3.17 Cultural and Paleontological Resources

3.17.1 Introduction

This section describes 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. Prehistoric archaeological sites are places where Native Americans lived or carried out activities during the prehistoric period (as late as AD 1769). Prehistoric sites contain artifacts, cultural features, subsistence remains, and human burials. Paleontological resources are typically fossils: the 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 cultural and paleontological resources, the affected environment for these resources, 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 (NHPA) of 1966, as amended, and California Public Resources Code Sections 5024.1 and 21084.1. Paleontological resources are not protected under Section 106, but are important for their scientific information. This section presents, as prescribed by Section 106, the results of surface inventory, surveys, background research, and Native American community and other interested party consultations 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 the *California High-Speed Train Fresno to Bakersfield Archaeological Survey Report (ASR)* (Authority and FRA 2011a), *California High-Speed Train Fresno to Bakersfield Historic Architectural Survey Report (HASR)* (Authority and FRA 2011b), *California High-Speed Train Fresno to Bakersfield Historic Property Survey Report (HPSR)* (Authority and FRA 2011c), and the *California High-Speed Train Fresno to Bakersfield Paleontological Resource Survey Report* (Authority and FRA 2011d). Information on the precise location of any archaeological site, archaeologically sensitive area, or paleontological locality is typically not divulged to the general public, in order to protect those resources and in conformance with professional standards and practice.

Potential measures to avoid, minimize, and mitigate adverse effects on historic built properties, archaeological properties, and paleontological resources are also discussed in this section.

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.

A. FEDERAL

National Historic Preservation Act (NHPA) [16 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 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 of the NRHP criteria and

retains sufficient historic integrity to convey its significance. This act also established the Advisory Council on Historic Preservation (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 CFR Parts 60, 63, 800.

36 CFR 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 contains 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 State Historic Preservation Officer, as well as other consulting parties a reasonable opportunity to comment on any undertaking that would adversely affect historic properties listed in or eligible for NRHP listing. State Historic Preservation Officers 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 CFR § 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 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 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 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.

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 23 U.S.C 138 and 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 an 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; and
- The program or project includes all possible planning to minimize harm to the Section 4(f) property resulting from the use.

B. STATE

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

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 (Public Resources Code) 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 accidental 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. 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 "a unique paleontological resource or site" is, 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.
- It has 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.

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.

Section XVII, part a, of the CEQA Environmental Checklist asks a second question that is equally applicable to paleontological resources: "Does the project have the potential to…eliminate important examples of the major periods of California history or pre-history?" To be in compliance with CEQA, environmental impact assessments, statements, and reports must answer both of these questions in the Environmental Checklist. If the answer to either question is *yes* or *possibly*, a mitigation and monitoring plan must be designed and implemented to protect significant paleontological resources.

The CEQA lead agency having jurisdiction over a project is responsible to ensure 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 demonstrate project compliance with mitigation measures developed during the environmental impact review process.

Other state requirements for paleontological resource management are 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 would apply to any construction or other related project impacts that would 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 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.

C. REGIONAL AND LOCAL

This section identifies local planning guidance and ordinances including general and specific plans, and historic/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 agencies with local 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. Table 3.17-1 identifies local regulations associated with cultural resources from those agencies that are applicable to the project.

The following local plans and policies were identified and considered in the preparation of this analysis.

Table 3.17-1
Local Regulations

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.
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	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

Table 3.17-1
Local Regulations

Policy Title	Summary
Development Department 2002)	for preserving resources which 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 which have a distinctive character or a special historic or cultural value; to preserve and regulate historic buildings, structures, objects, sites and districts which 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 2010)	Goals of the General Plan include the preservation of significant historical and archaeological sites and structures which 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
Local Regulations

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 pre-historic resources; avoid impacts to cultural resources where feasible, 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 City Code provides the definition of historical structures within city limits.
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 area.
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 which 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.

Table 3.17-1
Local Regulations

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 to 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.
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 which 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

A Programmatic Agreement (PA) [1]was developed among FRA, the Authority, the ACHP, the State Historic Preservation Office (SHPO) and consulting parties, including Native American Tribes, for compliance with Section 106 NHPA as it pertains to the California HST Project. 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 document.

The PA provides 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 Effects (APE); identification,

[1] *Programmatic Agreement Among the Federal Railroad Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California High-Speed Rail Authority Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the California High-Speed Train Project*, June 30, 2011; hereinafter referred to as the Section 106 PA.

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 Memoranda of Agreement (MOA) for each undertaking where there are adverse effects. The MOA for the Fresno-Bakersfield section will be prepared following SHPO review of the Historic Properties Survey Report and related supporting documentation. Per the PA at Section V.A. "Consistent with Section 106, 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 documents 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". MOAs documenting agreement on the treatment of historic properties will be executed prior to issuance of a Record of Decision (ROD) by FRA, which will coincide with the completion of the Final EIR/EIS.

A. STUDY AREA/AREA OF POTENTIAL EFFECTS

Because this project is a federal undertaking, 36 CFR 800.4(a)(1) requires establishing a project APE. 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.

On June 28, 2010, in accordance with the 36 CFR 800.4 and the Section 106 PA, the SHPO concurred that the APEs delineated for this HST section are appropriate. Following SHPO concurrence with the initial version of the APE, the environmental footprint has been refined and revised. As a result, the APE has been revised in accordance with the guidance included within Attachment B of the PA, which was the approach concurred upon by SHPO. The version of the APE discussed in this EIR/EIS is consistent with the 15% level of engineering design for the project.

The APEs for archaeological and historic architectural resources will continue to be refined in response to the project refinements in consultation with SHPO and in accordance with the guidelines provided in Attachment B of the Section 106 PA, as described below.

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, borrow pits, and biological mitigation areas.

Historic Architectural APE

The current APE for historic architectural properties includes all properties that contain buildings, structures, objects, sites, landscapes, and districts that were more than 50 years of age at the time the intensive surveys were conducted (2010/2011). The historic architectural resources APE for the Fresno to Bakersfield Section, derived from the current 15% level design, includes all legal parcels intersected by: the proposed HST right-of-way, construction of proposed ancillary features (such as grade separations or maintenance facilities), and construction staging areas. If historic architectural resources existed on a large rural parcel within 150 feet (46 meters) 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 (46 meters) 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 (46 meters) 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 Section 106 PA, which provides that the APE shall 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 their historic setting and where the introduction of visual or audible elements may affect the use or characteristics of those properties that would be the basis for their eligibility for listing in the National Register.
- Properties near the undertaking that were either used by a railroad, served by a railroad, or where railroad materials, features, and activities have long been part of their historic setting, but only in such cases where the undertaking would result in a substantial change from the historic use, access, or noise and vibration levels that were present 50 years ago, or during the period of significance of a property, if different.

The APE has been revised during the course of environmental review to reflect updated project information, as well as ongoing field efforts that clarify whether or not individual properties meet the above stipulations. As mentioned, this analysis is based on 15% design development. As possible future project revisions take place, updated APE maps would be produced and authorized as per the stipulations of the Section 106 PA.

Paleontological Study Area

For paleontological resources, the study area is a 1-mile radius around the proposed right-of-way and any potential facilities, including the potential stations.

B. CULTURAL AND PALEONTOLOGICAL RESOURCE DATA SOURCES

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

- California Historical Resource Information System (CHRIS) 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 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 paleontological site 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) as per 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).[2] 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 kept confidential, these sites have not been mapped. Of these previously recorded sites, three—CA-KER-2507[3], CA-KER-3072, and CA-TUL-2950H—are within 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 was based solely on documentary evidence, through written accounts from the 1890s and ethnographic interviews conducted in the early 20th century. The site was described by ethnographic informants as the *Yowlumne* village site of *Woilu* (Latta 1949:46–47). CA-KER-3072 was identified as a "very sparse lithic scatter" within the property boundaries of a Texaco refinery (Everson 1991). The elements of the deposit consisted of a "few" lithic flakes (assumed to be three) over a 2,500-square meter area. CA-TUL-2950H/P-54-004737 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 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 2011a) for details regarding this analysis.

[2] 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 2011f).

[3] 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.

In addition to the archival research discussed above, three field work sessions were conducted that sought to identify prehistoric and historic archaeological resources within the APE. The first was conducted between February and April 2010 on the BNSF alternative alignment and alternatives. A subsequent survey was conducted in April 2010 only within the BNSF Railway right-of-way. The third survey was conducted in August 2010 and reflected changes in the APE since the initial surveys.

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 2011f), the *Section 106 Programmatic Agreement* (Authority and FRA 2011e), and the standards of professional practice of archaeology (see Section 110 of the National Historic Preservation Act of 1966 and the Secretary of the Interior's Standards and Guidelines for identification of historical 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 historical property exemptions were defined in the *Section 106 PA*. The criteria for what constitutes an "isolate" and a "site," and the process for the initial evaluation of a given resource are derived from the *Section 106 P A*. As stipulated in the Section 106 PA, Section 8 [A][1], a phased identification effort will be necessary as access is granted and where adverse effects are likely to occur. This phasing will be coordinated through the establishment of a Memoranda of Agreement (MOA) and is not addressed further in the present document. The following details the survey conducted and the limits of its extent given the current project access and footprint.

- An intensive pedestrian survey of the APE was conducted between February 15 and April 8, 2010, and between August 16 and 18, 2010. In addition, a separate survey of the BNSF right-of-way, not included in the private parcel surveys, was conducted. Given current project design, this APE constitutes a total of 7,891-acres. Permission to enter (PTE) was obtained for approximately 49%, or 3,855-acres, of this total. In addition to restrictions on entry, portions of the APE could not be surveyed because of crop cover, vegetation, urbanization, etc. As a result, of the area PTE, 65%, or 2,521-acres, were surveyed. In terms of the total footprint APE, as currently configured, this acreage represents 32% of the total area.

- No means of ingress was available to certain parcels (e.g., the only means of access to a parcel for which PTE had been obtained was through a property for which PTE had not been obtained).

