the department store.)
 - H. Sargavak Building, APN: 467-074-02, 942 Fagan Alley, Fresno; map ID #22 (CEQA). This simple one-story brick residential building was built in 1925; it offered temporary housing to Chinese and Japanese workers. A previous survey identified this building as eligible under CRHR Criterion 3 because of its significance as an example of Chinatown worker housing. The building is also eligible for listing in the Fresno Local Register of Historic Resources. The multifamily residence is also considered a contributor to a potential local Chinatown District, which is a notable grouping of commercial and social buildings in Fresno’s historically Chinese-dominated neighborhood.
 - 938–952 F Street, APN: 467-071-16, 938–952 F Street, Fresno; map ID #23 (CEQA). This circa 1925 two-story brick commercial building was identified in a local survey as eligible for the Fresno Local Register as a contributing element to a potential CEQA-only Chinatown District, which is a notable grouping of commercial and social buildings in Fresno’s historically Chinese-dominated neighborhood.
 - Haruji Ego Family Building, APN: 467-071-02, 956 China Alley, Fresno; map ID #24 (CEQA). The Haruji Ego Family Building is a narrow single-story brick commercial building constructed circa 1900. The building is a form once commonly found in Fresno’s Chinatown. A local survey identified the building as individually eligible for listing in the Fresno Local Register for its association with the development of Chinatown and as a contributor to a potential CEQA-only Chinatown District, which is a notable grouping of commercial and social buildings in Fresno’s historically Chinese-dominated neighborhood. The building is also a Fresno Heritage Property (#008).
 - Komoto’s Department Store and Hotel, APN: 467-072-01, 1536–1542 Kern Street, Fresno; map ID #25 (CEQA). This two-story brick commercial and residential building was constructed circa 1901; it housed a Japanese department store and hotel. A local survey identified the building as individually eligible for listing in the CRHR for its important association with the development of Fresno’s Chinatown. The building is listed in the Fresno Local Register (#72) as an example of Japanese commercial activity in Fresno’s Chinatown, and the building is also eligible for the Fresno Local Register as a contributor to a potential CEQA-only Chinatown District, which is a notable grouping of commercial and social buildings in Fresno’s historically Chinese-dominated neighborhood.
 - Dick’s Shoes Building, APN: 467-072-08, 1522–1526 Kern Street, Fresno; map ID #26 (CEQA). A local survey identified this 1922, two-story, brick commercial building as eligible

for listing in the CRHR and the Fresno Local Register for its important association with the development of Fresno's Chinatown. The building was also identified as eligible for the local register as a contributor to a potential CEQA-only Chinatown District, which is a notable grouping of commercial and social buildings in Fresno's historically Chinese-dominated neighborhood.

- Azteca Theatre, APN: 467-072-06, 836–840 F Street, Fresno; map ID #27 (CEQA). The Azteca Theatre is an Art Deco–style theater 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 who 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. A local survey also identified the building as eligible for listing in the CRHR and Fresno Local Register for its architecture and as a contributor to a potential CEQA-only Chinatown District, which is a notable grouping of commercial and social buildings in Fresno's historically Chinese-dominated neighborhood.
- Liberty Laundry Building, APN: 468-286-11, 1830 Inyo Street, Fresno; map ID #28 (CEQA). The 1928 brick former Liberty Laundry building is listed in the Fresno Local Register of Historic Resources (#262) as a significant representative of Fresno's economic and social development for its association with the locally prominent Pickford family and as a significant architectural representative of Fresno commercial architecture.

BNSF Alternative and Fresno Heavy Maintenance Facility Site

The following historic architectural resource is in unincorporated Fresno County within the APE for the BNSF Alternative and Fresno Works–Fresno HMF Site Alternative.

- Washington Irrigated Colony Historic Rural Landscape (a district); map ID #34 (NRHP). This property and the five contributing elements of the district are described under the heading for the BNSF Alternative.

3.17.4.4 Paleontological Resources

Paleontological resources are the fossilized remains or traces of animals and plants. They are typically found in sedimentary rock units, and they provide information about the evolution of life on earth over the past billion years or more. Paleontological resources, or fossils, are important scientific and educational resources because they can help document the presence and evolutionary history of particular groups of organisms, reconstruct the environments in which these organisms lived, and provide a history of environmental change. Geologists also use fossils to determine the ages of sedimentary units in which they occur, the nature of the geologic events that resulted in the deposition of the sediments, and minerals that might potentially be associated with sedimentary units.

The paleontological sensitivity of a sedimentary unit is determined by its past record and future potential for producing unique or scientifically significant fossils. Fossil-bearing formations may not yield a unique paleontological resource, but the resources may nevertheless retain scientific importance by meeting one or more of the following criteria (SVP 1995):

- Provides information on evolutionary trends or helps to relate living species to extinct species.
- Provides information regarding the development of biological communities and/or past environmental changes.

- Demonstrates unusual circumstances in the history of life.
- Represents a rare taxon or a rare or unique occurrence, or is in short supply and in danger of being destroyed or depleted.
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type.
- Provides information that can be used to correlate strata for which it is difficult to obtain other types of age data.

In California, paleontological resources that meet these criteria, and thus are considered scientifically important, include all vertebrate remains as well as most invertebrate and plant fossils. Paleontological sensitivity is, therefore, the qualitative assessment made by a professional paleontologist taking into account the paleontological potential (the likelihood that fossils will be encountered) of the local geology. Table 3.17-8 defines the sensitivity ratings used for the purpose of this assessment.

Table 3.17-8
 Paleontological Sensitivity Ratings Employed for This Analysis

Rating	Definition
High	Stratigraphic units in which vertebrate or significant invertebrate fossils or significant suites of plant fossils have been previously found have a high potential to produce additional significant nonrenewable fossils and are therefore considered to be highly sensitive. In keeping with the significance criteria of the SVP (SVP 1995), all stratigraphic units in which vertebrate fossils have previously been found have high sensitivity. Full-time monitoring is recommended during any project-related ground disturbance in stratigraphic units with high sensitivity.
Low	Stratigraphic units that are not sedimentary in origin or that have not been known to produce fossils in the past are considered to have low sensitivity. Monitoring is usually not recommended and is not needed during project construction through a stratigraphic unit with low sensitivity.
Undetermined	Stratigraphic units that have not had any previous paleontological resource surveys or any fossil finds are considered to have undetermined sensitivity. After reconnaissance surveys, observations of artificial exposures (such as road cuts) and natural exposures (such as stream banks), and possible subsurface testing (such as augering or trenching), an experienced professional paleontologist can often determine whether the stratigraphic unit should be categorized as having high or low sensitivity.
Acronym: SVP = Society of Vertebrate Paleontology	

An inventory of known paleontological resources discovered for each geological formation in the vicinity of the proposed project is presented below and summarized in Table 3.17-9. The paleontological importance of these resources is also assessed. The literature review and museum archival search conducted for this inventory documented no previously recorded fossil sites within the study area. The LACM and SBCM reports are included as Appendices A and B, respectively, of the *California High-Speed Train Fresno to Bakersfield Paleontological Resource Survey Report* (Authority and FRA 2011f). A follow-up review of the archival records was conducted in December 2011 to address the addition of the Hanford West Bypass alternatives to the study area. This review identified no recorded localities. See the *California High-Speed Train Fresno to Bakersfield Supplemental Paleontological Resource Survey Report* (Authority and FRA 2012d).

Table 3.17-9
 Geologic Units Underlying the Study Area

Map Symbol^a	Age and Map Legend Identification Bakersfield High School's^b	Formation^c	Location	Lithology	Paleontological Sensitivity^d
Qb	Quaternary basin deposits	Unnamed	San Joaquin Valley	Floodplain deposits sand, silt, and clay	Low
Ql	Quaternary lake deposits	Includes the "Tulare Lake Beds" sediments	San Joaquin Valley	Lacustrine fine sand, silt, and clay	High
Qf	Quaternary fan deposits – includes the late Pleistocene Modesto Formation	Modesto Formation	San Joaquin Valley	Interbedded, largely unconsolidated and poorly sorted, buff to yellowish brown sandstone and siltstone with lesser amounts of pebble to cobble conglomerate	High
Qc	Pleistocene nonmarine	Riverbank Formation	San Joaquin Valley	Weakly consolidated reddish-brown to pink siltstones, sandstones, and pebble to cobble conglomerates with a few thin intervals of brick-red claystone	High
Qc	Pleistocene nonmarine	Turlock Lake Formation	San Joaquin Valley	Interbedded and poorly sorted, brown to tan and gray arkosic siltstones and sandstones with lenses of pebbles and gravels	High
QP	Plio-Pleistocene nonmarine	Kern River Formation	Western flank of Sierra Nevada – eastern San Joaquin Valley	Interbedded and poorly sorted, buff to brown sandstone with lesser amounts of pebble to cobble conglomerate, siltstone, and mudstone	High

Notes:

^a Map units and symbols are from the Geologic Map of California Bakersfield Sheet (Smith 1964) and Geologic Map of California Fresno Sheet (CDMG 1966), California Division of Mines and Geology.

^b The map legend identification is not entirely accurate as to the age of the geologic formations. The Kern River Formation is older than the map legend indicates (see discussion below).

^c The Riverbank and Turlock Lake Formations have been included in the same map units in maps of this scale (1:250,000).

^d The Society of Vertebrate Paleontology (SVP 1995) describes sedimentary rock units as having (1) high potential for containing significant paleontological resources, (2) low potential for containing paleontological resources, or (3) undetermined potential.

UCMP did not produce a detailed report, although the records search found only one pre-existing locality in the study area: UCMP locality V65101. This locality consists of two Pleistocene horse teeth that were found "6 miles from Corcoran in 19 feet of clay." The data for the site did not designate a geologic formation, and the exact location is unknown. The Kern River, Turlock Lake, Riverbank, and Modesto Formations and Tulare Lakebeds have all yielded fossilized remains of extinct species at numerous previously recorded sites throughout the San Joaquin Valley (see discussion below). In addition, several previously unrecorded fossil localities were identified during the field survey for this project within or very near the study area. The field survey, which included visual inspection of exposures of potentially fossiliferous strata in the study area, was conducted to document the presence of sediments suitable for containing fossil remains and the presence of any previously unrecorded fossil sites. The field survey for this assessment was conducted during several site visits between November 2009 and April 2010. A subsequent field survey was conducted in December 2011 to address the addition of the Hanford West Bypass alternatives. During the field survey, stratigraphy was observed in road cuts, recent excavations, and the banks of drainage diversions, groundwater recharge basins, storm-water retention basins, streams, irrigation canals, ditches, and ponds.

A number of Miocene to Holocene sedimentary units underlie the study area. From oldest to youngest, these units are:

- Kern River Formation, late Miocene and Pliocene to middle Pleistocene.
- Turlock Lake Formation, the middle to late Pleistocene.
- Riverbank Formation, the late Pleistocene to early Holocene.
- Modesto Formation, the Pleistocene to Holocene.
- Tulare Lakebeds.
- Quaternary alluvium (including lake and basin deposits).

Each of these formations is composed of arkosic alluvial sediments derived from the Sierra Nevada to the east. The northeastern and southeastern sections of the San Joaquin Valley have slightly different tectonic histories. Uplift of the Sierra Nevada began earlier in the south than in the north, producing older and thicker alluvial fan sequences in the south.

Kern River Formation

The Kern River Formation has produced numerous significant fossils in the past. Reported fossil specimens from the Kern River Formation include a mustelid (*Eomellivora wimani*), procyonid (*Bassariseus antiquus*), horse (*Pliohippus spectans*), field mouse (*Peromysus pliogenicus*), squirrel (*Spermophilus argonatus*), and rabbits (*Hypolagus edensis*, *Hypolagus limetus*).

UCMP has records of more than a dozen fossil localities in the Kern River Formation. Several of these previously recorded fossil sites are reported as having been uncovered by earth-moving associated with previous construction projects. Fossils recovered from these sites include the remains of fish, amphibians, reptiles, birds, and both small and large mammals. Most of the small fossils have been recovered through screen washing of fossiliferous sediments exposed by excavations at construction sites.

LACM also has several important vertebrate fossil localities in the Kern River Formation from north of the project study area. These localities have produced important fauna, including a vulture, weasel, and peccary. LACM Locality 49 has produced "an extensive terrestrial fauna (and a couple of marine specimens)." This locality produced the holotypes for several new species, including *Vultur kernensis* (vulture), *Brachypsalis angustidens* (mustelid carnivore), *Peromyscus pliogenicus* (deer mouse), and *Prosthennops kernensis* (peccary) (Authority and FRA 2011f; 2012d). Based on the known fossils found within the Kern River Formation, it is considered to have high paleontological sensitivity.

Turlock Lake Formation

The Turlock Lake Formation has yielded fossil remains at numerous sites in the Great Valley. These remains include petrified wood and the bones and teeth of a diverse assemblage of land mammals, including mammoths, horses, and a camel. Both vertebrate and plant fossils have been reported from Turlock Lake Formation sediments exposed in the bluffs along the American River at Fair Oaks, California. Fossil fish, plant fragments, petrified wood, and ichnofossils have been reported in the Turlock Lake Formation near Roseville. A large assemblage of fossils has been reported from the Turlock Lake Formation at the Fairmead Landfill site, located approximately 30 miles northwest of Fresno, and a *Camelops* sp. (camel) was discovered from an excavation in the Fresno area (Authority and FRA 2011f). Based on the known fossils found within the Turlock Lake Formation, it is considered to have high paleontological sensitivity.

Riverbank Formation

Sediments of the Riverbank Formation have yielded the fossilized remains of middle Pleistocene plants and animals from numerous previously recorded fossil sites in the Great Central Valley. Fossil vertebrates of Irvingtonian to Rancholabrean North American Land Mammal Age have been reported from Riverbank Formation sediments near their type area and at numerous other scattered locations along the eastern margin of the Great Valley. Fossils previously reported from the Riverbank Formation include clams, fish, turtles, frogs, snakes, birds, bison (*Bison* sp.), mammoths (*Mammathus* sp.), mastodons (*Mammut* sp.), ground sloths (*Paramylodon* sp.), camels (*Camelops* sp.), horses (*Equus* sp.), pronghorns, deer, dire wolves (*Canis dirus*), coyotes (*Canis latrans*), rabbits (*Lepus* sp.), rodents (*Scapernus* sp.; *Neotoma* sp.), and land plant remains (including wood, leaves, and seeds).

A large fossil assemblage was discovered from a paleosol (a buried soil) in the Riverbank Formation during excavations for the Arco Arena in Sacramento. The presence of paleosols in the Riverbank Formation indicates that scientifically important fossil specimens may be discovered from other paleosol horizons in this formation. Excavations for the Fairmead Landfill in Madera County have exposed fossiliferous sediments of the Riverbank Formation and significant vertebrate fossils have come from this locality. Numerous fossil specimens have also been salvaged from the Riverbank Formation in the Fresno area as the result of paleontological mitigation, including mammoth bones and teeth and plant microfossils (Authority and FRA 2011f, 2012d). Based on the known fossils found within the Riverbank Formation, it is considered to have high paleontological sensitivity.

Modesto Formation

Fossil vertebrates of Rancholabrean age and fossil wood have previously been reported from sediments of the Modesto Formation near its type area and at numerous other scattered locations in the Great Valley. A database of California Pleistocene (primarily Rancholabrean North American Land Mammal Age) vertebrate fossils has been compiled from published records, technical reports, unpublished manuscripts, information from colleagues, and inspection of museum paleontological collections at more than 40 public and private institutions. Several sites in Fresno, Kings, Tulare, and Kern counties have yielded Rancholabrean vertebrate fossils that are likely from the Modesto Formation. They include specimens of Pleistocene megafauna such as mammoth, bison, horse, camel, dire wolf, and many others (Authority and FRA 2011f; 2012d). Based on the known fossils found within the Modesto Formation, it is considered to have high paleontological sensitivity.

Tulare Lake Beds

Numerous important fossils have been reported from sediments deposited in ancestral Tulare Lake. Several sites in Kings County have yielded Rancholabrean vertebrate fossils from Tulare

Lake sediments. These localities produced specimens of Pleistocene megafauna, such as mammoth, bison, horse, camel, dire wolf, and many others. A locality known as the Witt Site has produced a diverse faunal assemblage representing late Pleistocene to early Holocene land mammals and fishes. Mammalian specimens from this site include ground sloth, rabbit, gopher, beaver, coyote, dire wolf, lion, mink, mammoth, horse, camel, elk, deer, pronghorn, musk ox, and bison. Specimens from this assemblage have been radiometrically dated from 7,000 to more than 60,000 years B.P. Pollen analysis of cores taken through Tulare Lake Beds has been used to help reconstruct the climatic and floral history of the late Pleistocene to early Holocene sites of the San Joaquin Valley (Authority and FRA 2011f, 2012d). Based on the known fossils found within the Tulare Lake Formation, it is considered to have high paleontological sensitivity.

Quaternary Alluvium

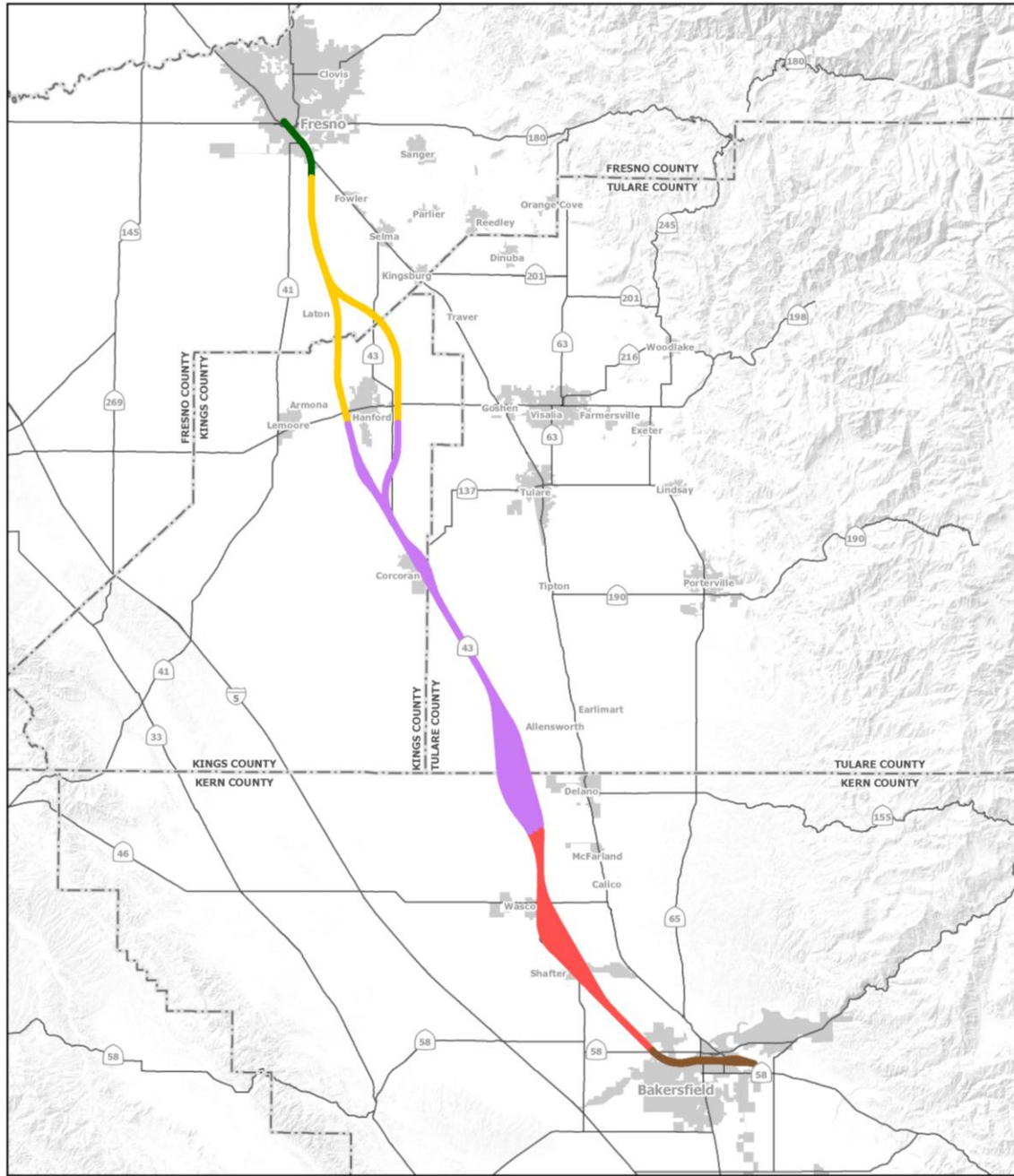
No previously recorded fossil sites were found in Quaternary alluvium (Quaternary basin deposits in Table 3.17-9) in the study area (Authority and FRA 2011f, 2012d).

Summary

Table 3.17-9 lists the formations discussed above and summarizes their paleontological sensitivities based on SVP guidelines. Although the extent to which the individual units are affected differs, the geologic units themselves do not change from one Fresno to Bakersfield alternative to another.

Based on the underlying geologic units, the Fresno to Bakersfield Section has been subdivided into five paleontological sensitivity zones as illustrated on Figure 3.17-2. Additional and more detailed information may be found in the *California High-Speed Train Fresno to Bakersfield Paleontological Resource Survey Report* (Authority and FRA 2011f, 2012d). The zonal analysis of sensitivity assumes that excavations will be deep enough to impact geologic units underlying the Quaternary alluvium, as described below. Starting from the north, the following five zones were identified:

- Zone 1 is in the Fresno urban area where Pleistocene sediments of the middle to late Pleistocene Riverbank Formation and/or the late Pleistocene to early Holocene Modesto Formation are exposed at or near the surface and are known to overlie the early to middle Pleistocene Turlock Lake Formation.
- Zone 2 is in the largely rural area between Fresno and Hanford where Quaternary alluvium overlies sediments of the late Pleistocene to early Holocene Modesto Formation.
- Zone 3 is from Hanford south to approximately west of Delano where sediments of the Tulare Lakebeds are exposed at or near the surface.
- Zone 4 extends from Delano south to Bakersfield where the stratigraphy is similar to that found from Fresno to Hanford, with buff to brown, poorly indurated fine sandstones and siltstones interpreted to be correlative with the Modesto Formation. These sediments are overlain by Quaternary alluvium.
- Zone 5 is in the Bakersfield urban area where Quaternary alluvium is interpreted to overlie the Kern River Formation at an unknown depth.



Source: PaleoResource Consultants, 2012.

November 22, 2013.



Figure 3.17-2
 Paleontological sensitivity zones

Zones 1, 3, and 5 are considered to have high paleontological sensitivity based on the high potential for encountering significant paleontological resources. Zones 2 and 4 contain Quaternary alluvium at the surface that is considered to have low paleontological sensitivity because this unit is too recent to preserve significant fossils. However, at shallow depths, Zone 2 is underlain by the Modesto Formation, and Zone 4 is underlain by sediments correlative with the Modesto Formation, both of which have high paleontological sensitivities. Similarly, urban areas that have been previously disturbed are considered to have low paleontological sensitivity to the depth of the disturbance. Thus, depending on the depth of potential ground disturbance (i.e., surface-level or only very shallow excavations less than a few feet), Zones 2 and 4 along with disturbed areas would be considered to have lower paleontological sensitivities than Zones 1, 3, and 5.

3.17.5 Environmental Consequences

3.17.5.1 Overview

As discussed in Chapter 2, Alternatives, under the No Project Alternative this region will grow considerably in the next 25 years. Cultural and paleontological resources will continue to be affected in the Central Valley urban areas through the conversion of land use between 2010 and 2035 and through demolition, degradation, and the unearthing and looting of resources.

Construction of the HST System in the Fresno to Bakersfield Section will occur in both urbanized areas and sparsely populated, undeveloped land outside of regional centers. This HST section would have the greatest potential to affect historic architectural resources in the urbanized areas and the greatest potential to affect undisturbed prehistoric archaeological sites and paleontological localities in rural areas because these areas are less disturbed by development.

Although seven archaeological sites were identified within the APE, none of these sites are considered eligible for listing on the NRHP. This assessment applies to all the alternatives (i.e., the BNSF Alternative, the Hanford West Bypass 1 and 2 alternatives, the Corcoran Elevated Alternative, the Corcoran Bypass Alternative, the Allensworth Bypass Alternative, the Wasco-Shafter Bypass Alternative, the Bakersfield South Alternative, and the Bakersfield Hybrid Alternative). Therefore, none of the proposed alternatives have the potential to affect known archaeological resources.

Surveys identified 62 historic architectural resources within the APE: 35 historic properties under Section 106 and 62 historical resources under CEQA (inclusive of the 35 Section 106 historic properties). Thirty-seven of the 62 resources would not be adversely affected by any of the Fresno to Bakersfield Section alternatives; therefore, 25 historic architectural resources would be affected by one or more of the alternatives, as summarized here and described further in the sections below.

The BNSF Alternative would cause adverse effects on 9 of the Section 106 historic properties and 6 of the CEQA historical resources, for a total of 15 historic architectural resources affected. These effects include direct adverse effects through demolition and the taking of property and indirect adverse visual effects. The BNSF Alternative would cause substantial adverse changes and therefore significant impacts on six CEQA historical architectural resources.

The Fresno Station would cause adverse effects on one Section 106 historic property, and would cause a substantial adverse change to the significance of one CEQA historical resource, through demolition.

The Fresno Works–Fresno HMF Site Alternative would cause adverse effects on one Section 106 historic rural landscape and to some of its contributing elements. These effects would include direct adverse effects through demolition and the taking of property and indirect adverse visual

effects. The direct and indirect effects are substantial adverse changes to the landscape district historical resource and are therefore significant impacts under CEQA.

The Hanford West Bypass 1 Alternative (with at-grade and below-grade options) would cause adverse effects on three Section 106 historic properties. The Hanford West Bypass 2 Alternative (with at-grade and below-grade options) would have adverse effects on three Section 106 historic properties. These effects would cause significant impacts to these historical resources under CEQA. The effects would include direct adverse effects through demolition and the taking of property, and indirect visual effects. The direct effects would be substantial adverse changes to these historical resources and therefore would be significant impacts under CEQA.

The Bakersfield South Alternative would have direct adverse effect on one Section 106 historic property through physical alteration and demolition and indirect visual effect on one Section 106 historic property. This alternative would impact one CEQA historical resource through indirect adverse visual effects. The direct effect would be a substantial adverse change to the historical resource and therefore would be a significant impact under CEQA.

The Bakersfield Hybrid Alternative would have indirect adverse visual effect on one Section 106 historic property. This alternative would cause adverse effects/substantial adverse changes to a total of five historical properties/resources: the one Section 106 property and four CEQA historical resources. The substantial adverse changes would include physical alteration and demolition, as well as indirect visual changes to the immediate surroundings of the resources, and therefore would be significant impacts under CEQA.

None of the other alternatives (i.e., the Kings/Tulare Regional Station–East and –West alternatives, the Corcoran Elevated Alternative, the Corcoran Bypass Alternative, the Allensworth Bypass Alternative, or the Wasco–Shafter Bypass Alternative) would have any adverse effects on either Section 106 historic properties or substantial adverse changes to CEQA historical resources. These alternatives would not have adverse effects on historic properties (Section 106) and no substantial adverse change to historical resources, so these alternatives would not have a significant impact under CEQA.

No specific paleontological localities have been recorded within the APE. However, five geologic formations that intersect the project APE, as shown in Table 3.17-9, are considered highly sensitive for potentially significant, yet unidentified, paleontological resources, depending on the depth of potential ground disturbances.

3.17.5.2 No Project Alternative

Cultural resources will continue to be affected in urban areas of the Central Valley through the conversion of land use between 2010 and 2035 due to growth, changes in land use and ground disturbance associated with other transportation infrastructure improvements that will be needed without the project, including the expansion of existing highways to accommodate the state's growing population. Adverse effects on eligible resources could result in the neglect, abandonment, or removal of historic properties. If growth remains, as planned in the urban growth boundaries, the areas of the APE that pass through primarily rural agricultural lands are not likely to change substantially in terms of land use. These changes will likely result in further unearthing of sensitive archaeological resources; disturbance of TCPs; disturbance and possible damage to paleontological resources; and removal of, or changes to, the historic character and settings of historic resources. Some of these projects are likely to undergo CEQA review.

3.17.5.3 Construction Period Impacts

Unlike other parts of Chapter 3, in this section the permanent effects of introducing the project and its components are discussed together with the temporary construction impacts because the

mechanisms that would cause impacts would be the same despite being temporary. Activities that cause impacts on cultural and paleontological resources are typically associated with construction of a project: disturbance of the ground, the material or physical alteration of the built environment, or the alteration of the visual setting. Effects on archaeological resources, traditional cultural resources, and paleontological resources are addressed as construction period effects only because the project operations will not involve these types of actions or cause any further—or post-construction—visual discord or vibration that would result in additional adverse effects (Section 106) or substantial adverse changes (CEQA) to these resources.

Archaeological Resources

Archaeological sites could be subject to adverse effects during construction activities. Soil excavation or compaction resulting from the use of heavy machinery on the construction site itself or in staging areas may affect the integrity of artifact-bearing deposits associated with known and as-yet undiscovered archaeological sites. For all alternatives, unknown or unrecorded archaeological resources, including subsurface buried archaeological deposits, may exist, but are currently unknown. Although no known archeological sites that qualify as historical resources or unique archaeological resources are in the study area, construction activities related to ground disturbance in some areas could contain unknown historical resources or properties. Disturbance and removal of archaeological resources could result in adverse effects on archaeological resources under Section 106 and could cause substantial adverse changes in the significance of an archaeological resource pursuant to Section 15064.5 and would be an impact with substantial intensity under NEPA and a significant impact under CEQA (see thresholds of significance in Section 3.17.3.4).