- A parcel to be surveyed was completely paved, otherwise developed, or currently under cultivation with dense non-row crops).

- And/or, the parcel to be surveyed was undergoing aerial spraying at the time of the survey.

Details of the survey are provided in the California High-Speed Train Fresno to Bakersfield Archaeological Survey Report (Authority and FRA 2011a).

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:

1. to delineate the site boundaries of HST-TUL-1 and -2 and HST-A-TUL-3;

2. to determine the presence and extent of any possible subsurface deposits associated with these resources;

3. to determine whether sites HST-TUL-1 and -2 are components of a single site; and

4. to conduct geoarchaeological trenching to determine the presence and extent of any possible subsurface deposits associated with these resources, 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.

Historic Architectural Resources

Architectural historians meeting the professional qualifications under the SOI's Standards for Architectural History, and meeting the definition of Qualified Investigator (QI) as per the PA, conducted the identification and evaluation of historic architectural 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 or older at the time of survey in 2010. The architectural resource types listed in Attachment D of the PA were exempt from evaluation because they do not demonstrate potential for historical significance.

As with the archaeological 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 field surveys, all recorded resources within 500 feet of the centerline as of February 2010 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 digitized database. The APE for historic architectural properties includes all properties that contain buildings, structures, objects, sites, landscapes, and districts more than 50 years of age at the time the intensive survey was conducted (2010). The APE for historic architectural resources was defined in accordance with Attachment B of the Section 106 PA:

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* (California Office of Historic Preservation 1976).
- *California Points of Historical Interest* (California Office of Historic Preservation 1992).
- *California Historical Landmarks* (California Office of Historic Preservation [1990] 1996.
- 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, were 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 2011b), *and the California High-Speed Train Fresno to Bakersfield Historic Property Survey Report (HPSR)* (Authority and FRA 2011c). 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 11 architectural resources within the search area (i.e., the 500-foot radius of the alignment centerline adopted for the record search and used prior to the field surveys) because most of the area within the APE has not been previously surveyed for historic architectural resources. Of the 11 resources on file, only one was an NRHP-listed property: the Shafter Railroad Depot in Kern County. Historic architectural resources on file and identified in the records search included three canals that had been found eligible and a State Historic Landmark marker. The six other resources identified in the search results are not historic properties (Section 106) or historical resources (CEQA) because they were previously found not eligible for the NRHP or CRHR, were no longer extant, or had not been evaluated using NRHP and CRHR significance criteria. The identified but not evaluated resources were added to the survey population and addressed in the HPSR (see Table 3.17-4, below) (Authority and FRA 2011c). Resources previously found not eligible for the NRHP or CRHR were reported in the HASR (Authority and FRA 2011b).

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 (see Table 3.17-4, below).

If an archaeological or historic architectural resource is not listed in or determined to be eligible for listing in the NRHP or the CRHR, is not included in a local register of historic resources (pursuant to Section 5020.1(k) of the Public Resource Code), or is not identified in an historic resources survey (meeting the criteria in Section 5024.1 (g) of the Public Resource Code), a lead agency may still determine it to be an 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.[4] 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 (Authority and FRA 2011e). 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 study population.

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

QIs then conducted an intensive-level field survey and field research on the study population resources from March to May 2010, with additional surveys conducted in 2011 to address any additional resources brought in to the APE by refinements made to reflect new project information. Specifically, this intensive-level survey addressed 52 known and potential historic properties and historical resources within the APE that were 50 years of age, or older, at the time of survey. This survey was reported in the HPSR, consistent with the requirements of the PA (Authority and FRA 2011e).

The intensive survey also addressed 176 resources that required evaluation because they had not been previously studied and did not meet the Section 106 PA criteria for "streamline documentation." The evaluation of these resources concluded that they are not eligible for listing in the NRHP or CRHR, and these results were presented in the HASR as required by the Section 106 PA. Historic architectural resources that met the criteria for "streamline documentation" and those that met the criteria for exemption, were also reported in the HASR.

All surveys and complete inventories 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. Access was arranged in the manner specified in the project protocol for such contact, and the inventory was completed for the entire survey population for both the HPSR and HASR.

Details of the historic architectural survey are provided in the HASR and HPSR (Authority and FRA 2011b, 2011c).

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 (36 CFR 800.5). Under these regulations, an undertaking has an effect on an 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 CFR Part 800.5(a)]. An effect is considered adverse when the effect on an historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Consideration is given to all qualifying characteristics of an historic property, 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 CFR 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 which 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.

Ethnographic resources 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. Intensity of impacts on ethnographic resources may relate to access and use of as well as changes 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. For example, Basque sheepherders who return to the same mountain meadows annually may consider those locations as a TCP. However, no TCPs, either Native American or otherwise, have been identified to date. Additional efforts to identify and consult with affected groups will be addressed during the development of the MOAs, which may result in the identification of TCPs. Should TCPs be identified, and if the project as designed poses a potential effect on those resources, the MOAs will account for those concerns and contain measures intended to address potential effects.

Paleontological Resources

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, the published and available unpublished geological and paleontological literature was reviewed; and stratigraphic and paleontological inventories were compiled, synthesized, and evaluated. 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, stormwater 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.

Public agencies must treat all historical and cultural resources, 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 of the geologic events that resulted in the deposition of the sediments that entombed them.

C. 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, and the California Native American Heritage Commission (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 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 CAHST, 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 CAHST project, and MOAs prepared for each section. The FRA subsequently prepared a PA in consultation with the SHPO and ACHP.

Table 3.17-2
FRA Coordination with SHPO and ACHP

Action	Date	Summary
Meeting between FRA and SHPO	January 29, 2009	Development of environmental method, mitigation measures, and the creation of a PA and MOAs discussed.
FRA/Authority/SHPO Coordination Meeting	February 3, 2010	Discussion about SHPO edits to draft PA
FRA sends letter (with draft PA attached) to SHPO and ACHP inviting participation in the development of the PA	February 3, 2010	
ACHP sends letter to FRA	March 8, 2010	ACHP declares intention to participate in PA development.
ACHP sends letter to FRA	March 8, 2010	ACHP requests a teleconference between the FRA, ACHP, and SHPO to discuss the PA, and recommends using prototype PA [36 CFR 800.14(b)(4)].
Meeting between FRA and ACHP	April 1, 2010	
ACHP sends letter with draft PA comments to FRA	April 19, 2010	
FRA sends letter to ACHP	n.d. (post-dates April 19, 2010)	FRA acknowledges ACHP's March 8, 2010 letters, summarizes the April 1, 2010 meeting, states that the FRA will not use the prototype PA suggested by the ACHP, and expresses interest in scheduling a meeting to discuss the PA and tribal consultation.

Native American Outreach

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

Following is a list of Native American tribes, or individuals representing a given tribe provided by the NAHC in the project corridor that were invited to participate in the process. Those listed in bold are federally-designated tribes also involved in government-to-government consultation with FRA.

- Kings River Choinumni Farm Tribe
- **Chairperson/Santa Rosa Rancheria**[5]
- Tribal Chairwoman/Tubatulabals of Kern Valley

[5] The Spanish word "ranchería" refers to the workers' quarters of a rancho, and has become extended into English to mean a native village.

- **Tribal Administrator/Cold Springs Rancheria of Mono Indians**
- Interim Chairperson, Sierra Nevada Native
- American Coalition
- Chairperson/Southern Sierra Miwok Nation
- Chowchilla Tribe of Yokuts
- Chairperson/Dunlap Band of Mono Indians
- Chairperson/Cold Springs Rancheria of Mono Indians
- Chairperson/Kings River Choinumni Farm Tribe
- Tribal Administrator/North Fork Rancheria
- Tribal Secretary/Dunlap Band of Mono Indians
- Kitanemuk and Yowlumne Tejon Indians
- Environmental Director/Picayune Rancheria of Chukchansi
- Chairperson/North Fork Rancheria
- **Director, Cultural Department/Santa Rosa Rancheria**
- Chairperson/Chumash Council of Bakersfield
- Tejon Indian Tribe
- **Chairperson/Tule River Indian Tribe**
- Chairperson/North Fork Mono Tribe
- Chairperson/Picayune Rancheria of Chukchansi
- **Chairperson/Table Mountain Rancheria**
- Chukchansi Tribe
- Dunlap Band of Mono Indians
- Spiritual Leader/Southern Sierra Miwok Nation
- **Chairperson/Big Sandy Rancheria of Mono Indians**
- Chairperson/Dumma Tribal Government
- Board Chairperson/Dunlap Band of Mono Indians
- Cultural Specialist, Picayune Rancheria of Chukchansi
- Chairperson/Tejon Indian Tribe
- Traditional Choinumni Tribe
- Cultural Resource Director/Table Mountain Rancheria
- North Valley Yokuts Tribe
- Choinumni Tribe, Choinumni/Mono
- Cultural Resource Representative/Dumma Tribal Government
- Kawaiisu Tribe
- Historical Preservation Officer/Kern Valley Indian Council
- **Tribal Administrator/Table Mountain Rancheria**
- **Chairperson/Table Mountain Rancheria**
- Wukchumni Tribe
- Chairperson, The Choinumni Tribe of Yokuts
- CEO/Dunlap Band of Mono Indians
- Tribal Contact/Dumna Wo-Wah Tribal Government
- Cultural Resource Team Leader/Tejon Indian Tribe
- Wukchumni Tribe
- Chairperson/Kern Valley Indian Council
- **Environmental Coordinator/Cold Springs Rancheria of Mono Indians**
- **Tribal Administrator/Cold Springs Rancheria of Mono Indians**
- Rancheria of Mono Indians
- Chairperson/Eshom Valley Band of Indians

Table 3.17-3 summarizes the outreach with Native American tribes undertaken to date.