Impact CUL #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities

Construction of the HST would result in possible adverse effects on unknown archaeological deposits or paleontological resources from ground-disturbing construction operations associated with the project, or in areas where PTE has not been granted. Unknown archaeological sites might represent the full range of prehistoric or historic activities conducted over time from prehistoric lithic scatters and village sites, to historic era homestead remains, to human burials. Previously unidentified and buried paleontological sites would likely include fossil bearing sediments. Although the MOA for the Fresno to Bakersfield Section establishes mitigation measures to be implemented before, during, and after construction to ensure that construction activities would avoid and minimize these adverse effects or changes, to the extent possible, these operations would likely cause substantial adverse changes in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 and the NHPA (36 C.F.R. Part 800.5) and is therefore considered a potentially significant impact under CEQA and/or an adverse effect under Section 106. These potential impacts/effects would be the same for all alternatives (the BNSF Alternative, Hanford West Bypass 1 and 2 alternatives, Corcoran Elevated Alternative, Corcoran Bypass Alternative, Allensworth Bypass Alternative, Wasco-Shafter Bypass Alternative, Bakersfield South Alternative, and Bakersfield Hybrid Alternative); all station alternatives (Fresno Station, Kings/Tulare Regional Station–East, Kings/Tulare Regional Station–West, Bakersfield Station–North, Bakersfield Station–South, and Bakersfield Station–Hybrid); and all HMF site alternatives (Fresno Works–Fresno, Kings County–Hanford, Kern Council of Governments–Wasco, Kern Council of Governments–Shafter East, and Kern Council of Governments–Shafter West).

Unknown or unrecorded archaeological resources that are not observable when conducting standard surface archaeological inspection, including subsurface buried archaeological deposits, may exist within the urbanized or rural areas, or areas where PTE enter has not been granted. Construction-related ground disturbance in areas that could contain unknown historical resources

or properties could cause substantial adverse changes in the significance of prehistoric archaeological resources pursuant to CEQA Guidelines Section 15064.5 and the NHPA (36 C.F.R. Part 800.5). This impact is considered a potentially adverse effect under Section 106, and therefore this impact is a substantial adverse change to a historical resource and is considered significant under CEQA.

BNSF Alternative: Archaeological Resources

The two prehistoric archaeological sites known to exist within the BNSF Alternative area of the APE are not eligible for listing in the CRHR and the NRHP as historic resources/properties (see CEQA Guidelines Section 15064.5[a][4]).

No archaeological resources have been recorded within the APE for the proposed Fresno Station, Kings/Tulare Regional Station–East Alternative, Kings/Tulare Regional Station–West Alternative, and Bakersfield station alternative. However, unknown or unrecorded archaeological resources that are not observable when conducting standard surface archaeological inspection, including subsurface buried archaeological deposits, may exist within the urbanized or rural areas. Construction-related ground disturbance in areas that could contain unknown historical resources or properties, including areas where PTE was not available, could cause substantial adverse changes in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5, and is therefore considered a potentially significant impact under CEQA and an adverse effect under Section 106.

Other Alternative Alignments: Archaeological Resources

One recorded archaeological resource is within the APE of the Allensworth Bypass Alternative and one is within the APE of the Bakersfield South Alternative. Neither of these resources are considered a historical property or resource. The same resource that is recorded within the APE of the Bakersfield South Alternative is also recorded within the Bakersfield Hybrid Alternative. No known archaeological resources are within the APE for the corresponding segments of the BNSF Alternative. No previously recorded archaeological resources are within the APE for the Corcoran Bypass, Corcoran Elevated, and Wasco-Shafter Bypass alternatives. Construction-related ground disturbance in areas known to contain historical resources or properties, in areas where PTE has not been granted, or to unknown buried resources would cause substantial adverse changes in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 and would therefore be considered a significant impact and an adverse effect under Section 106.

Heavy Maintenance Facility Site Alternatives: Archaeological Resources

Five alternative locations are being considered for the HMF. No previously recorded archaeological resources are within the APEs for any of the proposed HMF locations; therefore, the construction effects would have no adverse effect under NEPA and Section 106 of the NHPA and would be less than significant under CEQA on previously identified resources. However, the surveys for archaeological resources of the HMF locations are incomplete as PTE has not been obtained for all parcels comprising the individual HMFs. Therefore it is possible that sites with surface manifestations are present, in addition to the potential for buried resources at the HMF locations. As a result, impacts on unknown archaeological resources would be similar to those of the BNSF Alternative.

Historic Architectural Resources

Impact CUL #2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities

Construction activities that may cause impacts on historic architectural resources can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or the need for relocation, as well as increases in vibration levels or introduction of new visual elements. Execution of the treatments described in the mitigation measures below would avoid, minimize, or mitigate these adverse effects or changes, to the extent possible. Additionally, the MOA for the Fresno to Bakersfield Section ensures that treatments implemented before, during, and after construction would avoid, minimize, and mitigate these adverse effects or substantial adverse changes. Nevertheless, some of the HST alternatives would cause adverse effects or changes—either directly through demolition or alteration, or indirectly through introduction of visual or atmospheric elements.

The specific effect (or lack of effect) of each alternative is described in the following section. Some of the alternatives would cause no adverse effect or changes to historic architectural properties or resources. No single historic architectural resource in the Fresno to Bakersfield Section would be adversely affected or subject to substantial adverse change under all alternatives studied; however, some resources would be affected under more than one alternative. The effects and changes to historic architectural resources described below are arranged by alternative, and the summary of these findings is provided in Table 3.17-10.

One common potential adverse effect or change is construction noise and vibration. In response, avoidance mitigation has been developed and is included here and in the MOA and treatment plans to ensure that there will be no adverse effects to historic properties (Section 106) or substantial adverse change to historical resources (CEQA) from noise or vibration caused by construction activities for any of the Fresno to Bakersfield Section alternatives. Property-specific mitigation is not possible for all sites at this stage in the design process. However, applicable mitigation methods to reduce impacts to a less-than-significant level are available and will apply to all property affected by noise and vibration. Impacts assessments and mitigation measures are based on anticipated vibration levels from impact pile-driving during construction to reach up to 0.12 in/sec peak particle velocity (ppv) (approximately 90 VdB) at 135 feet from the project centerline, a level which could cause the physical destruction, damage, or alteration of historic properties or historical resources. Because impact pile-driving could cause indirect adverse effects or significant adverse changes, alternative construction methods (such as cast-in-drilled hole construction) causing vibration of less than 0.12 in/sec ppv will be developed near historic properties or historical resources located within 135 feet from the project centerline (Authority and FRA 2012e).

The development of alternative construction methods at these locations would avoid indirect adverse vibration effects on historic properties (Section 106) and would avoid substantial adverse vibration changes to historical resources. Implementation of these methods would result in no significant impacts under CEQA. Potential noise impacts from the construction of the alternatives are not anticipated to cause adverse effects or substantial adverse changes to historic properties (Section 106) or historical resources (CEQA).

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Table 3.17-10
 Construction and/or Operational Effects and Changes (Section 106 and CEQA) to Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
1	46620407	Budd & Quinn Showroom/Fresno Body & Fender Works 1560 H St (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
2	46620406	Budd & Quinn 1514-1518 H St (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
3	46620514	H.E. Jaynes & Son 1454 H St (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
4	46620513	H.E. Jaynes & Son 1452 H St (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
5	46620219 46620220	Parker Nash Building 1460-1462 Broadway	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
6	46620207	1416 Broadway	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
7	46620505	Mayflower Hotel 1415-1417 Broadway	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—

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Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
8	46620511	Benham Ice Cream/Dale Bros. Coffee Building; Dale Bros. Coffee Sign 1420 H St	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
9*	46621401	Hotel Fresno 1257 Broadway	Fresno, Fresno	No Adverse Effect	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—
10*	46621212	Crest Theater 1160 Broadway Plaza	Fresno, Fresno	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
11*	46706508T	Fresno Fire Department Station No. 3 1406-1430 Fresno St	Fresno, Fresno	No Adverse Effect	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—
12*	46706208	Basque Hotel/EA Walrond Building 1102 F St	Fresno, Fresno	No Adverse Effect	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—
13*	46703038S	Southern Pacific Railroad Depot 1033 H St	Fresno, Fresno	Adverse Effect Indirect	Adverse Effect Indirect	—	—	—	—	—	—	—	—	—	—	—
14*	46621307	Bank of Italy 1015 Fulton Mall	Fresno, Fresno	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
15*	46710301	First Mexican Baptist Church 1061 E Street	Fresno, Fresno	—	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—
16*	46707401	Bank of America 947-951 F Street	Fresno, Fresno	Adverse Effect Indirect	—	—	—	—	—	—	—	—	—	—	—	—
17	46707101	1528 - 1548 Tulare St (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	Substantial Adverse Change – Indirect	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
18	46704012S	Pacific Coast Seeded Raisin Company/Del Monte Plant No. 68 1626 Tulare St	Fresno, Fresno	Substantial Adverse Change – Direct	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—

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 Construction and/or Operational Effects and Changes (Section 106 and CEQA) to Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station– East/West	Bakersfield Station– North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
19	46704024S	Hobbs Parsons Produce Building 903-911 H St	Fresno, Fresno	Substantial Adverse Change – Indirect	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
20*	46828101	Radin-Kamp Department Store 959 Fulton Mall	Fresno, Fresno	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
21	46707402	Peacock Department Store 937-945 F St (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
22	46707402	H. Sargavak Building 942 Fagan Alley (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
23	46707116	938-952 F St	Fresno, Fresno	No Substantial Adverse Change	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
24	46707102	Haruji Ego Family Building 956 China Alley (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	Substantial Adverse Change – Indirect	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
25	46707201	Komoto’s Department Store and Hotel 1536-1542 Kern St (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	Substantial Adverse Change – Indirect	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—

Table 3.17-10
 Construction and/or Operational Effects and Changes (Section 106 and CEQA) to Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
26	46707208	Dick's Shoes Building (Dick Avakian Shoe Repair) 1522-1526 Kern St (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
27*	46707206	Azteca Theatre 836-840 F St (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	No Adverse Effect	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—
28	46828611	Liberty Laundry 1830 Inyo St	Fresno, Fresno	—	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
29	46828604	Baskin's Auto Supply Sign 729 Broadway	Fresno, Fresno	—	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—
30	46708220T	California Packing Corp., water tower, 503 G St	Fresno, Fresno	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
31*	46709234	Vartanian Home 362 F St	Fresno, Fresno	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
32*	46702013	Holt Lumber 1916 S. Cherry Ave	Fresno, Fresno	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
33*	—	South Van Ness Entrance Gate 2208 S. Van Ness Ave (vicinity)	Fresno, Fresno	Adverse Effect Indirect	—	—	—	—	—	—	—	—	—	—	—	—
34*	—	Washington Irrigated Colony Rural Historic Landscape	Fresno	Adverse Effect Direct	—	—	—	—	—	Adverse Effect – Direct**	—	—	—	—	—	—

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				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
34a*	—	Washington Colony Canal (contributor to Washington Irrigated Colony Rural Historic Landscape)	Fresno	Adverse Effect Direct – Direct effect on canal (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	—	No Adverse Effect	—	—	—	—	—
34b*	33425016	6422 S. Maple Ave (contributor to Washington Irrigated Colony Rural Historic Landscape)	Fresno	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
34c*	—	North Branch of Oleander Canal (contributor to Washington Irrigated Colony Rural Historic Landscape)	Fresno	Adverse Effect Direct – Direct effect on canal, indirect to landscape (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	—	No Adverse Effect	—	—	—	—	—
34d*	33511042	7887 S. Maple Ave (contributor to Washington Irrigated Colony Rural Historic Landscape)	Fresno	Adverse Effect Indirect – Indirect to landscape (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	—	—	—	—	—	—	—
34e*	33511011	7870 S. Maple Ave (contributor to Washington Irrigated Colony Rural Historic Landscape)	Fresno	Adverse Effect Indirect – Indirect to landscape (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	—	—	—	—	—	—	—

Table 3.17-10
 Construction and/or Operational Effects and Changes (Section 106 and CEQA) to Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
35*	—	Last Chance Ditch	Kings	—	—	No Adverse Effect	—	1 & 2, at-grade and below grade alternatives Adverse Effect – Direct	Adverse Effect - Direct	—	—	—	—	—	—	—
36*	009100020000	13148 Grangeville Blvd	Kings	—	—	—	—	1 & 2, at-grade and below-grade alternatives Adverse Effect – Direct	No Adverse Effect	—	—	—	—	—	—	—
37*	009070049000	9860 13th Ave	Kings	—	—	—	—	1 & 2, at-grade and below-grade alternatives Adverse Effect – Direct	Adverse Effect - Indirect	—	—	—	—	—	—	—
38*	018102111000	12501 Lacey Blvd	Kings	—	—	—	—	No Adverse Effect	No Adverse Effect	—	—	—	—	—	—	—
39*	—	Peoples Ditch	Kings	Adverse Effect Direct	—	—	—	—	—	—	—	—	—	—	—	—
40*	028220018000	17780 10th Avenue	Kings	—	—	—	—	No Adverse Effect	No Adverse Effect	—	—	—	—	—	—	—
41*	028202004000	Lakeside Cemetery Kent Ave	Kings	Adverse Effect Indirect	—	—	—	—	—	—	—	—	—	—	—	—
42*	030184010000	Zuniga’s Tortilleria 901 Flory Ave	Corcoran, Kings	No Adverse Effect	—	—	—	—	—	—	No Adverse Effect	—	—	—	—	—
43*	331100030 331130003 331141004 331151011 331161020 333350041	Allensworth Historic District 4129 Grant Drive	Earlimart (vicinity), Tulare	Adverse Effect Direct	—	—	—	—	—	—	—	—	—	—	—	—
44*	02703008	Santa Fe Depot 150-200 Central Valley Highway	Shafter, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—

Table 3.17-10
 Construction and/or Operational Effects and Changes (Section 106 and CEQA) to Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
45*	02707028	San Francisco & San Joaquin Valley Railroad Section House 434 Central Valley Highway	Shafter, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	—	—
46*	08909029	Joe O'Brien Stables 1320 E. Lerdo Highway	Shafter, Kern	—	—	—	—	—	—	—	—	—	—	No Adverse Effect	—	—
47*	—	Friant-Kern Canal	Bakersfield, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	No Adverse Effect	No Adverse Effect
48*	00405201	Harvey Auditorium, Bakersfield High School 1241 G St	Bakersfield, Kern	Adverse Effect Indirect	—	—	—	—	—	—	—	—	—	—	—	No Adverse Effect
49	00641104	1300-1316 H St	Bakersfield, Kern	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	—
50	00641206	1310-1312 Eye St	Bakersfield, Kern	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	—	No Substantial Adverse Change
51*	00629001	Kern County Civic Administrative Center 1315-1415 Truxtun Ave	Bakersfield, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	No Adverse Effect	No Adverse Effect
52	00639102	1401-1409 K St	Bakersfield, Kern	Substantial Adverse Change – Direct	—	—	—	—	—	—	—	—	—	—	No Substantial Adverse Change	Substantial Adverse Change – Direct
53	00646003	1323 K St	Bakersfield, Kern	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	No Substantial Adverse Change	Substantial Adverse Change—Indirect
54	00645002	1323 L St	Bakersfield, Kern	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	No Substantial Adverse Change	Substantial Adverse Change—Indirect
55	00644026	1330 L St	Bakersfield, Kern	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	No Substantial Adverse Change	Substantial Adverse Change—Indirect