Table 3.17-3
FRA Tribal Consultation

Action	Date	Summary
Initial search conducted for Native American Tribes in 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.
Native American Heritage Commission Sacred Lands Search	April–May 2009	Native American Heritage Commission 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 within the project APE.
Letters sent to individual contacts provided by NAHC	October 2009	
Telephone contacts	November 2009	A phone call and a follow-up call was placed to each contact provided by the NAHC requesting comment or information.
Consultation request letter mailed to tribes listed in the Tribal Consultation Plan	December 17, 2009	
Second NAHC Sacred Lands Search	January 2010	A second request was sent reflecting changes to the original alignment sent in April 2009.
Letter initiating request for government-to-government coordination 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).
Communication Meeting for all interested tribal members	July 22, 2010	Organized meeting in Visalia to allow a forum for the community to provide feedback. No Native American representatives attended.
Consultation Meeting for all interested tribal members	August 16, 2010	Representatives from Dumna, Amah Mutsun, Choinumni Tribes, and Big Sandy Rancheria attended or participated by phone. FRA and Authority representatives presented project information.

Table 3.17-3
FRA Tribal Consultation

Action	Date	Summary
Letter follows-up on the initial request for government-to-government coordination between the FRA and federally recognized tribes, and issues an invitation to participate in a telephone conference scheduled for December 15, 2011 mailed from FRA to federally recognized tribes.	December 6, 2010	
Telephone conference for coordination between the FRA and federally recognized tribes.	December 15, 2010	
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 PA's development, as well as the forthcoming draft MOA template.	December 28, 2011	Responses received from the Pechanga Temecula Band of Luiseno Indians (February 18, 2011), and the Soboba Band of Luiseno Indians (February 24, 2011).
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.
Native American (Informal) Consultation Meeting to obtain input from interested Native American Groups and Individuals	June 1, 2011	Meeting convened by the FRA and the Authority in Fresno, California to update tribal representatives regarding status of cultural resources investigations; 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. Representatives from the federally-recognized Big Sandy Rancheria and the Cold Spring Rancheria, both with interests in the Fresno-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.

Table 3.17-3
FRA Tribal Consultation

Action	Date	Summary
Formal Tribal Consultation with Federally-Recognized Tribes	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.
Consultation Meeting for all interested tribal members	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 Fresno to Bakersfield sections, as tribal areas overlap in the Fresno portion of both projects.
Acronyms: APE = Area of Potential Effects FRA = Federal Railroad Administration NAHC = Native American Heritage Commission		

These coordination efforts have resulted in the following:

- 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 for the purposes of identifying traditional properties that may exist within the vicinity of the project.

- Of the 53 mailings to Native American entities, 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, 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 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.

- As planning proceeds, arrangements for meetings with Native American individuals and groups will be organized by the Authority and FRA.

As mentioned above, the Native American Heritage Commission 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.

In accordance with the Section 106 PA, and as described in Section 3.17.3, an MOA will be developed by the Authority for each undertaking where the FRA determines an adverse effect would occur by the undertaking. The development of the MOA will be prepared with tribal representatives and other interested parties in tandem with the California State Historic Preservation Office. A MOA is used to resolve known and definable adverse effects on historic properties that result from a federal undertaking.

Native American outreach activities are ongoing. Native American tribes will be consulted at each key decision point of the Section 106, CEQA, and NEPA processes, and their input integrated into the project planning process, as prescribed by Attachment E, *Compliance with Section 106 of the National Historic Preservation Act for the California High Speed Train System*, of the MOA

Consultation with the SHPO and parties interested in historic architectural resources 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 & 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

Four responses to the letter have been received to date: Gilbert Gia of the Kern County Historical Society; Bill Secrest, Jr., local history librarian for 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 these comments, 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 and HPSR (Authority and FRA 2011b, 2011c). Comments regarding the maps were noted and will be addressed during continuing consultation with interested parties. None of the other recipients of the notification letter responded during the comment period, nor have any late responses been received.

D. 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 CFR 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 CFR 1508.27]. Cultural resource findings are presented consistent with 36 CFR Part 800.5, applying the criteria of Adverse Effect or determining there is No Adverse Effect or No Effect.

Pursuant to NEPA regulations (40 CFR 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 identified and described. When no measurable effect exists, impact is found not to occur. Intensity of adverse effects are summarized as the degree or magnitude of a potential adverse effect where the adverse effect is thus determined to be negligible, moderate, or substantial. It is possible that a significant adverse effect may still exist when on balance the impact is negligible or even beneficial.

For paleontological resources, adverse effects 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 effect may still exist when on balance the impact is negligible or even beneficial.

However, the ACHP promulgated in the revised Section 106 regulations preamble (ACHP 2001: 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 however great or small, 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 CFR 800 may be mitigated, the effect remains adverse.

Nevertheless, the following defines the impact intensities for archaeological and historic architectural resources as addressed in this document and the definitions provided by the National Park Service [2008]):

- Negligible Effect – the effect would be at the lowest levels of detection, barely measurable, with no perceptible consequences, either adverse or beneficial, to the resources. The Section 106 determination would be no adverse effect.

- Moderate Adverse Effect – the effect is measurable and perceptible. The effect changes one or more of the characteristics that qualify the historic property(s) for inclusion in the National Register and diminishes the integrity of the historic property(s), but does not jeopardize the National Register eligibility of the historic property(s). For purposes of Section 106, the determination of effect would be adverse effect.

- Major (Substantial) Adverse Effect – the effect on the archeological site or group of sites is substantial, noticeable, and permanent. The action severely changes one or more characteristics that qualify the historic property(s) for inclusion in the National Register, diminishing the integrity of the historic property(s) to such an extent that it is no longer eligible for listing in the National Register. For purposes of Section 106, the determination of effect would be adverse effect.

Assessments of impacts to paleontological resources are based on the probability that fossils will be encountered during ground disturbance, and the probable scientific importance of the affected fossils. A negligible impact includes the damage or destruction of a fossil which cannot be identified, such as casts and molds of roots and animal burrows, or one that is out of stratigraphic context. A moderate impact is the damage or destruction of a fossil or fossils possessing less scientific importance because they are abundant and well-collected, or poorly preserved. Moderate impacts are also projected when a sedimentary unit is known to yield only widely dispersed and relatively scarce paleontological material. A substantial impact is the damage or destruction, or loss to the scientific community through vandalism or unauthorized collection, of a scientifically important fossil or fossils (i.e., vertebrate fossils).

E. 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)].

It should be noted that a significant impact under CEQA would result if the resource is so affected as to no longer be eligible for listing as an historical resource (typically following the CRHR criteria for significance and integrity). Alternatively, under Section 106, a resource can be adversely affected yet remain eligible for the NRHP.

3.17.4 Affected Environment

This section describes the cultural and paleontological resources located within the APE/study area for the Fresno to Bakersfield alignment alternatives as well as those present at the proposed heavy-maintenance facility (HMF) sites.

A. ARCHAEOLOGICAL RESOURCES

As a result of local geomorphic processes—which have buried or destroyed archaeological sites throughout the region—there are limitations to our understanding of the prehistory of the southern San Joaquin Valley. Despite these limitations, there is a long history of archaeological research that informs our 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 3.17-3 depicts the concordance with the following sequence and other frequently used chronologies for the San Joaquin Valley and the Central Valley as a whole.

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).

Table 3.17-4
Prehistoric Cultural Periods

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

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 Windmiller Pattern sites in the northern part of the San Joaquin Valley, including extended burials without funerary objects, Pinto projectile points, and charmstones; but with some local deposits more closely resembling 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 (Windmiller) 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).

B. 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-54-004737), 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 1949; 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) (Shipley 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, with the Apyachi living near the river's outlet on the western side of the valley, and the Wimilichi and Wechithit 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, with the Chuxoxi living 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 Creeks (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 (1949) the location of Woilo was reported to be on a knoll between the present-day 16th and F Streets and the 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, 16 previously recorded prehistoric archaeological sites are within 0.25 mile of the archaeological APE. Of these, two sites, CA-KER-2507 and CA-KER-3072, were previously identified within the archaeological APE. CA-KER-2507, recorded in 1989, was recorded as a village site with willow huts based on written accounts from the 1890s prior to the 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-KER-3072 was identified as a "very sparse lithic scatter" within the property boundaries of a Texaco refinery (Everson 1991). This deposit consisted of a "few" lithic flakes over a 2,500-square meter area; in addition, the area was described as highly disturbed by agriculture and that the flakes were likely out of context, which would indicate that the deposit is of low scientific value.

In order 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, P-473 (Davis and Cursi 1977), is described as a "sparse scatter of lithic debitage[6] 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, P-473 was probably a large site that had been disturbed, with the material re-distributed over an even larger area than the original site boundaries. Another site, CA-TUL-212 (P-212), which is about 4 miles north of Corcoran, is also situated along the 200-foot contour shoreline of the lake. P-212, which was originally recorded in 2000 and tested in 2003 (Fogerty 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 site. The flake stone debitage included obsidian, which suggests the manufacture or resharpening of non-local materials.

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 (Warren and McKusick 1959) Additionally, 20 miles northwest of CA-KER-74 is 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 garbage 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 east. 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 3.17-4. The National Register eligibility of these sites was not determined by the recorders.

One previously recorded archaeological site is within the APE. CA-TUL-2950H/P-54-004737 is the former location of Stoil, a Standard Oil Company pumping/rail station (Orfila 2010). Levees have

[6] Sharp-edged waste material left over when someone creates a stone tool.

been constructed around the perimeter of the site, and it is periodically used as a water retention basin by the Alpaugh Irrigation District.

Field surveys were conducted for historic archaeological in the same manner as for prehistoric archaeological sites. As with the prehistoric sites discussed above, following the guidelines of the Section 106 PA, archaeological sites are treated as NRHP eligible properties until such time as investigations to evaluate eligibility are conducted (see Section 3.17.5).