Table 3.17-10
 Construction and/or Operational Effects and Changes (Section 106 and CEQA) to Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative ^a												
				BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South /Hybrid	Hanford West Bypass 1 & 2	Hanford West Bypass 1 & 2 Modified	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allens-worth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid
56	00644025	1326 L St	Bakersfield, Kern	No Substantial Adverse Change	—	—	—	—	—	—	—	—	—	—	No Substantial Adverse Change	Substantial Adverse Change—Indirect
57*	00643002 00643003	Stark/Spencer Residence 1321 N St	Bakersfield, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	No Adverse Effect	Adverse Effect—Indirect
58*	—	Union Avenue Corridor	Bakersfield, Kern	No Adverse Effect	—	—	No Adverse Effect	—	—	—	—	—	—	—	No Adverse Effect	No Adverse Effect
59*	017280004	Salon Juarez (Sociedad Juarez Mutualista Mexicana), 815 E. 18 th Street	Bakersfield, Kern	No Adverse Effect	■	■	■	■	■	■	■	■	■	■	■	No Adverse Effect
60*	01726007	1031 E. 18th St	Bakersfield, Kern	Adverse Effect Indirect	—	—	—	—	—	—	—	—	—	—	No Adverse Effect	No Adverse Effect
61*	01749014	San Joaquin Cotton Oil Company, 1660 E. California Ave	Bakersfield, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	Adverse Effect—Indirect	—
62*	14113025	2509 E. California Ave	Bakersfield, Kern	No Adverse Effect	—	—	—	—	—	—	—	—	—	—	Adverse Effect—Direct	No Adverse Effect

Notes:
^a Bolded text indicates substantial adverse changes or adverse effects (direct or indirect).
 * = Map ID#, with asterisk, indicates a resource that is both a Section 106 historic property and a historical resource for the purposes of CEQA (listed, determined eligible for listing, or eligible for listing in the NRHP or CRHR, or as defined in CEQA Guidelines 15054.5). Map ID# without an asterisk are considered historical resources for the purposes of CEQA only and are not historic properties under Section 106.
 ** = Direct adverse effect to Washington Colony Landscape associated with construction of the Fresno Works—Fresno HMF Site.
 CEQA = California Environmental Quality Act of 1970.
 "—" = not applicable

BNSF Alternative: Impacts on Historic Architectural Resources

Construction activities associated with the BNSF Alternative would directly or indirectly affect 15 historic architectural resources (nine Section 106 properties and six CEQA historical resources) identified within or in proximity to this alternative, as listed in Table 3.17-6.

The BNSF Alternative would cause *direct* adverse effects on five historic architectural resources: Map ID# 18, 34 (which includes 34a and 34c), 39, 44, and 52. Of these, map ID# 34 (ID# 34a and 34c), 39, and 44 are historic properties under both Section 106 and CEQA, and map ID# 18 and 52 are considered historical resources under CEQA only.

(The BNSF Alternative would also cause indirect effects; indirect effects are discussed separately after this summary of the findings for direct effects.)

- Map ID# 18 would be demolished during construction of the BNSF Alternative. Map ID# 18 is the Pacific Coast Seeded Raisin Company Building in the city of Fresno. It is a historical resource under CEQA, but it is not a historic property under Section 106. Because the construction of the BNSF Alternative would intersect with map ID# 18 and result in its physical demolition, the construction of this alternative would cause a direct substantial adverse change, which is a significant impact under CEQA. Demolition of a historical resource cannot be mitigated to a less-than-significant impact under CEQA.
- Map ID# 34 is a historic district known as the Washington Irrigated Colony Rural Historic Landscape District, which is a historic property under Section 106 and a historical resource under CEQA. The property is in unincorporated Fresno County. The BNSF Alternative would adversely affect the district both directly and indirectly. Direct effects would include the construction of the alignment through the district, which would physically alter the agricultural parcels and local roadways that are contributing features of the rural landscape district. Other project activities that would alter the elements of the historic rural landscape include the relocation of a freight rail line, construction of roadway overcrossings, and construction of project features, such as communications facilities.

The Washington Irrigated Colony Rural Historic Landscape District would also be directly affected through the material alteration of two irrigation canals that are contributing elements: the Washington Colony Canal and the North Branch of the Oleander Canal, which are map ID# 34a and 34c, respectively. Alterations to these two contributing elements of the district would include installation of culverts and other material alterations of the canals. These effects would occur at the specific segments of each canal subject to construction; the effects would not extend to other historically significant segments of these two canals. Overall, these physical changes to the rural landscape district would cause a direct adverse effect (Section 106) to the district, which would be a substantial adverse change to the district historical resource. This adverse change would be a significant impact under CEQA.

The BNSF Alternative would not have adverse effects on the Washington Irrigated Colony Rural Historic Landscape District at map ID# 34b, which is a rural residential property at 6422 S. Maple Avenue that is a contributing element to the district. This property is more than 1,100 feet from the BNSF Alternative, and even though the alignment would be visible, the BNSF Alternative would not diminish the integrity of this historic property. The alignment would not cause a substantial adverse change to the historic resources and would have no significant impact under CEQA.

The BNSF Alternative would also have indirect adverse effects on the Washington Irrigated Colony Rural Historic Landscape District at map ID# 34d and 34e, which are rural residential properties at 7887 S. Maple Avenue and 7870 S. Maple Avenue that are contributing elements to the district. (See below for discussion of indirect effects.)

- Map ID# 39 is a historic canal that would be altered through relocation and the installation of culverts as part of the construction of the BNSF Alternative. Map ID# 39 is a historic pioneer-era irrigation canal in unincorporated Kings County called the Peoples Ditch. The canal is a historic property under Section 106 and is a historical resource for the purposes of CEQA. The BNSF Alternative would cause direct adverse effects through the installation of culverts on the Peoples Ditch (i.e., would change conveyance of the water from an open canal to a culvert) and canal relocation to accommodate rail and roadway structures. Both activities would physically alter the canal; specifically, these activities would result in a change in materials, alignment, and construction of culverts and bridge piers that would materially change the canal. 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. The project activities at the canal would cause a direct adverse effect (Section 106), which is a substantial adverse change to these historical resources. This substantial adverse change would be a significant impact under CEQA.
- Map ID#43 is a historic property known as the Allensworth Historic District, which is in unincorporated Tulare County. The district is a California state historic park, a historic property under Section 106, and a historical resource under CEQA. The district would be adversely affected (both directly and indirectly) by the BNSF Alternative. Direct effects would include the construction of the alignment through the east side of the district, which would physically alter the historic district boundaries, the construction of access roads for a radio communication shelter, and the construction of a 100-foot-tall tower within the boundary of the historic district. The physical alteration of the district boundaries and the installation of non-historic features within the district would materially alter this historic property and cause direct adverse effects and substantial adverse changes.

The BNSF Alternative would also have an indirect adverse effect on map ID# 43, the Allensworth Historic District. The construction of the 100-foot-tall radio communications tower noted as a direct effect above would also result in an indirect adverse effect because of the introduction of a visual feature that would diminish the integrity of the setting and feeling of the district. The introduction of a radio tower equivalent in height to a nine-story building within this historic district would substantially alter the immediate surroundings of the district. This project activity would cause an indirect adverse visual effect (Section 106), which would be a substantial adverse change to this contributing element of the district. This substantial adverse change would be a significant impact under CEQA.

- Map ID#52, the building at 1401–1409 K Street in Bakersfield, would be demolished under the BNSF Alternative. Map ID# 52 is a historical resource under CEQA, but is not a historic property under Section 106. Construction of the BNSF Alternative would intersect with map ID# 52 and would result in its physical demolition. Thus, the construction of the BNSF Alternative would cause a direct, substantial adverse change. This substantial adverse change would be a significant impact under CEQA. Demolition of a historical resource cannot be mitigated to a less-than-significant impact under CEQA.

The BNSF Alternative would cause *indirect* adverse effects on 11 historic architectural resources: Map ID# 13, 16, 17, 19, 24, 25, 33, 34, 41, 48, and 60. Of these, map ID# 13, 16, 33, 34, 41, 48, and 60 are historic properties under both Section 106 and CEQA, and map ID# 17, 19, 24, and 25 are historical resources under CEQA only.

(The BNSF Alternative would also cause direct effects; direct effects are discussed separately above this summary of the findings for indirect effects.)

- The BNSF Alternative includes an option for the construction of either an overcrossing or an undercrossing at Tulare Street in the city of Fresno. The overcrossing option would be

immediately adjacent (20 feet from) the southern side of map ID# 13, the Southern Pacific Depot in Fresno. The depot and its adjacent Pullman Shed constitute a historic property under Section 106 and a historical resource for the purposes of CEQA. The size, scale, and massing of this elevated structure would introduce a visual element that would diminish the historic integrity of the design of the layout of the historic property, diminish the setting of the building that was originally bounded by at-grade streets, and diminish the feeling of the nineteenth-century depot through the introduction of this large-scale elevated structure. This change would be an adverse effect (Section 106) and would constitute a substantial adverse change to the immediate surroundings of the historical resource. This substantial adverse change would be a significant impact under CEQA. The BNSF Alternative has an option for an undercrossing at Tulare Street; the undercrossing option would have no adverse effect on map ID# 13.

- The BNSF Alternative option for an overcrossing at Tulare Street in the city of Fresno would be immediately adjacent to map ID# 16, the Bank of America building, which is a historic property under Section 106 and a historical resource for the purposes of CEQA. The introduction of a raised structure within 15 feet of this building would diminish its historic design by altering its relationship to the formerly at-grade storefronts on a prominent corner lot; would diminish its setting, which has never included such a structure; and would diminish the prominent commercial facades on its northeast, northwest, and southwest sides. This change would be an adverse effect (Section 106) and would constitute a substantial adverse change to the immediate surroundings of the historical resource. This substantial adverse change would be a significant impact under CEQA. The BNSF Alternative has an option for an undercrossing at Tulare Street; the undercrossing option would have no adverse effect on map ID# 16.
- The BNSF Alternative includes an option for the construction of an overcrossing for Tulare Street within approximately 15 feet of the main façade of map ID# 17 (1528–1548 Tulare Street), which is a contributor to a CEQA-only historic district. The building and the district are not historic properties under Section 106. The 38-foot tall overcrossing structure would pass directly in front of the building (the north side of the building), blocking views of and from the main and secondary facades, and would require construction of a retaining wall along the east side of the building. The introduction of a visual element of this size, scale, and massing would diminish the historic design of the original at-grade storefront of this commercial building and alter the immediate setting, association, and feeling of this late-nineteenth-century building. The construction of this alternative would also require demolition of buildings across the street to the east and north, which would materially alter the immediate surroundings of the resource. These project actions would cause an indirect substantial adverse change to the resource. This substantial adverse change would be a significant impact under CEQA. The BNSF Alternative also includes an option for an undercrossing at Tulare Street; the undercrossing option would have no adverse impact on map ID# 17.
- The BNSF Alternative includes an option for the construction of an overcrossing for Tulare Street within approximately 22 feet of the main façade of map ID# 19, the Hobbs Parsons Produce Building, which is a historical resource for the purposes of CEQA. It is not a historic property under Section 106. The overcrossing structure would pass directly in front of the building, blocking views of and from the main and secondary facades. The introduction of a visual element of this size, scale, and massing would diminish the historic design of the original at-grade storefront of this commercial / light industrial building and alter the immediate setting, association, and feeling of this early-twentieth-century building. This project action would cause an indirect substantial adverse change to this historical resource. This substantial adverse change would be a significant impact under CEQA. The BNSF

Alternative also includes an option for an undercrossing at Tulare Street; the undercrossing option would have no adverse impact on map ID# 19.

- The BNSF Alternative includes the construction of an at-grade rail line, roadway structure, and temporary precast concrete yard near map ID# 24, the Haruji Ego Family Building. These facilities are approximately 300 feet, 80 feet, and 150 feet, respectively, from the building, which is a contributor to a CEQA-only historic district. The building and the district are not historic properties under Section 106. The construction of these project elements would cause a substantial adverse change to this building because of the demolition of nearby buildings that would alter the visual linkage of this resource and its district. This area has historically consisted of one- to three-story industrial buildings, and the demolition of these buildings would cause a substantial adverse change to the setting, feeling, and visual linkage between map ID# 24 and its district. This substantial adverse change to the immediate surroundings of the building and district would be a significant impact under CEQA.
- The BNSF Alternative includes the construction of an at-grade rail line and temporary precast concrete yard near map ID# 25, Komoto's Department Store and Hotel. These facilities would be approximately 220 feet and 80 feet, respectively, from the historical resource, which is a contributor to a CEQA-only historic district. The building and the district are not historic properties under Section 106. The construction of these project elements would cause a substantial adverse change to this historical building because of the demolition of buildings that would alter the visual linkage of this resource and its district. This area has historically consisted of one- to three-story industrial buildings, and the demolition of these buildings would cause a substantial adverse change to the setting, feeling, and visual linkage of map ID# 25 and its district. This substantial adverse change to the immediate surroundings of the building and district would be a significant impact under CEQA.
- The BNSF Alternative would have an adverse effect on map ID# 33, the Van Ness Gate, in the city of Fresno because of the permanent closure of local roadways. The Van Ness Gate is a historic property under Section 106 and a historical resource for the purposes of CEQA. The closure of South Railroad Avenue and the portion of South Van Ness that that intersects that street would materially 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 and would be an adverse effect (Section 106). This project action would be an adverse effect (Section 106) and would constitute a substantial adverse change to the immediate surroundings of the historical resource. This substantial adverse change would be a significant impact under CEQA.
- The BNSF Alternative would have an adverse effect on map ID# 34, which is the Washington Irrigated Colony Rural Historic Landscape. The portion of the landscape district within the study area includes five contributing elements (Map ID# 34a, 34b, 34c, 34d, and 34e), four of which would be affected. Two residences, map ID# 34d and 34e, would be indirectly adversely affected. (Direct effects are discussed separately at the beginning of this section; see Table 3.17-10.) All of these contributing elements are historic properties under Section 106 and historical resources for the purposes of CEQA. Established in 1878, this historic rural landscape has consisted of open agricultural parcels and farmsteads intersected by irrigation canals and an orthogonal street grid throughout its more than 130-year history.

The BNSF Alternative would have indirect adverse effects on the Washington Irrigated Colony Rural Historic Landscape District at map ID# 34d and 34e, which are rural residential properties at 7887 S. Maple Avenue and 7870 S. Maple Avenue that are contributing elements to the district. Map ID# 34d and 34e would be adversely, but indirectly, affected by the construction of a roadway overcrossing at E. South Avenue. Construction of an elevated

roadway structure and related roadway improvements would encroach on the historic property boundaries and would introduce a visual feature that is not consistent with the rural historic landscape setting. The existing rural, at-grade road would be replaced by an elevated structure within approximately 250 feet of this historic residence; the elevated structure would alter the immediate surroundings of map ID# 34d. This project activity would cause an indirect adverse visual effect (Section 106), which is a substantial adverse change to this contributing element of the district. This substantial adverse change would be a significant impact under CEQA.