Table 3.17-5
Previously Recorded Historic Archaeological Sites
Within 0.25 mile of Archaeological APE

State Site Identifier (P#)	Resource Name (assigned by recorder)	Period	Description
3029	Original Rosedale town center	Historic	The site is a flat, open field designated as original Rosedale town site
4346	LSA-DEL-430-S-1	Historic	Structural remains and refuse of a possible home site
4347	LSA-DEL-430-S-2	Historic	Dense refuse deposit, dating 1914-1945
4737	Stoil Site	Historic	Standard Oil Company pumping and rail station, historic refuse dating to 1910s
9016	Centennial Garden	Historic	Historic trash pits associated with houses on the property. Date 1890-1940
Acronym: APE = Area of Potential Effects			

Field Surveys: Results

Two prehistoric archaeological sites were identified within the APE during the pedestrian survey (see Table 3.17-5), and one historic archaeological site was re-identified. The sites are described in detail below. The two prehistoric sites, HST-A-TUL-1 and -3 intersect with the BNSF Alternative Alignment, approximately 7 miles south of the city of Corcoran. The previously recorded and re-identified historic archaeological site, CA-TUL-2950H/P-54-04737, intersects with the Allensworth Bypass. As discussed above, the areas surrounding Corcoran and Allensworth were, prehistorically, highly attractive locales given their proximity to the Tulare Lake shoreline. The prehistoric sites identified are primarily lithic scatters, some containing limited groundstone, beads, and other artifact classes.

A large number of isolated artifacts, which are defined 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 *Section 106 Programmatic Agreement* for the California HST System) (Authority and FRA 2011e), the location and nature of the isolates encountered on the surface during the pedestrian survey may be noteworthy with regard to the known 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 the South San Joaquin Valley in particular.

Following the guidelines of the Section 106 PA, archaeological sites are treated as NRHP-eligible properties until such time as investigations to evaluate eligibility are conducted (see Section 3.17.5).

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

Table 3.17-5 summarizes the newly identified archaeological resources within the APE, by alignment.

Table 3.17-6
Archaeological Resources within the APE

Resources	Description	National Register Eligibility	Alternatives			
			BNSF	Bakers-field South	Corcoran Bypass	Allensworth Bypass
Newly Recorded Resources						
HST-A-TUL-1	Prehistoric deposit	Appears ineligible	X			
HST-A-TUL-3	Prehistoric deposit	Appears ineligible	X			
Previously Recorded Resources						
P-54-004737CA-TUL-2950H (Stoil)	Historic settlement	Appears ineligible				X
CA-KER-3072	Prehistoric deposit	Exempt from evaluation (per the PA)		X		
CA-KER-2507	Prehistoric deposit	Appears ineligible		X		

Acronyms:
APE = Area of Potential Effects
BNSF = BNSF Railway
PA = Section 106 Programmatic Agreement (Authority and FRA 2011e)

HST-A-TUL-1 (BNSF Alternative Alignment)

This resource is a sparse lithic scatter composed primarily of chert[7], with a small percentage of obsidian[8]. 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

[7] Chert refers to a form of quartz used for the manufacture of stone tools.

[8] Obsidian refers to a jet black to grey naturally occurring volcanic glass formed by rapid cooling of viscous lava.

addition to the flakes, one tool (Artifact-1), a large chert stemmed projectile point[9] base modified into a knife, was observed.

The site was observed 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-TUL-2 consisted of 12 chert flakes within a dirt agricultural road. Given the poor surface visibility within 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 shovel test units (STUs) excavated at HST-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-TUL-2 using the same methodology. Cultural materials were recovered from 11 of these units with similar results to HST-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 within the trenches. Because flakes were found in the field separating HST-TUL-1 and HST-TUL-2, the two sites that were initially recorded separately during reconnaissance surveys have been combined into a single site: HST-TUL-1.

HST-TUL-1 does not are eligible for listing on the National Register of Historic Places 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.

HST-A-TUL-3 (BNSF Alternative Alignment)

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 within 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 within 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 within 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.

[9] 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, though temporal associations of these artifacts within 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 within the trenches.

HST-A-TUL-3 does not are eligible for listing on the National Register of Historic Places due to a lack of integrity. 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.

CA-TUL-2950H/P-54-004737 (Allensworth Bypass Alternative Alignment)

CA-TUL-2950H/P-54-004737 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 within 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-54-004737 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 failed to survive in the face of economic and industrial developments in the first half of the twentieth century. Multi-spectral single aperture radar aerial imagery depicts grading disturbance throughout the site, which is further evidenced 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 an historic 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 sum, the extensive modification by the Alpaugh Irrigation District and the location's current usage as a water retention basin has compromised the integrity of the ephemerally occupied CA-TUL-2950H/P-54-004737; therefore it does not are eligible for listing on the National Register of Historic Places.

CA-KER-3072

As discussed above, CA-KER-3072 was identified as a "very sparse lithic scatter" within the property boundaries of a Texaco refinery (Everson 1991). The elements of the deposit consisted of a "few" lithic flakes—assumed to be three—over a 2,500-square meter area. This parcel was not surveyed for the purposes of the present project because access was not granted. However, because only three flakes were recorded within a 2,500-square meter area, this recorded site is exempted under the conditions outlined in the PA, Attachment D, Properties Exempt from Evaluation (Authority and FRA 2011e). In addition, the original recording of the site observes that the site has been extensively plowed and disked and that the artifacts are likely not in their original depositional context. Therefore, this site is not considered a historical property under NHPA or a historic resource under CEQA for the purposes of this EIR/EIS and requires no further treatment.

CA-KER-2507

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 (1949) definitive ethnography of the Yokuts, the site was destroyed by the construction of the railroad. As discussed in Section 3.17.3, 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 was restricted to the area where the site was identified in the site record and as reported by the SSJVIC, which is currently in an actively used switch yard of the BNSF and which is completely covered with gravel and/or pavement, and consequently was not surveyed for this project. 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.

Consequently, given the both the previously reported destruction of the site, and the results of the subsequent subsurface testing, this site is considered to no longer exist and, therefore, is not considered a historic property. While documentary evidence suggests that the site existed on a hill that was completely leveled and destroyed, the area is located on the actively accreting fan of the Kern River and is considered to have high geoarchaeological sensitivity (Authority and FRA 2011a). As such, construction in this area has the potential to disturb previously unrecorded subsurface archaeological deposits.

C. 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. 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 within the APE include dwellings, industrial buildings, commercial buildings, downtown districts, farms, canals, rural landscapes, dams, bridges, roads, and other facilities that were built, operated, and previously gained historical significance.

The NRHP uses the National Register eligibility criteria (36 CFR 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 to 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.

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 re-shaped the existing largely unpopulated valley. Subsequent events and trends beginning at the turn of the twentieth century – 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 2011a).

The construction of the buildings, structures, and other property types of the built environment are 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 expansion of the rail lines that parallel the APE, but most are agricultural and/or residential in nature, and also include industrial, commercial, or community properties and resources. Although the survey area covers a large region that includes portions of four counties, most of the historic architectural resources are located in or near the urban areas in and around the cities of 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 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. These irrigation structures are the modern successors to the pioneering irrigation efforts that brought reliable water sources to the largely arid region, while the rail lines of the Southern Pacific and the Atchison, Topeka & Santa Fe railroads provided early transportation linkages that spurred development of both towns and agricultural 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.

Historic Architectural Resources in the APE

The surveys conducted for the Fresno to Bakersfield Section of the HST identified 52 historic architectural resources that are listed, determined eligible for listing, or that are eligible for listing in the NRHP and/or CRHR and are reported in the HPSR (*California High-Speed Train Fresno to Bakersfield Historic Property Survey Report* [Authority and FRA 2011c], as required in the *Section 106 Programmatic Agreement* [Authority and FRA 2011e]). Of these resources, 25 were listed, have been determined eligible for listing, or appear to be eligible for listing in the NRHP, pending SHPO concurrence. These 25 historic properties are also considered to be historical resources for the purposes of CEQA. Of the 52 historic architectural resources addressed in the 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 52 historic architectural resources identified in the HPSR that are either historic properties (Section 106) or historical resources (CEQA), or both, are shown in Table 3.17-6.

The vast majority of the built environment survey population dates to the twentieth century. About 20% of the 52 historic properties/historical resources listed below were constructed during the nineteenth century, specifically between about 1870 and 1899 (see Table 3.17-6). Slightly more than one quarter of the survey population was built between 1900 and 1919, meaning that more than half of the surveyed resources date to the mid twentieth century between 1920 and 1960.

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 and 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, while 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 Ranch and Minimal Traditional styles to the residential construction in the APE in both rural and urban areas.

The public, institutional, and commercial buildings dating to the 1930s and 1940s in the APE are concrete or masonry, frequently with 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 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. 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 2011b).[10]

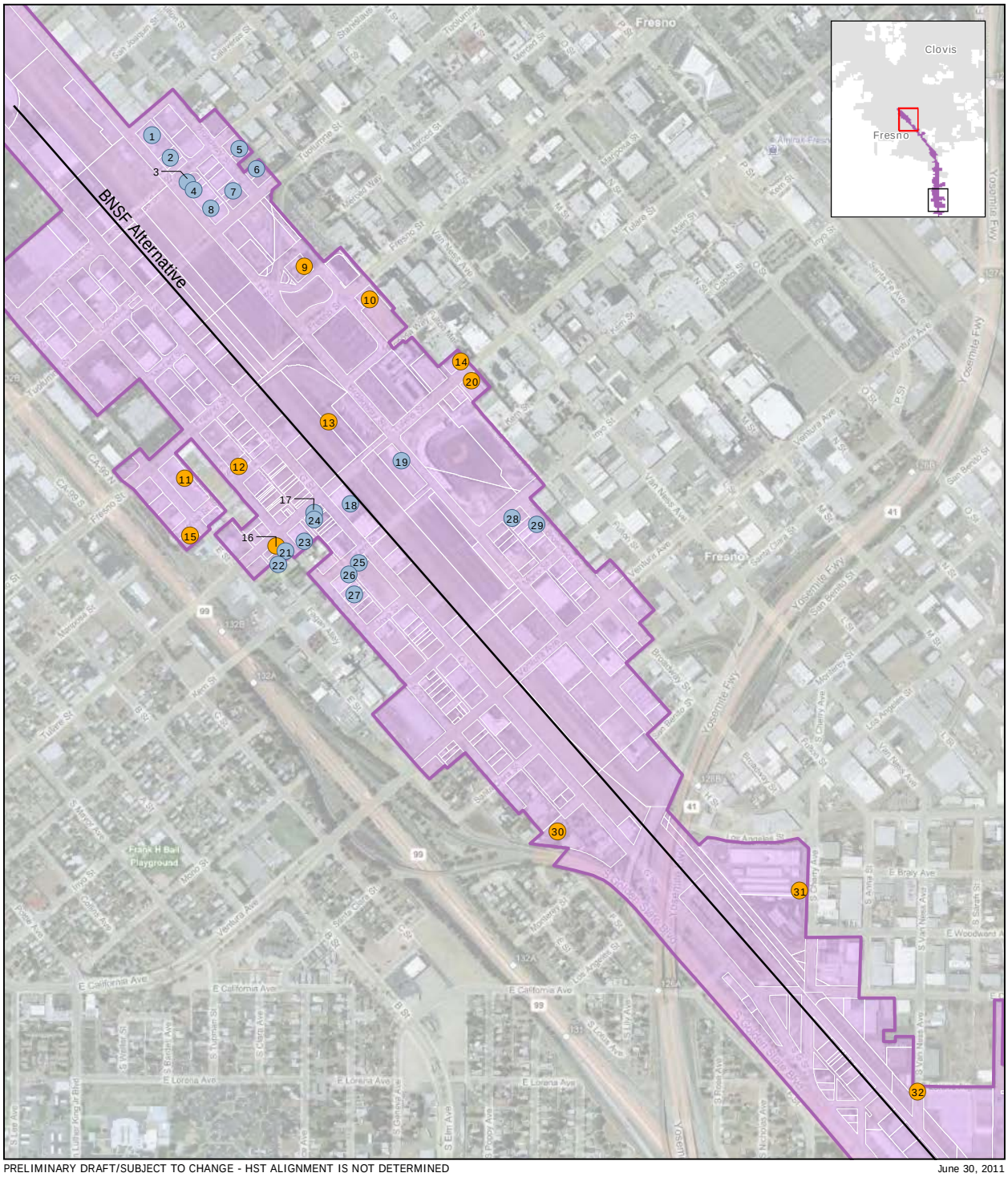
The surveys conducted for the Fresno to Bakersfield Section of the HST also identified 176 built environment resources that were more than 50 years old at the time of survey, but did not meet the criteria for listing in the NRHP or CRHR at the local, state, or national level. The evaluations of these resources are presented in the HASR (*California High-Speed Train Fresno to Bakersfield Historic Architectural Survey Report* [Authority and FRA 2011b] as required in the *Section 106 Programmatic Agreement* [Authority and FRA 2011e]).

The historic architectural resources addressed in the HASR and the HPSR were evaluated using the NRHP and CRHR significance criteria in compliance with the Section 106 PA (Authority and FRA 2011b, 2011c, 2011e).[11] The 176 historical architectural resources reported in the HASR do not appear to be eligible for listing in the NRHP, pending SHPO concurrence. None of these resources is eligible for listing in the CRHR, none is listed or eligible for listing in local government registers or inventories, and as such, none is considered an historical resource for the purposes of CEQA.

Figure 3.17-1 (Sheets 1 through 11) shows the general location of the 52 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 3.17-6 lists the 52 historic architectural resources by alternative.

[10] Full descriptions and evaluations of the survey population addressed in the HPSR are included in that document, as well as DPR 523 forms for each historic architectural resource.

[11] Full descriptions and evaluations of the 173 historic architectural resources addressed in the HASR are included in that document, including DPR 523 forms for each resource.



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

CEQA-Only Historical Resource

Section 106 Historic Property

Section 106 Historic Property (canal)

Alternative alignments

Architectural APE

Parcels

N

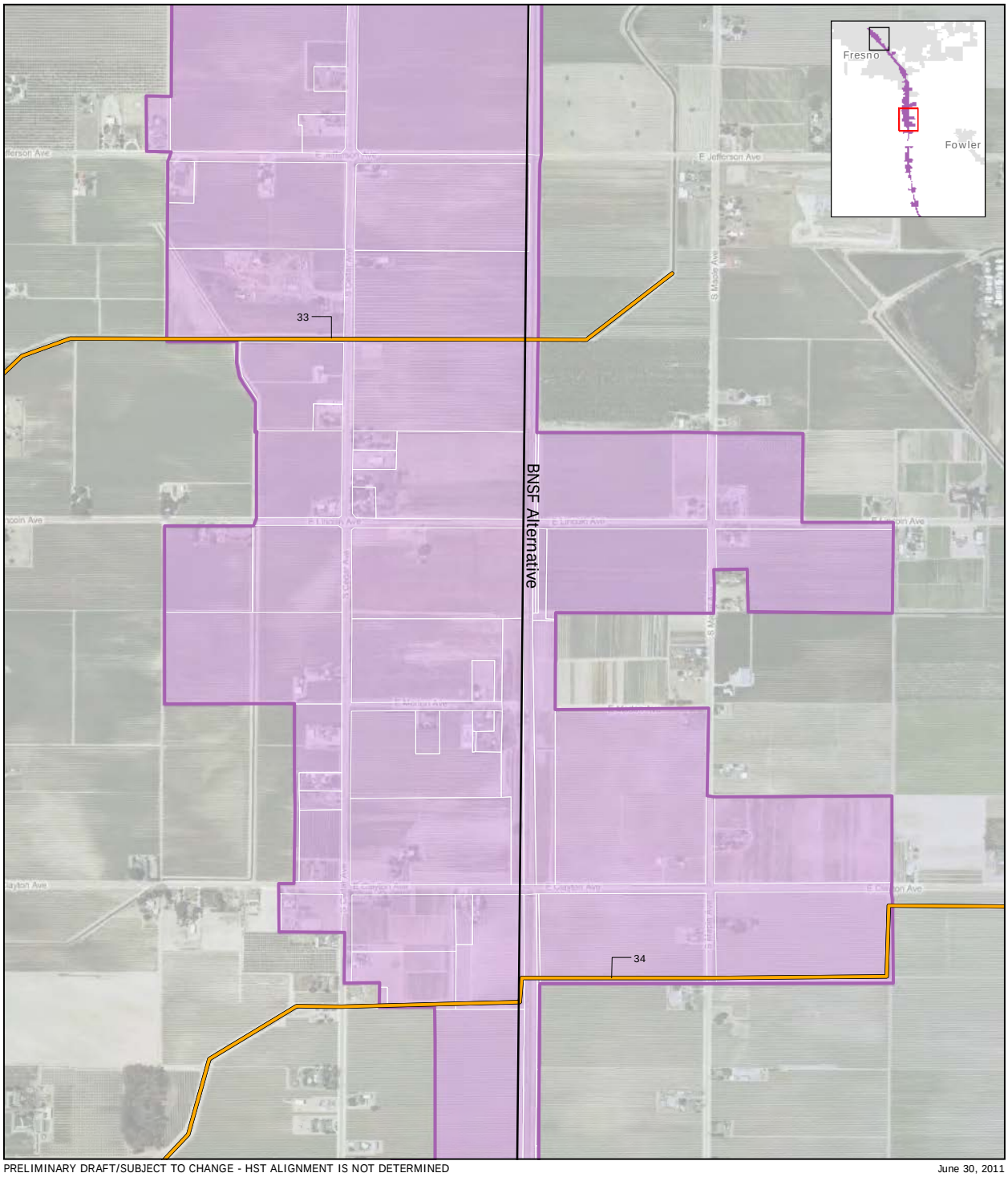
0 500 1,000

Feet

0 250 500

Meters

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



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

N

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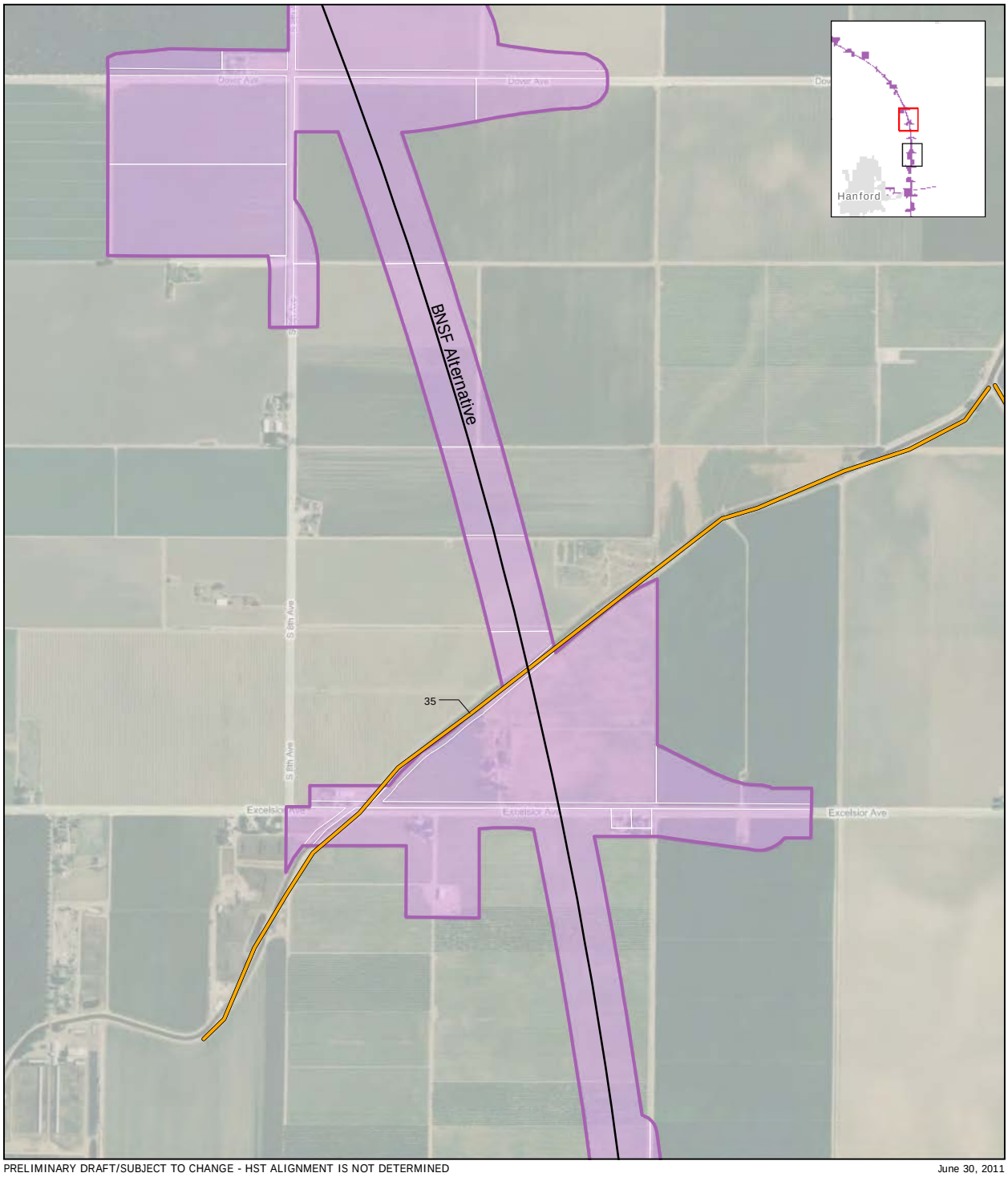
Feet