- The BNSF Alternative includes the construction of an at-grade rail line, a radio communications tower, and a roadway overcrossing for Kent Avenue adjacent to map ID# 41, the Lakeside Cemetery. The cemetery is a historic property under Section 106 and a historical resource for the purposes of CEQA. The at-grade rail line, the 100-foot-tall radio tower, and the overcrossing would introduce three large-scale structures into the western, southern, and eastern boundaries of the cemetery where currently no such features exist. These project features, including a retaining wall and earthen berm, would surround the property with structures inconsistent with the historic use of the cemetery and would alter the historical visual linkage with the surrounding agricultural landscape. Established in the 1870s, this cemetery has an open, park-like plan. The construction of these structures immediately adjacent to the cemetery would not be consistent with its historical design, location, feeling, or setting. The BNSF Alternative would cause indirect adverse effects on this historic property from the introduction of visual features that would diminish the integrity of the historic property (Section 106) and would cause a substantial adverse change to the immediate surroundings of the historical resource under CEQA.

The construction noise caused by the project construction would be temporary and would not cause adverse effects on historic properties (Section 106) or historical resources (CEQA), and would have no significant impact under CEQA.

The operational noise caused by the project construction would not cause adverse effects on historic properties (Section 106) or historical resources (CEQA), and would have no significant impact under CEQA.

Vibration from either construction or operations will not cause adverse effects on historic properties (Section 106) or historical resources (CEQA). Construction vibration levels will be reduced and avoided through standard conditions, and would not cause adverse effects on historic properties (Section 106) or historical resources (CEQA), and would have no significant impact under CEQA. Operational vibration levels at the cemetery of 71 VdB (0.015 ppv) are projected, and these levels would not cause an adverse effect (Section 106) or a substantial adverse change (CEQA) (Authority and FRA 2012e), so no significant impact would occur under CEQA.

- The construction of the BNSF Alternative would take place near two historical resources (Map ID# 44 and 45) in Shafter, but would not have adverse effects on these properties because construction would not diminish the integrity of the historic properties. Map ID# 44 and 45 are the former depot and the former section house, located adjacent to the existing freight rail line; both are historic properties under Section 106 and are historical resources for the purposes of CEQA. Although the project elevated rail structure would be visible, it would be approximately 200 feet away. Furthermore, these historic buildings were originally designed, built, and used by freight railroad companies and would not be materially altered by the project. Project activities would not cause a significant impact under CEQA.
- The BNSF Alternative includes the construction of an elevated rail line between 50 and 70 feet in height through Bakersfield High School, near map ID# 48, Harvey Auditorium, in the

city of Bakersfield. The auditorium is a historic property under Section 106 and is a historical resource for the purposes of CEQA. 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 elevated track structure would be about 280 feet north of Harvey Auditorium, the only building on the Bakersfield High School campus that is determined eligible for the NRHP. The construction of the BNSF Alternative would not have an indirect adverse effect because, although it would be visible, it would not alter the design, setting association, or feeling of the property. This project action would not constitute a substantial adverse change to the immediate surroundings of the historical resource and would not be a significant impact under CEQA.

- The construction of the BNSF Alternative would take place near four historical resources (Map ID# 53, 54, 55, and 56,) in Bakersfield, but would not have adverse effects on these properties because construction would not diminish the integrity of the historic properties. Map ID# 53, 54, 55, and 56, are residences on K Street and L Street that are historical resources for the purposes of CEQA. They are not historic properties under Section 106. Although the project elevated rail structure would be nearby (ranging from about 250 to 300 feet away) and would be visible, the buildings would be screened from the structure by other buildings. The project activity would not materially alter the immediate surroundings of the resources and would not be a significant impact under CEQA.
- The BNSF Alternative would cause an indirect adverse visual effect on map ID# 60, 1031 E. 18th Street, because of the construction of an elevated rail line. The residence is a historic property under Section 106 and is a historical resource for the purposes of CEQA. 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 would require the demolition of several residences in the immediate vicinity (north, east, and northwest) of this historic property. 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 (Section 106). This project action would also constitute a substantial adverse change to the immediate surroundings of the historical resource and would be a significant impact under CEQA.

The construction of the BNSF Alternative would require relocation of a pipeline and the construction of a bridge across the Friant-Kern Canal (map ID# 47), activities that would be designed to avoid any physical alteration of the canal, which is a major water conveyance feature that runs along the eastern San Joaquin Valley. The canal is a historic property under Section 106 and a historical resource under CEQA. The BNSF Alternative would include pipeline relocation and construction of bridge piers on either side of the canal structure, and would not diminish the integrity of the canal or materially alter the canal structure. These project activities would not cause a direct adverse effect (Section 106), or a substantial adverse change to the historical resource and would not have a significant impact under CEQA.

Fresno Station: Impacts on Historic Architectural Resources

The construction of the Fresno Station would adversely affect historic architectural resources identified within or in proximity to this alternative, as described in Table 3.17-6.

Construction of the Fresno Station would have an adverse visual effect on historic properties (Section 106 and CEQA). Although the design for the Fresno Station was refined to minimize visual effects on map ID# 13, the historic Southern Pacific Depot, the visual linkage between the historic depot buildings (the main depot and Pullman shed) would be impaired, so this alternative

would diminish the historic property (Section 106) and would materially alter the historical resource under CEQA.

The construction of other project station features for the Fresno Station would take place near map ID# 11 and 15—the Fresno Fire Department Station No. 3 and the First Mexican Baptist Church—but the construction would not cause adverse effects. Although the station features would include a five-story parking garage in the vicinity of map ID# 11 and 15, the construction of the station would not have adverse effects on those properties because the station would not diminish their historic integrity (Section 106). Although the project activities would be nearby and would be visible, they would have no adverse effect on the properties and would not materially alter the immediate surroundings of the historical resource under CEQA.

Hanford West Bypass 1 and 2 and Hanford West Bypass 1 and 2 Modified Alternatives: Impacts on Historic Architectural Resources

The Hanford West Bypass 1 Alternative would cause direct adverse effects (Section 106) on two historic architectural properties identified within or in proximity to this alternative: Map ID# 35, and 37.

The Hanford West Bypass 2 Alternative would cause direct adverse effects (Section 106) on two historic architectural properties identified within or in proximity to this alternative: Map ID# 35 and 37.

The Hanford West Bypass 1 and 2 Modified alternatives would cause direct adverse effects (Section 106) on one historic architectural property identified within or in proximity to this alternative: Map ID#35.

All of the affected resources are historic properties under Section 106 and historical resources for the purposes of CEQA.

Map ID# 35, the Last Chance Ditch, is an irrigation canal that would be relocated at two points under the Hanford West Bypass 1 and 2 alternatives: First, at the canal crossing of Fargo Avenue and west of 13th Avenue and, second, north and south of W. Lacey Boulevard. The relocation of the canal as part of the Hanford West Bypass 1 and 2 alternatives (in conjunction with both the at-grade and the below-grade options) near Fargo Avenue would result in the material alteration of this historic property, which would be a direct adverse effect. The relocation of the canal in the vicinity of W. Lacey Boulevard as part of the Hanford West Bypass 1 and 2 alternatives (in conjunction with the at-grade option only) would result in the material alteration of this historic property, which would be 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. For the below-grade option for both the 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), which is a substantial adverse change and a significant impact under CEQA.

Map ID# 37, the farmstead at 9860 13th Avenue, is in the direct path of the Hanford West Bypass 1 and 2 alternatives. The residence, tank house, and outbuilding would be demolished and the parcel boundaries bisected by the construction of either of the Hanford West Bypass alternatives. The construction of either alternative would result in the physical destruction of this historic property, which would be a direct adverse effect. Because these project activities would

be a direct adverse effect (Section 106), they would also be a substantial adverse change to the historical resource and a significant impact under CEQA.

Both the Hanford West Bypass 1 and 2 Alternatives would cause indirect adverse effects (Section 106) on one historic architectural property: Map ID# 36. Map ID# 36, the residence at 13148 Grangeville Boulevard, is adjacent to in the construction footprint of the Grangeville Boulevard roadway structure, an element of the Hanford West Bypass 1 and 2 alternatives (in conjunction with both the at-grade and the below-grade options). Under the Hanford West Bypass alternatives, neither the residence, nor the attached tank house would be physically altered. The historic property would be avoided, but construction of roadway structures to the south of the property would alter the relationship of the property to the adjacent roadway through the construction of an underpass. This project activity would be an indirect adverse effect (Section 106). This project action would also constitute a substantial adverse change to the immediate surroundings of the historical resource and would be a significant impact under CEQA.

Both the Hanford West Bypass 1 or 2 Modified alternatives would cause direct adverse effects (Section 106) on one historic architectural property: Map ID# 37.

Map ID# 37, the farmstead at 9860 13th Avenue, is adjacent to the Hanford West Bypass 1 and 2 Modified Alternatives. The residence, tank house, and outbuilding would not be altered by the project; however, the parcel would be bisected by the construction of either of the Hanford West Bypass Modified alternatives, which would be an indirect adverse visual effect. This project action would also constitute a substantial adverse change to the immediate surroundings of the historical resource and would be a significant impact under CEQA.

Kings/Tulare Regional Station–East and Kings/Tulare Regional Station–West Alternatives: Impacts on Historic Architectural Resources

The Kings/Tulare Regional Station alternatives would have no adverse effects on identified historic properties (Section 106); nor would they cause substantial adverse changes to identified historical resources (CEQA) because no historic properties or historical resources are within or in immediate proximity to the area of construction for the Kings/Tulare Regional Station. The construction of either of the station alternatives would have no adverse effects on historic properties (Section 106), and no significant impact on historical resources under CEQA.

Corcoran Elevated Alternative, Corcoran Bypass Alternative, Allensworth Bypass Alternative, and Wasco-Shafter Bypass Alternative: Impacts on Historic Architectural Resources

The Corcoran Elevated and Corcoran Bypass alternatives would have no adverse effects on identified historic properties or substantial adverse changes to identified historical resources because no historic properties or historical resources have been identified within or in immediate proximity to the area of construction for these alternatives. These alternatives would have no adverse effects on historic properties under Section 106 and no significant impacts under CEQA.

The Allensworth Bypass Alternative would have no adverse effects on identified historic properties or substantial adverse changes to identified historical resources because no historic properties or historical resources have been identified within or in immediate proximity to the area of construction of this alternative. This alternative would have no adverse effects on historic properties under Section 106 and no significant impact under CEQA.

The Wasco-Shafter Bypass Alternative would have no adverse effects on identified historic properties or result in substantial adverse changes to identified historical resources. The only such historic property near this alternative is the Joe O'Brien Stables (map ID# 46), which is in the city of Shafter, in Kern County. The Wasco-Shafter Bypass Alternative, specifically the

roadway overcrossings at E. Lerdo Highway, would be constructed more than 900 feet from this historic property and more than 2,500 feet from the proposed rail right-of-way. The roadway overcrossing that would be constructed nearby as part of this alternative would be more than 230 feet from any contributing features for this property. The construction of this alternative would not diminish the historic integrity of the property and would have no adverse effects on the property under Section 106. These project actions would not materially alter this historical resource and would not have a significant impact under CEQA.

Bakersfield South Alternative: Impacts on Historic Architectural Resources

The Bakersfield South Alternative would directly affect one identified historic property (Section 106 and CEQA). The alternative would indirectly affect one identified historic property (Section 106 and CEQA).

The Bakersfield South Alternative would be constructed near the Kern County Civic Administrative Center (map ID# 51). The construction of this alternative would not cause adverse effects because the alternative would not diminish the integrity of this property (Section 106 and CEQA). The construction of the elevated rail structure would occur 300 feet from the Kern County Civic Administrative Center, but the historic integrity of this multistory building complex would not be diminished by the introduction of the new visual feature. The Bakersfield South Alternative would have no adverse effect on the property under Section 106, and this alternative would not result in a substantial adverse change to the historical resource or have a significant impact under CEQA.

The introduction of the elevated rail structure with the construction of the Bakersfield South Alternative would cause no substantial adverse changes to five nearby historical resources (map ID# 52, 53, 54, 55, and 56), which are historical resources under CEQA, but not historic properties under Section 106. Although the project elevated rail structure would be nearby (ranging from about 250 to 350 feet away, depending on the property) and would be visible, the buildings would be screened from the structure by other existing buildings. The project activity would not materially alter the immediate surroundings of the resources and would not have a significant impact under CEQA.

The Bakersfield South Alternative would have indirect adverse visual effects on the San Joaquin Cotton Oil Company complex (map ID# 61), which is a historic property under Section 106 and a historical resource under CEQA. The alternative would involve the construction of an elevated rail line that would range from 50 to 70 feet high through this urban area, where elevated rail lines do not currently exist. The structure would be about 35 feet from the property. The elevated rail line and associated roadway alterations on E. California Avenue would pass directly in front of the property, blocking views of and from the main and secondary facades. The introduction of a visual feature of this size, scale, and massing would diminish the historic design of the original relationship of this industrial complex with the street and would diminish the setting, association, and feeling of this early-twentieth-century property. This indirect adverse effect (Section 106) would be a substantial adverse change to the historical resource, which would be a significant impact under CEQA.

Map ID# 62 is a Folk Victorian residence at 2509 E. California Avenue in the City of Bakersfield. It is a historic property under Section 106 and a historical resource under CEQA. Construction of the Bakersfield South Alternative would result in the physical destruction of this resource. The demolition of the property and construction of the elevated rail line would cause a direct adverse effect (Section 106) and a substantial adverse change to this historical resource, which would be a significant impact under CEQA.

The construction of the Bakersfield South Alternative would require relocation of a pipeline and the construction of a bridge across the Friant-Kern Canal (map ID# 47), activities that would be designed to avoid any physical alteration of the canal, which is a major water conveyance feature that runs along the eastern San Joaquin Valley. The canal is a historic property under Section 106 and a historical resource under CEQA. The Bakersfield South Alternative would include pipeline relocation and construction of bridge piers on either side of the canal structure, and would not diminish the integrity of the canal or materially alter the canal structure. These project activities would not cause a direct adverse effect (Section 106), or a substantial adverse change to the historical resource and would not have a significant impact under CEQA.

Bakersfield Hybrid Alternative: Impacts on Historic Architectural Resources

The Bakersfield Hybrid Alternative would adversely affect one historic property, Map ID# 57 (Section 106 and CEQA) and five historical resources under CEQA (Map ID# 52-56).

The Bakersfield Hybrid Alternative would be constructed near the Stark-Spencer residence (map ID# 57). The construction of this alternative would cause an indirect adverse visual effect because it would diminish the integrity of this property (Section 106 and CEQA). The Stark-Spencer residence would be about 170 feet south of the structure, which would be about 50 feet high. This structure would diminish the integrity of the setting and feeling of the views of and from the property. The Bakersfield Hybrid Alternative would have an adverse effect on the property under Section 106. This alternative would result in a substantial adverse change to the historical resource, and would be a significant impact under CEQA.