0 250 500
Meters

- CEQA-Only Historical Resource
- Section 106 Historic Property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Parcels

Figure 3.17-1
Sheet 2 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

CEQA-Only Historical Resource

Section 106 Historic Property

Section 106 Historic Property (canal)

Alternative alignments

Architectural APE

Parcels

N

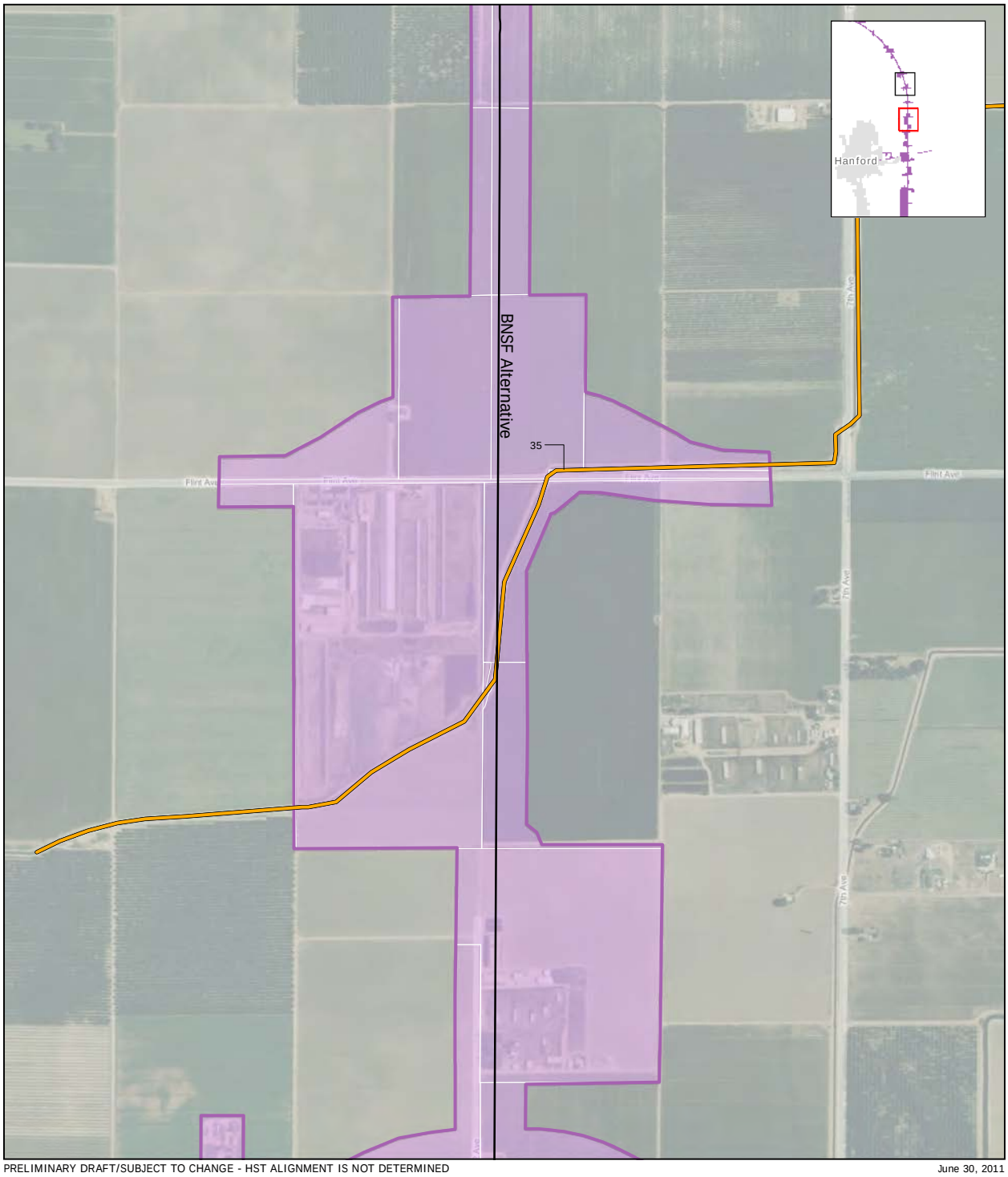
0 500 1,000

Feet

0 250 500

Meters

Figure 3.17-1
Sheet 3 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

N

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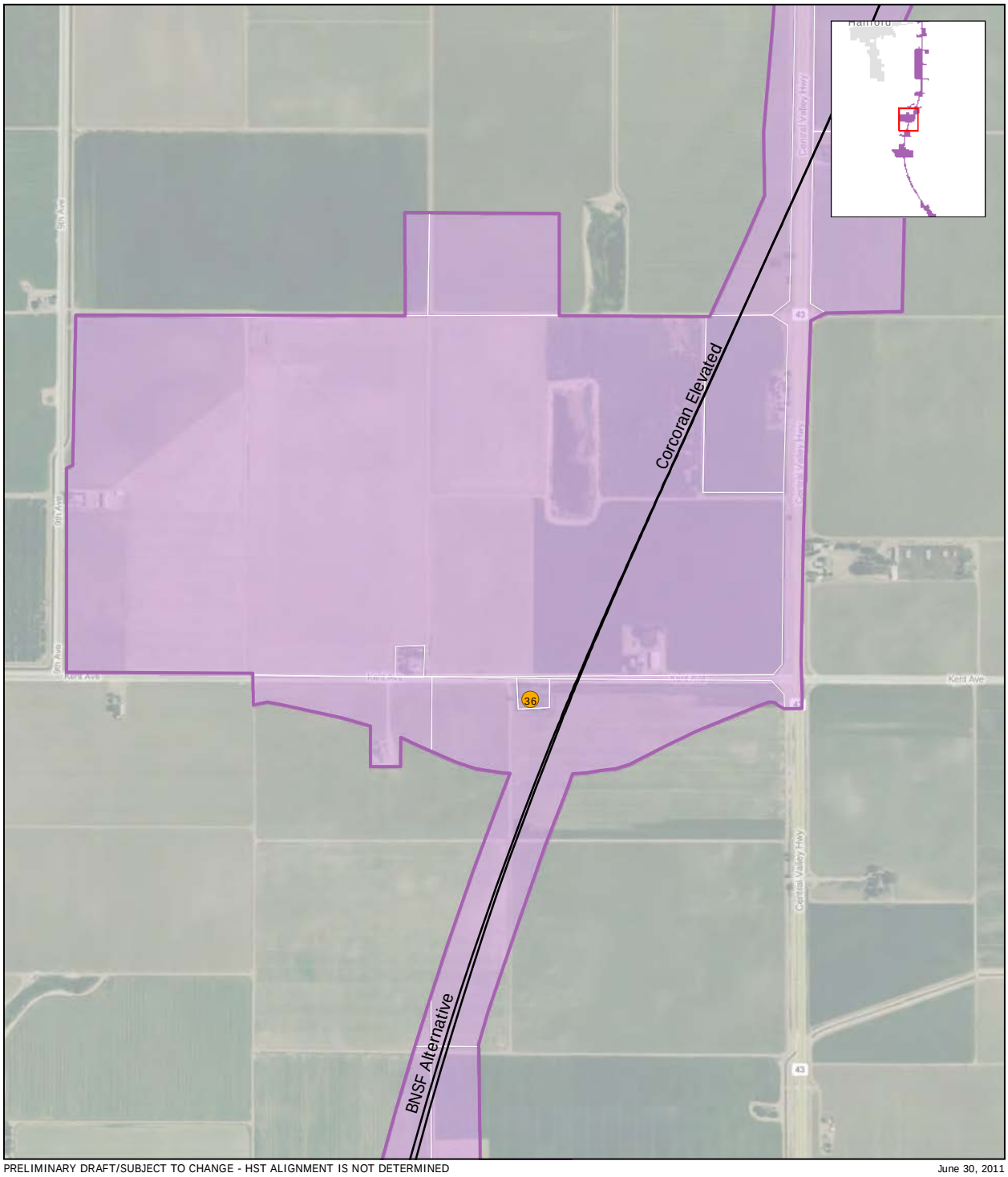
Feet

0 250 500
Meters

- CEQA-Only Historical Resource
- Section 106 Historic Property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Parcels

Figure 3.17-1
Sheet 4 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

N

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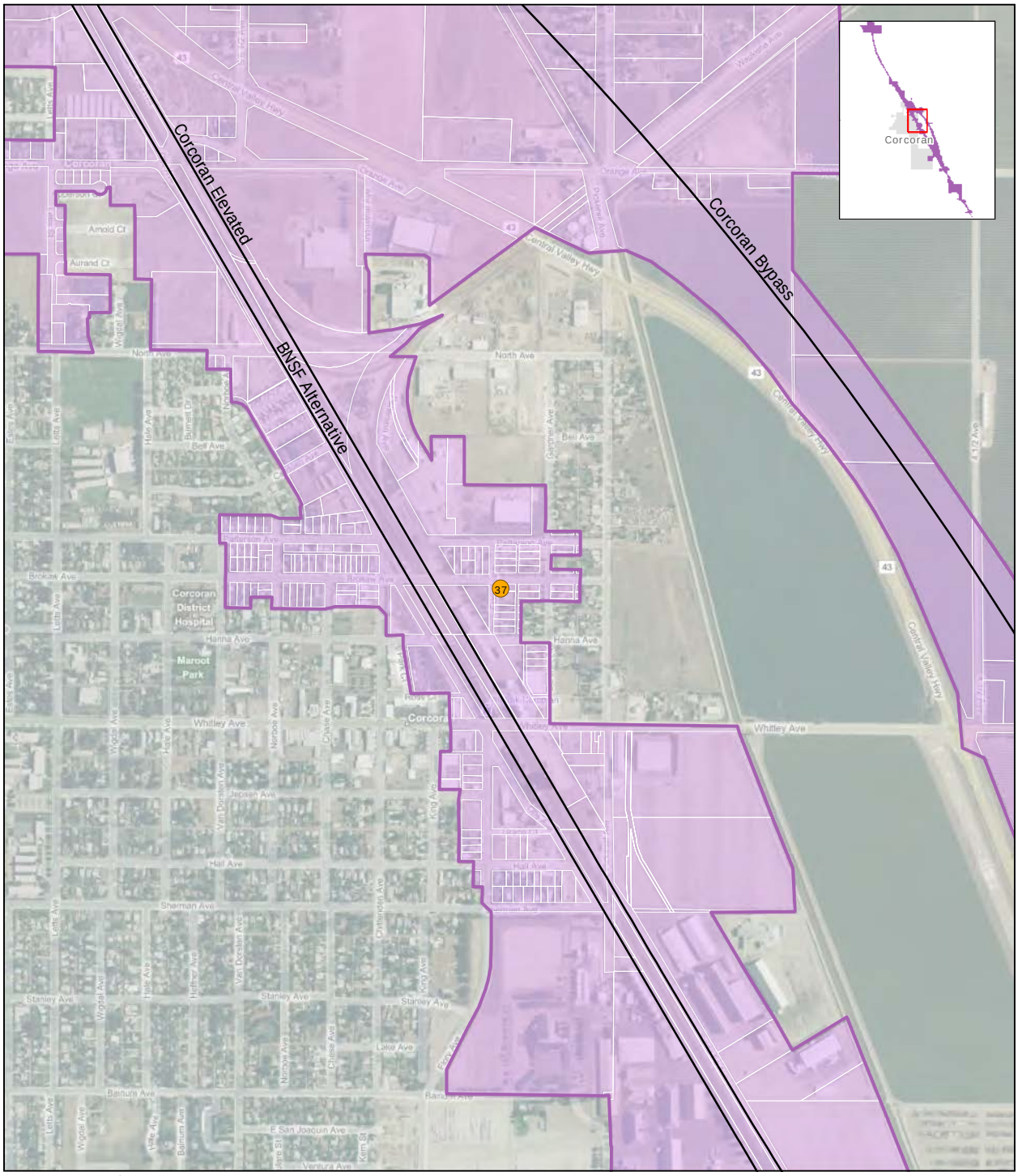
Feet

0 250 500
Meters

- CEQA-Only Historical Resource
- Section 106 Historic Property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Parcels

Figure 3.17-1
Sheet 5 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

N

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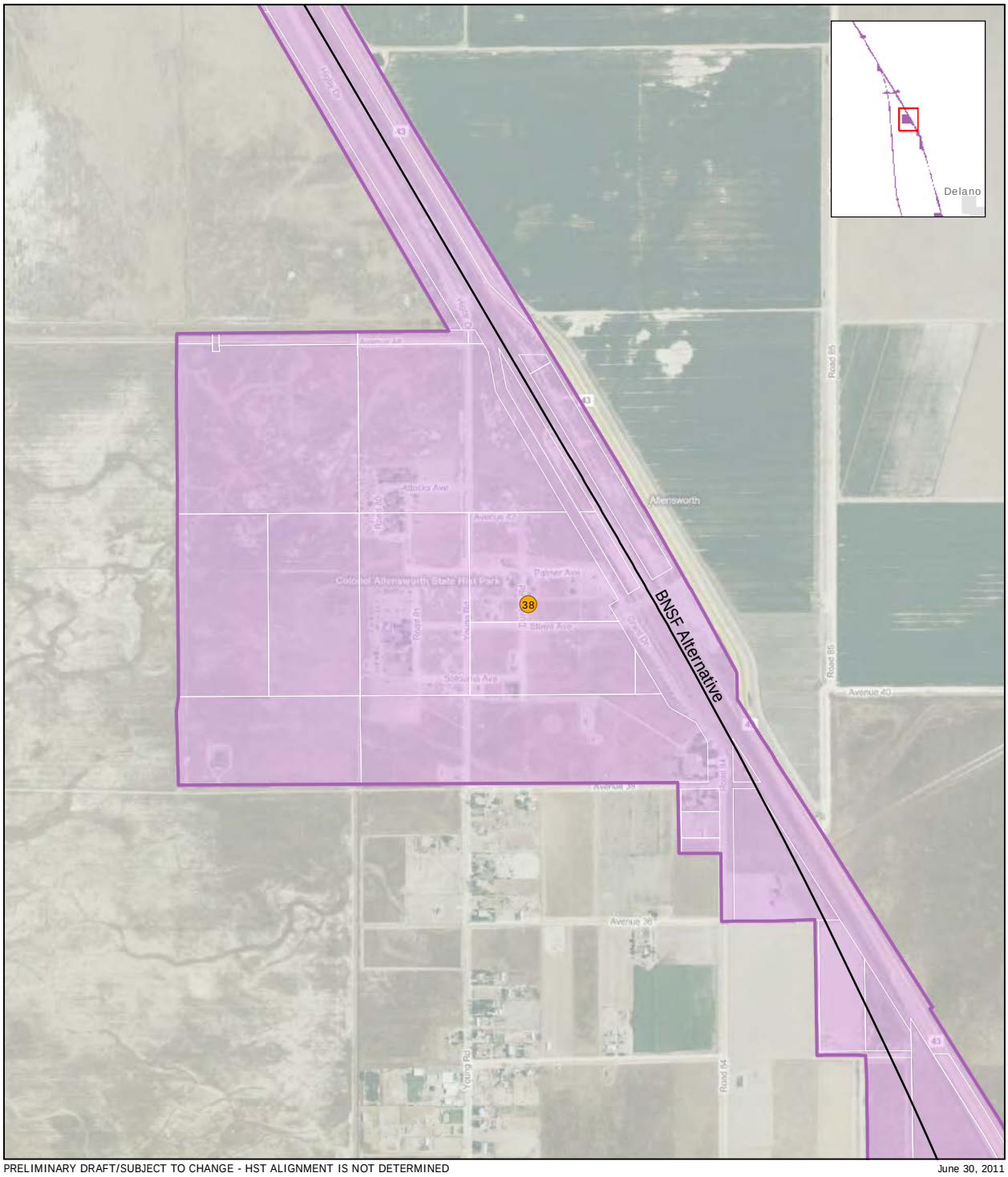
Feet

0 250 500
Meters

- CEQA-Only Historical Resource
- Section 106 Historic Property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Parcels

Figure 3.17-1
Sheet 6 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

CEQA-Only Historical Resource

Section 106 Historic Property

Section 106 Historic Property (canal)

Alternative alignments

Architectural APE

Parcels

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Feet

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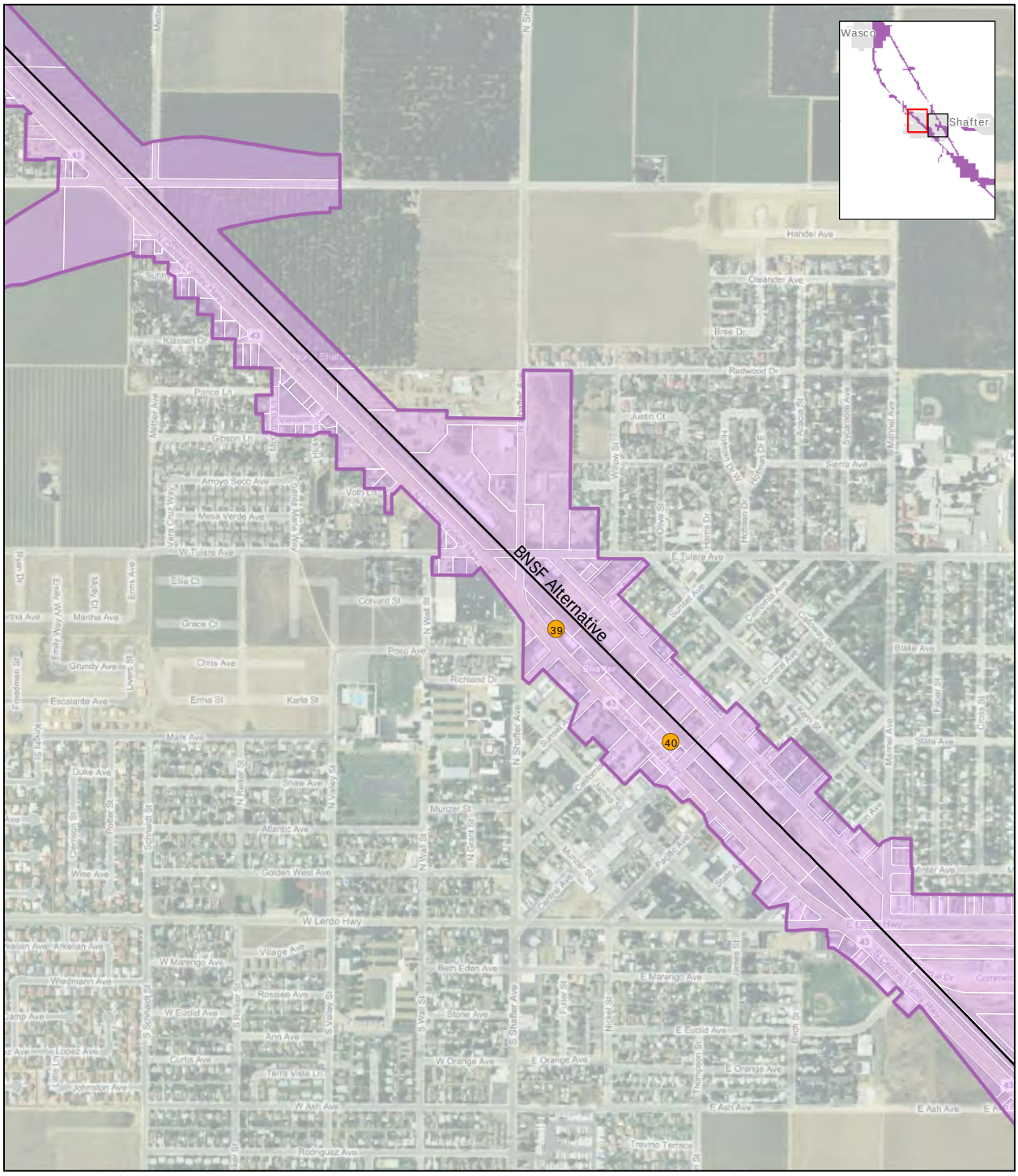
Meters