Map ID# 52 is a residential building at 1401–1409 K Street in the city of Bakersfield. This building is not a historic property under Section 106, but it is a historical resource under CEQA. The construction of the Bakersfield Hybrid Alternative would result in the physical destruction of this resource. The demolition of the property and the construction of the elevated rail line would result in a substantial adverse change to the historical resource. This substantial adverse change would be a significant impact under CEQA.

The Bakersfield Hybrid Alternative would cause substantial adverse changes to five historical resources (CEQA). The construction of this alternative would result in an indirect adverse visual change to map ID# 53, 54, 55, and 56 because of the construction of an elevated track close to these residential buildings. The elevated rail structure would be between 30 and 90 feet tall as it crossed through this residential neighborhood, the height of a three- to nine-story building. The distance to the elevated structure from these properties would range from about 55 to 220 feet. This project action would cause a substantial adverse change to the immediate surroundings of these historical resources through the introduction of an elevated train structure where none has existed before. This project activity would be a significant impact under CEQA.

The Bakersfield Hybrid Alternative would have no adverse effect on seven historic properties (Section 106), and no substantial adverse change to one historical resource under CEQA, which are within or in immediate proximity to the alternative.

The construction of the Bakersfield Hybrid Alternative would require relocation of a pipeline and the construction of a bridge across the Friant-Kern Canal (map ID# 47), activities that would be designed to avoid any physical alteration of the canal, which is a major water conveyance feature that runs along the eastern San Joaquin Valley. The canal is a historic property under Section 106 and a historical resource under CEQA. The Bakersfield Hybrid Alternative would include pipeline relocation and construction of bridge piers on either side of the canal structure, and would not diminish the integrity of the canal or materially alter the canal structure. These project activities would not cause a direct adverse effect (Section 106), or a substantial adverse change to the historical resource and would not have a significant impact under CEQA.

Construction and operation of the Bakersfield Hybrid Alternative would result in no direct adverse effects or indirect adverse visual effect on the Sociedad Juárez Mutualista Mexicana TCP (Map ID# 59) with implementation of the conditions described below to avoid and minimize potential adverse effects. In the vicinity of the TCP, the project would include the construction of an elevated rail line, closure of segments of East 18th and King streets, as well as the relocation of water lines. The elevated tracks would be located directly north of Salón Juárez. With the implementation of the conditions, the project would not diminish the integrity of the property's significant historic features or its use. Therefore, the project would not have a significant impact on this resource under CEQA. The construction and operation of the project would not cause indirect adverse effects with implementation of the conditions listed below, which would avoid, minimize, and mitigate effects.

These conditions are described in greater detail in the MOA and will be further developed in the BETP.

1. Create Parking and a New Entrance to the Salón Juárez
2. Address Proximity of Salón Juárez Entrance to the HST Project
3. Maintain Existing Front Entrance
4. Prepare and Submit Historic Documentation with Oral Histories
5. Other conditions could include providing advertisement assistance, installation of signage, installation of an exterior commemorative plaque, and/or providing an entrance design that includes outdoor space in conjunction with the new entrance and parking.

Furthermore, the construction or operation of the project would not cause indirect adverse noise or vibration effects to the Salón Juárez TCP, which is already subject to noise and vibration impacts from the extant freight railroad that is approximately 200 feet north of the historic property.

Bakersfield Station–North, Bakersfield Station–South, and Bakersfield Station–Hybrid Alternatives: Impacts on Historic Architectural Resources

The Bakersfield Station–North, Bakersfield Station–South, and Bakersfield Station–Hybrid alternatives would have no anticipated effects on identified historic properties (Section 106) and would not cause substantial adverse changes to identified historical resources (CEQA). The construction of these alternatives would take place near the historic Union Avenue corridor (map ID# 58), but these project activities would not cause adverse effects because they would not diminish the integrity of the historic highway corridor. Although the station alternatives would be nearby and would be visible, they would have no adverse effect on the street corridor under Section 106 and no significant impact under CEQA.

Heavy Maintenance Facility Site Alternatives: Impacts on Historic Architectural Resources

Five locations along the Fresno to Bakersfield Section are under consideration for a heavy maintenance facility. Of these, only the Fresno Works–Fresno HMF Site in Fresno County contains historic architectural resources. This property is the Washington Irrigated Colony Rural Historic Landscape (map ID# 34) and its contributing elements (map ID#34a, 34b, 34c, 34d, and 43e). The contributing elements consist of: three residences, map ID# 34b, 34d and 34e, and two canals, map ID# 34a, Washington Canal, and map ID# 34c, the North Branch of the Oleander Canal (see Table 3.17-10). This historic property and its contributing elements have been determined eligible for listing in the NRHP, and they are historic properties under Section 106 and

historical resources for the purposes of CEQA. Established in 1878, this historic rural landscape has consisted of open agricultural parcels and farmsteads intersected by irrigation canals and an orthogonal street grid throughout its more than 130-year history.

The construction of the Fresno Works–Fresno HMF Site would cause direct and indirect adverse effects and substantial adverse changes to the landscape and some of the contributing elements within the APE. The contributing canals would not be affected by construction of the HMF at the Fresno HMF site because construction of the facility would not result in the physical destruction, damage, or alteration of these canals (see the BNSF Alternative, above, for analysis of effects on the canals). However, construction of the proposed Fresno HMF would directly affect the historic landscape of the Washington Irrigation Colony District because its construction would constitute the introduction of large-scale structures and transportation features through the breadth of the landscape where such features do not currently exist. The construction of the Fresno HMF would diminish the historic integrity of the landscape, which would be a direct adverse effect under Section 106 and a significant impact to a historical resource under CEQA.

The construction of the Fresno HMF site would also have indirect adverse effects on the historic rural landscape property because of the introduction of visual elements that would diminish the integrity of the historic property. The construction of these structures within the landscape district would introduce features inconsistent with its historic design, materials, location, feeling, and setting and would adversely affect views of and from the property. This project action would cause a substantial adverse change to the immediate surroundings of the resource and would materially alter the landscape district, which would be a significant impact under CEQA.

Paleontological Resources

The paleontological sensitivity of the sediments that may be encountered within the study area during construction was discussed in Section 3.17.4.4, Paleontological Resources. Disturbance of sediments with high paleontological sensitivity could have impacts that are significant under CEQA and adverse under NEPA, but can be mitigated to a level below that of significant. Excavations in sediments with low paleontological sensitivity are not expected to significantly affect paleontological resources; however, the potential exists to adversely affect paleontological resources even in areas of putative low sensitivity. Therefore, for the purposes of CEQA, excavation activities at all levels of sensitivity are treated as potentially significant impacts.

Because impacts on paleontological resources occur from ground disturbance and because these activities are restricted to the construction phase, no impacts or effects on paleontological resources would occur during the operational phase of the project.

Impact CUL #3: Potential Adverse Effects on Paleontological Resources due to Construction Activities

Like archaeological resources, construction activities that may impact paleontological resources include ground-disturbing activities. Surficial activities such as staging and clearing usually do not affect paleontological resources because the associated disturbance does not extend deep enough to affect paleontologically sensitive deposits.

The *California High-Speed Train Fresno to Bakersfield Paleontological Resource Survey Report* (Authority and FRA 2011f) and *Supplemental Paleontological Resource Survey Report* (Authority and FRA 2012d) provide a detailed description of the analysis performed for each alternative. All the alternatives are underlain, at undetermined depth, by geologic formations with a high sensitivity rating.

As discussed in Section 3.17.4.4, large portions of the study area, referred to as Zones 2 and 4, contain Quaternary alluvium at the surface that has low paleontological sensitivity because these

sediments are too recent to preserve significant fossils. However, at unknown depth, these zones are underlain by sediments that have high paleontological sensitivities. Similarly, areas that have been previously disturbed are considered to have low paleontological sensitivity to the depth of the disturbance. Thus, depending on the depth of potential ground disturbance, these areas have lower paleontological sensitivities than other zones but could still have adverse impacts on significant paleontological resources. Therefore, project construction could result in substantial adverse effects under NEPA. Directly or indirectly destroying a unique paleontological resource is considered a potentially significant impact under CEQA. Mitigation measures Cul-MM#16, Cul-MM#17, and Cul-MM#18 would reduce these impacts.

3.17.5.4 Project Impacts

Archaeological Resources

Impact CUL #4: Potential Adverse Effects on Archaeological Resources due to Operation Activities

Archaeological sites would only be subject to adverse effects during construction activities. Increasing public access to archaeological sites can lead to their intentional or unintentional disturbance or destruction by people who previously would not have been able to enter the property where the site is located. The HST alternatives are not creating new access for any areas that contain archaeological resources. In remote areas, the guideway would be fenced; therefore, it would not provide access for persons to loot sites and would not expose sites to the adverse effects of compaction through pedestrian or vehicular traffic. Because the HST System would not allow anyone but maintenance persons or vehicles within the operating corridor, it is unlikely that operation of the HST would affect archaeological sites. The related roadway modifications would not cause more traffic near identified archaeological sites. Therefore, project operation would not result in effects on archaeological resources. No impacts would result from during project operations under NEPA or CEQA, and no mitigation is necessary.

Historic Architectural Resources

Impact CUL #5: Potential Adverse Effects on Historic Architectural Resources due to Operation Activities

The operational noise levels of this project are not anticipated to be sufficient to have an effect on historic architectural resources.

Operational vibration levels of 71 VdB (0.015 ppv) are projected, and these levels would not cause an adverse effect (Section 106) or significant impact (CEQA) to an historical property or resource (Authority and FRA 2012e).

Paleontological Resources

Impact CUL #6: Potential Adverse Effects on Paleontological Resources due to Operation Activities

Because impacts on paleontological resources occur from excavations and similar deep ground disturbance and because these activities are restricted to the construction phase, no impacts on paleontological resources would occur during the operational phase of the project, and no mitigation is necessary.

3.17.6 Mitigation Measures

The HST project has developed avoidance and minimization measures consistent with commitments in the Program EIR/EIS documents. These mitigation measures are described below and include mitigation measures and commitments that would occur prior to, during, and following construction. These include cultural resource inventories; protective measures, such as conducting archaeological training, and preserving sites in place where feasible; conducting archaeological test excavations and, if necessary, data recovery; and building stabilization or historic structure relocation would take place before construction. Other protective measures such as establishing acceptable vibration thresholds and vibration monitoring for built resources or monitoring for archaeological resources during ground-disturbing activities, and halting work during construction in the event of a discovery would occur during construction. Measures that could take place after construction may include interpretive programs, including displays, interpretive signage, etc. For the purposes of CEQA, these mitigation measures represent all feasible and necessary treatment and management.

Mitigation measures will be applied according to specific impacts for individual resources and will strive to execute the mitigation measure that will provide the greatest level of protection feasible in light of project costs and logistics, and technological and environmental conditions. Preservation in place through methods such as project redesign of relevant facilities to avoid destruction or damage to eligible cultural resources, capping resources with fill, or deeding resources into conservation easements is always preferable if these methods are also compatible with project objectives. Extensive documentation of built environment resources or data recovery of significant archaeological sites where destruction is not avoidable would be at the opposite end of this spectrum.

Under NEPA and Section 106 there are regulatory requirements that must be followed in accordance with the PA. The PA established the framework for the development and implementation of measures to avoid, minimize, and/or mitigate adverse effects on historic properties caused by the HST System, in compliance with Section 106 and NEPA. In compliance with the PA, mitigation measures have been developed for treatment of adverse effects that cannot be avoided. The PA also established that an MOA will be prepared for each section of the HST project to detail the project's commitments to implement these treatments. The MOA for the Fresno to Bakersfield Section was developed in consultation with the SHPO, Corps, STB, and the concurring parties. The MOA includes input from signatories, consulting and concurring parties, and other interested members of the public in the development of treatment measures. The MOA will be executed before the ROD is issued on the Fresno to Bakersfield Section.

The MOA stipulates that two treatment plans be developed: an ATP and the BETP. The ATP and BETP will define the process by which these treatment measures will be applied to each identified significant resource that will be affected by the project, including historic properties under Section 106. This EIR/EIS identifies all relevant mitigation measures for the purposes of CEQA.

The ATP will focus on the treatment of known and unknown archaeological resources, and will require the phased identification and treatment of cultural resources located on parcels for which legal access has yet to be granted. It will also provide requirements for procedures to be followed in the event of unanticipated discoveries.

The BETP will address historic architectural resources and describes the treatments to be applied to adversely affected resources in the built environment. The treatments include, but are not limited to, condition assessments; vibration monitoring; or requirements for the moving, storing, shoring, stabilizing, monitoring, and rehabilitation or restoration of buildings. The ATP and BETP will also outline the provisions for other treatment measures to be carried out for this project, such as responses to inadvertent damage, interpretation mitigation, and monitoring protocols

(see mitigation measures below). The MOA and treatment plans will be approved before the start of construction activities that could adversely affect historic properties or historical resources.

The PA and MOA mandate that each treatment plan will set forth means to avoid, protect, or develop treatment measures to minimize the undertaking's effects when the Authority, in consultation with the appropriate agencies, the SHPO, and other MOA signatories, determines that adverse effects cannot be avoided. These plans provide specific performance standards that ensure that each impact will be avoided, minimized, or mitigated to the extent possible and provide enforceable performance standards to follow the NRHP and the Secretary of Interior's standards when implementing the mitigation measures (see Stipulations III and VIII in the PA, Attachment 3.17-A).

3.17.6.1 Archaeological Resources

Cul-MM#1: Complete Inventory for Archaeological Resources and Comply with the Stipulations Regarding the Treatment of Archaeological Resources in the PA and MOA

The Authority will complete the following management steps for currently inaccessible areas once permission to enter has been obtained:

- The Authority will complete an inventory and evaluation report for archaeological resources.
- This work will be led or supervised by cultural resources specialists who meet the SOI's professional qualification standards provided in 36 C.F.R. Part 61.
- All newly identified resources will be mapped and described on DPR forms. Mapping will be completed by recording data with GPS hardware through which data can be imported and managed in Geographic Information Systems. Mapping of previously identified resources will be limited to updates of existing records where necessary to describe the current boundaries of the resource and any change in condition that has occurred after the first recordation.
- The Authority will evaluate the eligibility of identified archaeological and built environment resources for listing on the CRHR.
- Under delegated authority provided in the PA and MOA, the Authority, in consultation with the FRA, will also evaluate identified archaeological resources for the NRHP.
- For archaeological resources that are NRHP-eligible, the Authority, in consultation with the FRA, will assess the potential for adverse effects within the meaning of 36 C.F.R. Part 800.5(a)(1). For CRHR-eligible resources, the Authority will assess the potential for significant impacts by applying the criteria in CEQA Guidelines 15064.5(b).
- For CRHR-eligible archaeological resources, the Authority shall determine if these resources can feasibly be preserved in place, or if data recovery is necessary. The methods of preservation in place will be considered in the order of priority provided in CEQA Guidelines Section 15126.4(b)(3). If data recovery is the only feasible treatment, the Authority will adopt a data recovery plan as required under CEQA Guidelines Section 15126.4(b)(3)(C).
- In addition to completion of inventory and evaluation for the larger project, the Authority will evaluate all existing cultural resources on compensatory mitigation sites. If any currently known archaeological sites on the compensatory mitigation sites are CRHR-eligible, they will be preserved in place. The Authority will prepare additional CEQA documentation describing the CRHR eligibility of all archaeological resources on compensatory mitigation sites. This documentation will comply with the requirements of CEQA Guidelines Sections 15162 through 15164.

- For archaeological resources, the Authority will also determine if the resource is a unique archaeological site. If the resource is not an historical resource but is an archaeological site, the resource will be treated as required in California Public Resources Code 21083.2.

Cul-MM#2: Conduct Archaeological Training

Before the start of ground-disturbing activities within the APE, a qualified professional archaeologist who meets the SOI Standards for Archaeology will develop a training program and printed material to be presented to construction personnel. The purpose of this training and accompanying materials will be to familiarize construction personnel with the relevant legal (Section 106/NEPA/CEQA) context for cultural resources of the project and with the types of cultural sites, features, and artifacts that could be uncovered during construction activities. These training sessions will be conducted before commencing construction within the APE or and will be repeated as needed as construction crews and supervisors change.

CUL-MM#3: Conduct Archaeological Monitoring in Areas of Sensitivity, Halt Work in the Event of a Discovery

Prior to ground-disturbing construction, the Authority will include a monitoring plan in the contract conditions of the construction contractor, identifying the following steps to be taken in the event of the inadvertent discovery of cultural resources.

- An archaeological monitor will be present to observe construction at geographic locations that are sensitive for unidentified cultural resources. Such locations may consist of construction areas near identified cultural resources and where ground-disturbing construction will occur in proximity to major water features, or in other areas of identified sensitivity based on inventory work to be completed when permission to enter is granted.
- In the event of an archaeological resource discovery, work will cease in the immediate vicinity of the find, based on the direction of the archaeological monitor or the apparent location of cultural resources if no monitor is present. A qualified archaeologist will assess the significance of the find and make recommendations for further evaluation and treatment as necessary. These steps shall include evaluation for the CRHR and NRHP and necessary treatment to resolve significant effects if the resource is an historical resource or historic property. If the resource is an historical resource (eligible for the CRHR) and an archaeological resource methods of preservation in place shall be considered in the order of priority provided in CEQA Guidelines Section 15126.4(b)(3). If data recovery is the only feasible mitigation. The Authority shall adopt a data recovery plan as required under CEQA Guidelines Section 15126.4(b)(3)(C).

The California State Lands Commission (CSLC) will be notified if the find is a cultural resource on or in the submerged lands of California and consequently under the jurisdiction of the CSLC. The Authority will comply with all applicable rules and regulations promulgated by CSLC with respect to cultural resources in submerged lands. The Authority will also comply with the PA. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.

The mitigation measures described above and provided in the ATP are consistent with best practices within the professional archaeological community and are commensurate with mitigation measures for similar scale transportation projects. They have proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is based upon successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.

CUL-MM#4: Comply with State and Federal Law for Human Remains

Discoveries of human remains on private and state agency lands in California are governed by California Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98. Native American remains discovered on federal lands are governed by NAGPRA (25 US Code Section 3001).

Consistent with Stipulation XIII of the PA, if human remains are discovered on state-owned or private lands the Authority shall contact the relevant county coroner to allow the coroner or medical examiner to determine if an investigation regarding the cause of death is required. If no investigation is required and the remains are of Native American origin, the Authority shall contact the NAHC to identify the appropriate Native American tribal representative to consult with about the disposition of the remains and any funerary objects.

If human remains are part of an archaeological site, the Authority shall, in consultation with the Native American tribal representatives and other stakeholders, consider preservation in place as the first option, in the order of priority called for in CEQA Guidelines Section 15126.4(b)(3).

In consultation with the relevant Native American stakeholders, the Authority may conduct scientific analysis on the human remains if called for under a data recovery plan and if amenable to all stakeholders. California and the Authority will work with the most likely descendant, to satisfy the requirements of California Public Resources Code Section 5097.98. Performance tracking of this mitigation measure will be based on successful implementation and approval of the documentation by the SHPO and appropriate consulting parties.

Cul-MM#5: Conduct Preconstruction Geoarchaeological Testing in Proximity to CA-KER-2507

Ground-disturbing activities have the potential to affect archaeological remains and can occur in an area that has been determined through research or surface survey to be an area that is sensitive for the presence of buried archaeological remains. The Bakersfield South Alternative would construct HST rail in the vicinity of the recorded boundaries of CA-KER-2507, the reported location of the village site *Wailo*. The Authority does not currently have permission to enter at this location. The reported location of this site has been leveled and urbanized, and subsurface testing within the boundaries of the former Amtrak station concluded that no elements of the site exist (Chase 1994). Therefore, while the documented site does not retain sufficient integrity to qualify as a significant resource, unknown archaeological deposits may still exist intact in the area of the proposed construction in the railway right-of-way at this location.

The geoarchaeological study conducted for the Fresno to Bakersfield Section also concluded that this location would be highly sensitive for buried deposit potential (Authority and FRA 2012a). As the MOA allows for phasing identification efforts, a preconstruction geoarchaeological testing program will be implemented to help identify whether substantial archaeological deposits exist within the APE at the recorded location of CA-KER-2507. This investigation will be conducted once permissions to conduct excavations in active rail yards and adjacent businesses have been granted to the Authority. The geoarchaeological testing will be conducted in accordance with the methods disclosed in the *Fresno-Bakersfield Geoarchaeological Investigation* (Authority and FRA 2012f). Representatives of established Native American organizations will be invited to participate in the testing program prior to initiation of subsurface investigation.

Should the geoarchaeological study determine that intact deposits occur at the recorded location of CA-KER-2507, they will be evaluated for significance per mitigation measure Cul-MM#1. If the remains are found significant under Section 106 and CEQA additional provisions found in mitigation measure Cul-MM#1 will be implemented.

In the event that cultural resources are exposed during construction, the archaeologist will temporarily halt activities in the immediate vicinity of the discovery and the provisions of mitigation measure Cul-MM#1, including development of a data recovery plan will be implemented.

3.17.6.2 Historic Architectural Resources

Cul-MM#6: Complete Inventories for Historic Architectural Resources

It may be necessary to conduct additional inventories for historic architectural resources as the design is finalized. The Authority, in consultation with the FRA, under delegated responsibility under the PA and MOA, shall complete inventory and evaluate historic architectural properties for the NRHP. The Authority will also evaluate historic architectural resources to determine if they are historical resources (CRHR-eligible). For identified NRHP historic properties the Authority, in consultation with the FRA, will assess the potential for adverse effects by applying the effects criteria in 36 C.F.R. Part 800.5(a)(1). For CRHR historic resources, the Authority shall assess the potential for significant impacts by applying the criteria in CEQA Guidelines 15064.5(b).

Cul-MM#7: Avoid and/or Monitor Adverse Construction Vibration Effects

The HST project will develop construction methods to avoid indirect adverse effects or indirect substantial adverse change to any historic properties (Section 106) or historical resources (CEQA) from vibration caused by construction activities where feasible. Vibration from impact pile-driving during construction could 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 or substantial adverse changes, alternative construction methods that meet the performance standard of less than 0.12 in/sec ppv measured at the receptor will be used 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 use of alternative construction methods that create less vibration, such as cast in drilled-hole construction, at these locations would avoid indirect adverse vibration effects on historic properties (Section 106) and will avoid substantial adverse vibration changes to historical resources (CEQA). Indeed, any construction method that produces less than 0.12 in/sec ppv will be below the threshold for damage to older buildings (Wilson, Ihrig, & Associates et al. 2012; Lindberg, personal communication, 2014). 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 (FRA 2005) for evaluation of noise and vibration impacts associated with HSTs. The BETP will describe the methodology for the avoidance of adverse vibration effects in more detail and how such avoidance will be monitored and implemented during construction of the project.

Cul-MM#8: Implement Protection and/or Stabilization Measures

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, properties that would be relocated, 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. For buildings that would be moved, treatment will include stabilization before, during, and after relocation; protection during temporary storage; and relocation at a new site and during subsequent rehabilitation. Moving buildings could result in minor impacts on air emissions from equipment and vehicles and minor effects on developed or undeveloped sites.

Cul-MM#9: Avoid Historic Architectural Resources at the Fresno Works–Fresno Heavy Maintenance Facility Site

To avoid potential direct and indirect adverse effects, and direct and indirect substantial adverse changes that could be caused by construction of the heavy maintenance facility at the Fresno Works–Fresno HMF Site, the facility would be sited and constructed north of BNSF milepost 991.6. Construction north of BNSF milepost 991.6 will avoid potential direct adverse effects and direct substantial adverse changes that could be caused by construction of the facility on the two historic canals (map ID# 34a and 34c) located south of that point. It is anticipated that the site selection for the Fresno facility north of BNSF milepost 991.6 will also avoid potential indirect adverse vibration effects and substantial adverse changes because the construction will be more than 135 feet (less than 90 VdB) from the historic canals. Application of this treatment would avoid effects on the historic properties (i.e., canals) (Section 106) and would avoid significant impacts under CEQA.

Cul-MM#10: Minimize Adverse Effects through Relocation of Historic Structures

Based upon the finalization of design and the completed inventory, the BETP will identify historic properties/historical resources that could be relocated to help avoid their destruction and minimize the direct adverse effect of their physical damage or alteration. The development of the plan for relocation and the implementation of relocation will take place before construction. The relocation of the historic properties/historical resources will take into account the historic site and layout (i.e., the orientation of the buildings to the cardinal directions) and their potential re-use. The properties subject to relocation will be documented in detailed recordation as described in Cul-MM#12.

The BETP will include input from consulting parties regarding relocation of historic structures to provide a comprehensive and thorough approach that will best meet the needs of the parties and the resources. This minimization 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. Relocating historic structures has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this treatment will be identified in the BETP. Application of this treatment will help minimize effects on historic properties (Section 106) or historical resources (CEQA) and will reduce impacts under CEQA to a less-than-significant level.

Cul-MM#11: Minimize Adverse Operational Noise Effects

Based on the finalization of design and the completed inventory, the BETP will identify any additional 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 and the CEQA lead agency (i.e., the Authority). Preliminary project design options, such as noise walls, have been developed to help reduce noise impacts and follow FRA methodologies for noise

abatement. As discussed in Chapter 3.4 of the Final EIR, assessments and mitigations (see Mitigation Measure N&V-MM#1) for noise exposure levels for sensitive receptors, not just historic buildings, in similar land use areas along the project footprint, will also be protective of historic buildings. Therefore, application of this mitigation coupled with the implementation of N&V-MM#1 will help minimize effects on historic properties (Section 106) or historical resources (CEQA), and the effects will be less than significant.

Cul-MM#12: Prepare and Submit Additional Recordation and Documentation

Based on the finalization of design and the completed inventory, the BETP will identify specific historical resources that would be physically altered, damaged, relocated, or destroyed by the project that will be documented in detailed recordation that includes photography. This documentation may consist of preparation of updated recordation forms (DPR 523), or may be consistent with the HABS, the Historic American Engineering Record (HAER), or the Historic American Landscape Survey (HALS) programs; a Historic Structure Report; or other recordation methods stipulated in the MOA and described in the BETP. The recordation undertaken by this treatment would 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.

Consultation with the SHPO 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.

Copies of the documentation will be provided to the consulting parties and offered to the appropriate local governments, historical societies and agencies, or other public repositories, such as libraries. The documentation will also be offered in printed and electronic form to any repository or organization to which the SHPO, the Authority, and the local agency with jurisdiction over the property, through consultation, may agree. The electronic copy of the documentation may also be placed on an agency or organization's website.

Performance tracking of this mitigation measure is described in the BETP and is included in the Mitigation Monitoring and Enforcement Plan as part of the CEQA process.

Cul-MM#13: Prepare Interpretive or Educational Materials

Based on the finalization of design and the completed inventory, the MOA and BETP will identify historic properties and historical resources that will be subject to historic interpretation or preparation of educational materials. Interpretive and educational materials 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 or educational materials could include, but are not limited to: brochures, videos, websites, study guides, teaching guides, articles or reports for general publication, commemorative plaques, or exhibits.

The interpretive or educational 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 or educational materials should be advertised, and made available to, and/or disseminated to the public. The interpretive materials may be made available in physical or digital formats, 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 and educational materials has proven to be effective in achieving the stewardship goals of Section 106 and CEQA review. Performance tracking of this mitigation measure is described in the BETP and will be included in the MMRP.

Cul-MM#14: Plan Repair of Inadvertent Damage

Based on the completed inventory and any additional inventory that may be required, the BETP will provide 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. Inadvertent damage will consist of any damage that results in a significant impact to a historical resource within the meaning of CEQA Guidelines Section 15064.5(b)(2) or adverse effects to historic properties within the meaning of 36 C.F.R. Part 800.5(a)(1).

The plan may utilize photographic documentation prepared for the other mitigation measures (such as the 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 it can be implemented, the repair plan 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 and CEQA review. Performance tracking of this treatment is described in the BETP.

Cul-MM#15: Visual Screening Planting

Based on the finalization of design and the completed inventory, the BETP will identify historic properties and historical resources that will be subject to visual screening planting. Visual screening will consist of plant material that will minimize the view of the project from the property subject to mitigation. This treatment will minimize adverse effects on historic properties/historical resources to the extent possible.

Plant species will be selected on the basis of their mature size and shape, growth rate, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained and appropriate irrigation systems will be installed if needed. Visual screen planting may be undertaken in the form of boundary planting on the affected property, planting at affected viewpoints, and/or planting on project property as appropriate. 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. The visual screen planting treatment will include preparation of a planting plan that utilizes evergreen tree or shrub species and will take into account both the growth rate and ultimate height and density for the selected species to ensure that the visual screen can be accomplished effectively.

3.17.6.3 Paleontological Resources

Cul-MM#16: Engage a Paleontological Resources Specialist to Direct Monitoring during Construction

A paleontological resources specialist (PRS) will be designated for the project who will be responsible for determining where and when paleontological resources monitoring should be conducted. Paleontological resources monitors (PRMs) will be selected by the PRS based on their qualifications, and the scope and nature of their monitoring will be determined and directed based on the Paleontological Resource Monitoring and Mitigation Plan (PRMMP). The PRS will be responsible for developing Worker Environmental Awareness Program training. All management and supervisory personnel and construction workers involved with ground-disturbing activities will be required to take this training before beginning work on the project and will be provided with the necessary resources for responding in case paleontological resources are found during construction. The PRS will document any discoveries, as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5.

Cul-MM#17: Prepare and Implement a Paleontological Resource Monitoring and Mitigation Plan

Paleontological monitoring and mitigation measures are restricted to those construction-related activities that will result in the disturbance of paleontologically sensitive sediments. The PRMMP will include a description of when and where construction monitoring will be required; emergency discovery procedures; sampling and data recovery procedures; procedures for the preparation, identification, analysis, and curation of fossil specimens and data recovered; and procedures for reporting the results of the monitoring and mitigation program.

The monitoring program will be designed to accommodate site-specific construction of the selected option. The PRMMP will be consistent with Society of Vertebrate Paleontology (SVP 1995) guidelines for the mitigation of construction impacts on paleontological resources. The PRMMP will also be consistent with the SVP (1996) conditions for receivership of paleontological collections and any specific requirements of the designated repository for any fossils collected.

Cul-MM#18: Halt Construction When Paleontological Resources Are Found

If fossil or fossil-bearing deposits are discovered during construction, regardless of the individual making a paleontological discovery, construction activity in the immediate vicinity of the discovery will cease. This requirement will be spelled out in both the PRMMP and the WEAP. Construction activity may continue elsewhere provided that it continues to be monitored as appropriate. If the discovery is made by someone other than a PRM or the PRS, a PRM or the PRS will immediately be notified.

3.17.7 NEPA Impact Summary

3.17.7.1 Cultural Resources

The following represents a summary of the impacts with respect to NEPA addressed in this chapter. As discussed in Section 3.17.4.2, approximately 20% of the total environmental footprint has been subjected to archaeological survey. As the PA, the MOA, and treatment plans are implemented, the remaining area will be inventoried for archaeological and cultural resources, and those identified will be treated in compliance with the stipulations of the MOA and treatment plans.

Under the No Project Alternative, cultural resources will continue to be affected due to growth as well as changes in land use and ground disturbance. Archaeological resources will experience removal and destruction impacts of moderate to substantial intensity. Adverse effects on NRHP-eligible resources under Section 106 of the NHPA could result in the neglect, abandonment, or removal of historic properties, resulting in an impact of substantial intensity under NEPA.

Impacts on Archaeological Resources

Although the project alternatives will not affect any known archaeological resources that are considered historic properties, the alternatives could potentially affect unknown archaeological resources, which would be an adverse effect under Section 106 of the NHPA. Through the implementation of the mitigation, avoidance, and minimization measures listed above, such effects may be mitigated or resolved.

Impacts on Built Environment Resources

Project construction would cause physical impacts on some built environment historic properties. A physical impact, such as demolition or incompatible alteration of an NRHP-listed or eligible historic property, would result in an adverse effect under NHPA Section 106, and an impact of substantial intensity under NEPA. This direct impact would be significant because loss of the historic property from its local context or a modification that affects the property's integrity would render the historic property incapable of conveying its significance. As a result of the impact, a historic property may no longer be eligible for the NRHP, which would be considered significant under NEPA.

Project construction would introduce new visual elements into the setting of some built environment historic resources. Alteration of the local context when it is part of a historic property's integrity could result in an adverse effect under Section 106 of the NHPA. This indirect impact may affect the historic property's ability to convey its significance. Affected historic resources within urbanized areas adjacent to the HST project often are adjacent to other transportation infrastructure, such as freight lines and highways, and in these cases the functional context may not substantially change. However, some indirect impacts may render a historic property, or a contributing element of a historic district, incapable of conveying its significance under the criteria that established its eligibility for listing in the NRHP. In such cases, the impacts would be considered significant under NEPA. Indirect impacts that do not diminish the property's ability to convey its significance are not considered significant under NEPA.

For example, construction or operation would cause noise impacts on some built environment resources. A noise impact on a historic property with an inherent quiet nature that is part of its character and significance would result in an adverse effect under Section 106, and an impact of substantial intensity under NEPA. Similar to visual effects, the noise elements are common within the urbanized elements near some of these resources. Also, mitigation is available to address noise effects, thereby reducing their intensity and preserving the function and value of the resource. Therefore, these effects are not considered significant under NEPA.

Physical impacts, such as demolition of built environment historic properties as the result of project construction, would be of substantial intensity, and significant under NEPA. During the operation phase, visual and noise impacts on built environment resources would not be considered significant under NEPA.

3.17.7.2 Paleontological Resources

Absent appropriate mitigation measures, the destruction of a fossil deposit as a result of construction-related activities could be an impact of substantial intensity on local non-renewable paleontological resources that possess both scientific as well as educational values. Because

fossils have scientific and educational values, those values can be largely recovered by the controlled collection and investigation of fossils after discovery and by their curation in a qualified museum, resulting in enhanced value. Mitigation measures Cul-MM#16 through Cul-MM#18 will reduce the intensity of potential impacts on paleontological resources to negligible. With implementation of these measures, the resources would be available for subsequent scientific study and educational use, and the values of the resources would be largely realized. Therefore, with the implementation of mitigation measures Cul-MM#16 through Cul-MM#18, project impacts on paleontological resources would not be significant under NEPA.

3.17.8 CEQA Significance Conclusions

Table 3.17-11 summarizes cultural and paleontological impacts, associated mitigation measures, and the level of significance after mitigation. There are no known significant archaeological resources in the APE for the project; however, portions of the footprint have not been subject to inventory for archaeological resources. Within these parcels, there is the potential to identify CRHR-eligible resources. The mitigation identified above will reduce impacts on these resources to less than significant even if data recovery is the only feasible mitigation.

Additional built environment surveys may be necessary as the design progresses and those surveys may identify additional CEQA historical resources. After mitigation, impacts related to cultural resources would be significant and unavoidable under CEQA when historic structures would be demolished. After mitigation, impacts related to known and unknown built environment resources would be significant and unavoidable under CEQA. Depending upon the location of such resources, mitigation identified above may not reduce effects on these resources to less than significant, despite the application of all feasible mitigation. Furthermore, additional built environment surveys may be necessary as the design progresses beyond a conceptual level, and those surveys may identify additional CEQA historical resources. For these reasons, built environment resources may be subject to treatment for significant mitigatable or unavoidable effects. In circumstances where an indirect impact will occur, mitigations related to recordation of the setting and avoidance measures related to reduction of vibration or noise are considered to reduce a significant impact to a less-than-significant impact under CEQA.

There are no known occurrences of significant paleontological resources that will be affected by the project; however, construction could result in the identification of significant paleontological resources. Implementation of the mitigation measures outlined above will reduce effects of the project on unknown paleontological resources to less than significant.

Table 3.17-11
 CEQA Significant Impacts to Cultural Resources by Component of the HST Project

Resource ID/ Map ID#	Property Name Location, APN	City County	Alternatives												Mitigation Measures
			BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 & 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid	
Impact Cul #1: Potential Adverse Effects on Archaeological Resources due to Construction Activities															
HST-A-TUL-1	—	—	NSI	—	—	—	—	—	—	—	—	—	—	—	N/A
HST-A-TUL-3	—	—	NSI	—	—	—	—	—	—	—	—	—	—	—	N/A
HW-JR-1	—	—	—	—	—	—	—	NSI	—	—	—	—	—	—	N/A
CA-TUL-2950H	—	—	—	—	—	—	—	—	—	—	—	NSI	—	—	N/A
CA-TUL-473	—	—	—	—	—	—	—	—	—	—	—	NSI	—	—	Cul-MM#1 – Cul-MM#5
P-54-68	—	—	—	—	—	—	—	NSI	—	—	—	—	—	—	N/A
CA-KER-2507	—	—	—	—	—	—	—	—	—	—	—	—	—	NSI	Cul-MM#1 - Cul-MM#5
Impact Cul #2: Potential Adverse Effects on Historic Architectural Resources due to Construction Activities															
13*	Southern Pacific Railroad Depot 1033 H St; 46703038S	Fresno, Fresno	SM	SM	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺
16*	Bank of America 947–951 F St; 46707401	Fresno, Fresno	SM	—	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺
17	1528–1548 Tulare St; 46707101	Fresno, Fresno	SM	NSI	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺
18	Pacific Coast Seeded Raisin Company/Del Monte Plant #68 1626 Tulare St; 46704012S	Fresno, Fresno	SU	NSI	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺
19	Hobbs Parsons Produce Building 903–911 H Street 46704024S	Fresno, Fresno	SM	NSI	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺
24	Haruji Ego Family Building 956 China Alley; 46707102	Fresno, Fresno	SM	NSI	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺
25	Komoto's Department Store and Hotel 1536–1542 Kern St; 46707201	Fresno, Fresno	SM	NSI	—	—	—	—	—	—	—	—	—	—	Refer to M-F EIR/EIS ⁺

Table 3.17-11
 CEQA Significant Impacts to Cultural Resources by Component of the HST Project

Resource ID/ Map ID#	Property Name Location, APN	City County	Alternatives												Mitigation Measures	
			BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 & 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid		
33*	Van Ness Gate, Fresno; n/a	Fresno, Fresno	SM	—	—	—	—	—	—	—	—	—	—	—	—	Cul-MM#10; Cul-MM#12; Cul-MM#13
34*	Washington Irrigated Colony Rural Historic Landscape	Fresno	SU	—	—	—	—	—	SU	—	—	—	—	—	—	Cul-MM#7; Cul-MM#8; Cul-MM#9; Cul-MM#11; Cul-MM#12; Cul-MM#13; Cul-MM#14
34a*	Washington Colony Canal	Fresno	SU (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	NSI	—	—	—	—	—	—	Cul-MM#8; Cul-MM#9; Cul-MM#12; Cul-MM#13; Cul-MM#14
34c*	North Branch, Oleander Canal	Fresno	SU (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	NSI	—	—	—	—	—	—	Cul-MM#8; Cul-MM#9; Cul-MM#12; Cul-MM#13; Cul-MM#14
34d*	7887 S. Maple Ave; 33511042	Fresno	SM (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	—	—	—	—	—	—	—	Cul-MM#12; Cul-MM#13; Cul-MM#14
34e*	7870 S. Maple Ave; 33511011	Fresno	SM (Effect on this contributor is an effect on landscape #34)	—	—	—	—	—	—	—	—	—	—	—	—	Cul-MM#12; Cul-MM#13; Cul-MM#14
35*	Last Chance Ditch	Kings	—	—	NSI	—	—	SU = 1 & 2 Bypass; SU = 1 & 2 Mod	—	—	—	—	—	—	—	Cul-MM#8; Cul-MM#12; Cul-MM#13; Cul-MM#14
36*	13148 Grangeville 9100020000	Kings	—	—	—	—	—	SU = 1 & 2 Bypass; SU = 1 & 2 Mod	—	—	—	—	—	—	—	Cul-MM#8; Cul-MM#12; Cul-MM#14
37*	9860 13th Ave; 9070049000	Kings	—	—	—	—	—	SU = 1 & 2 Bypass; SM = 1 & 2 Mod	—	—	—	—	—	—	—	Cul-MM#8; Cul-MM#12; Cul-MM#14
39*	Peoples Ditch	Kings	SU	—	—	—	—	—	—	—	—	—	—	—	—	Cul-MM#8; Cul-MM#12; Cul-MM#13; Cul-MM#14

Table 3.17-11
 CEQA Significant Impacts to Cultural Resources by Component of the HST Project

Resource ID/ Map ID#	Property Name Location, APN	City County	Alternatives												Mitigation Measures
			BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 & 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid	
41*	Lakeside Cemetery Kent Ave; 28202004000	Kings	SM	—	—	—	—	—	—	—	—	—	—	—	Cul-MM#7; Cul-MM#8; Cul-MM#11; Cul-MM#12; Cul-MM#14; Cul-MM#15
43*	Allensworth Historic District; 331100030 331130003 331141004 331151011 331161020 333350041	Earlimart (vicinity), Tulare	SU	—	—	—	—	—	—	—	—	—	—	—	Cul-MM#7; Cul-MM#8; Cul-MM#11; Cul-MM#12; Cul-MM#13; Cul-MM#14; Cul-MM#15
48*	Harvey Auditorium, Bakersfield High School 1241 G St; 00405201	Bakersfield, Kern	SM	—	—	—	—	—	—	—	—	—	—	NSI	Cul-MM#7; Cul-MM#11; Cul-MM#12
52	1401–1409 K St; 00639102	Bakersfield, Kern	SU	—	—	—	—	—	—	—	—	—	NSI	SU	Cul-MM#12
53	1323 K St; 00646003	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	NSI	SM	Cul-MM#12
54	1323 L St; 00645002	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	NSI	SM	Cul-MM#12
55	1330 L St; 00644026	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	NSI	SM	Cul-MM#12
56	1326 L St; 00644025	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	NSI	SM	Cul-MM#12
57*	Stark/Spencer Residence 1321 N St; 00643002, 00643003	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	NSI	SM	Cul-MM#12; Cul-MM#15
60*	1031 E. 18th St; 01726007	Bakersfield, Kern	SM	—	—	—	—	—	—	—	—	—	NSI	NSI	Cul-MM#12
61*	San Joaquin Cotton Oil Company 1660 E. California 01749014	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	SM	—	Cul-MM#12; Cul-MM#13; Cul-MM#14
62*	2509 E. California 14113025	Bakersfield, Kern	NSI	—	—	—	—	—	—	—	—	—	SU	NSI	Cul-MM#12

Table 3.17-11
 CEQA Significant Impacts to Cultural Resources by Component of the HST Project

Resource ID/ Map ID#	Property Name Location, APN	City County	Alternatives												Mitigation Measures
			BNSF Alternative	Fresno Station	Kings/Tulare Regional Station—East/West	Bakersfield Station—North/South/Hybrid	Hanford West Bypass 1 & 2	HMF Sites	Corcoran Elevated	Corcoran Bypass	Allensworth Bypass	Wasco-Shafter Bypass	Bakersfield South	Bakersfield Hybrid	
Impact Cul #3: Potential Adverse Effects on Paleontological Resources due to Construction Activities															
Unknown Paleontological Resources			SM	SM	SM	SM	SM	SM	SM	SM	SM	SM	SM	SM	Cul-MM#16; Cul-MM#17; Cul-MM#18
Subtotals by impact for Historic Architectural Resources															
Significant impact but mitigatable (SM) to less than significant			12	1	0	0	Bypass 1&2 = 0; Mod. 1&2 = 2	0	0	0	0	0	0	1	5
Significant impact, unavoidable (SU)			7	0	0	0	Bypass 1&2 = 4; Mod. 1&2 = 4	1	0	0	1	0	1	1	
No significant impact (NSI)			7	5	1	0	Bypass 1&2 = 0; Mod. 1&2 = 0	2	0	0	0	0	7	1	
Notes / Legend:															
Property ID numbers not listed in this table do not receive CEQA Significant Impacts.															
* = Historic properties for the purposes of Section 106 (listed, determined eligible for listing, or appear eligible for listing in the NRHP). All others are listed in or eligible for CRHR, are historical resources as defined in CEQA Guidelines 15054.5, or are otherwise considered historical resources for the purposes of CEQA only.															
+ = For properties within the APE in downtown Fresno, compliance with both Section 106 and CEQA for historical resources—including assessment of effects or substantial adverse changes, as well as resolution of adverse effects or changes—is being completed as part of the Merced to Fresno section," as discussed in section 3.17.3 above.															
APN = Assessor's Parcel Number															
CEQA = California Environmental Quality Act of 1970															
NSI = no significant impact															
SM = significant impact, but mitigatable to less than significant															
SU = significant impact, unavoidable															
— = no known resource impacted.															