Figure 3.17-1
Sheet 7 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

N

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Feet

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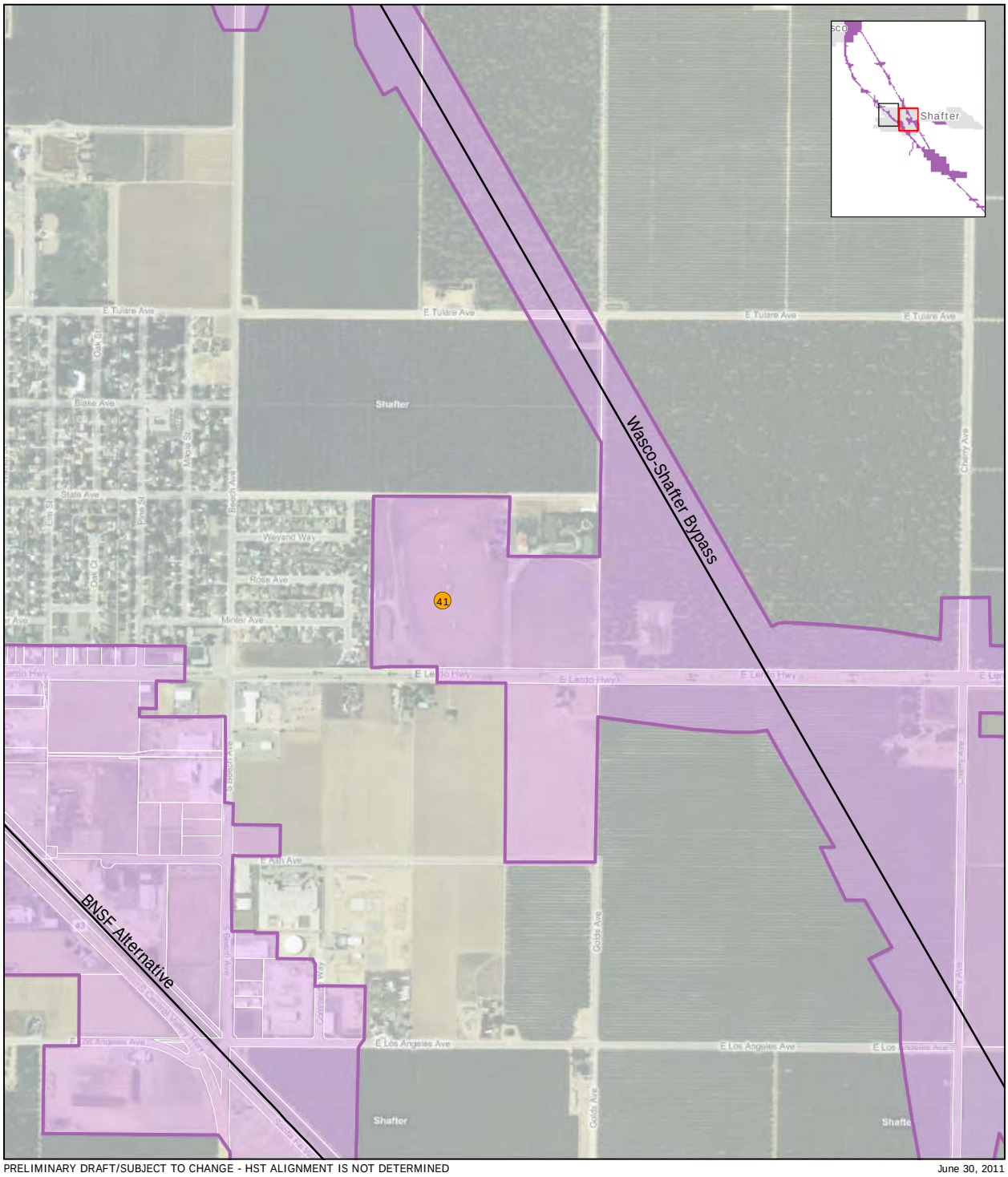
Meters

- CEQA-Only Historical Resource
- Section 106 Historic Property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Parcels

Figure 3.17-1
Sheet 8 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

CEQA-Only Historical Resource

Section 106 Historic Property

Section 106 Historic Property (canal)

Alternative alignments

Architectural APE

Parcels

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Feet

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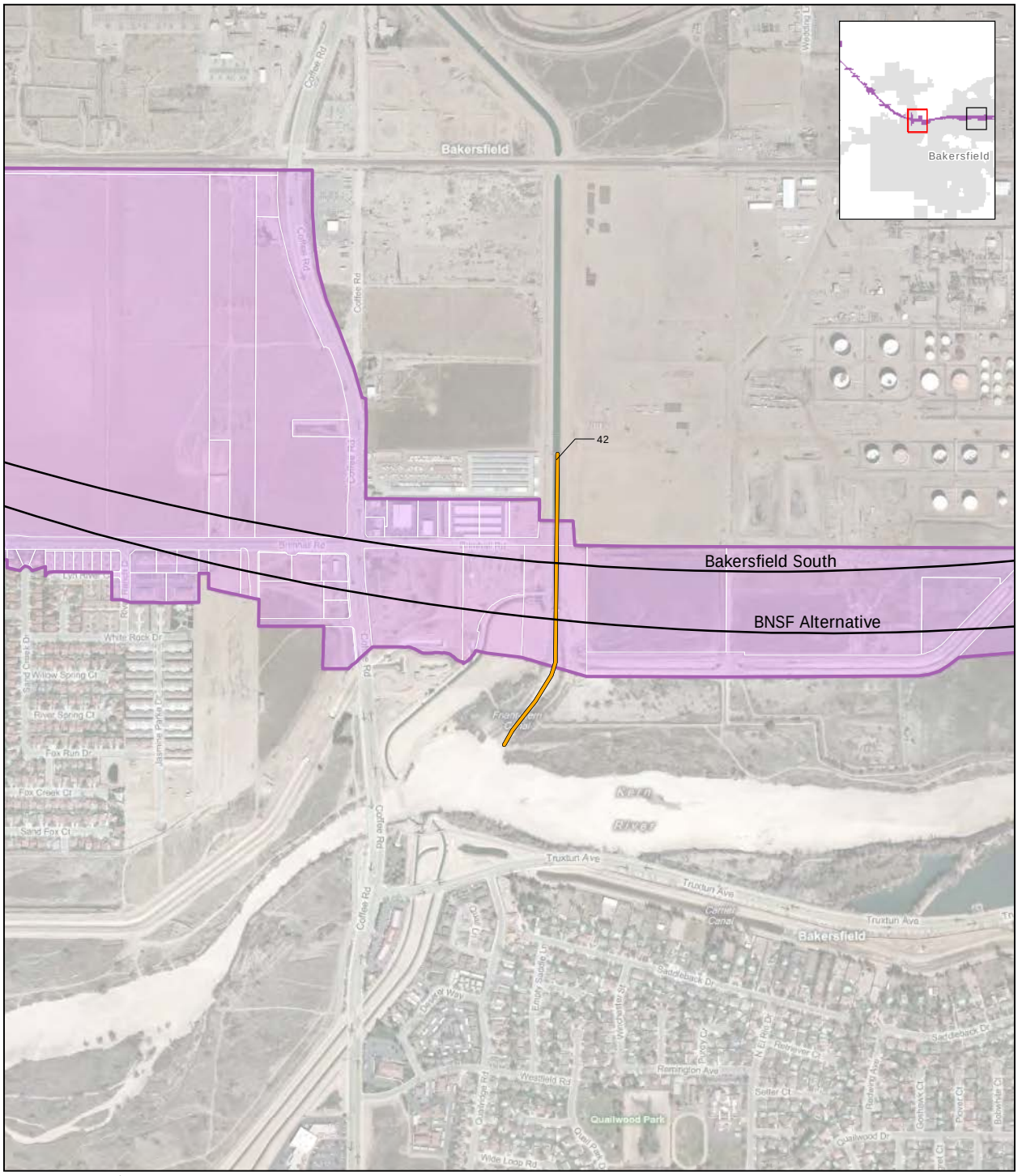
Meters

Figure 3.17-1
Sheet 9 of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

N

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Feet

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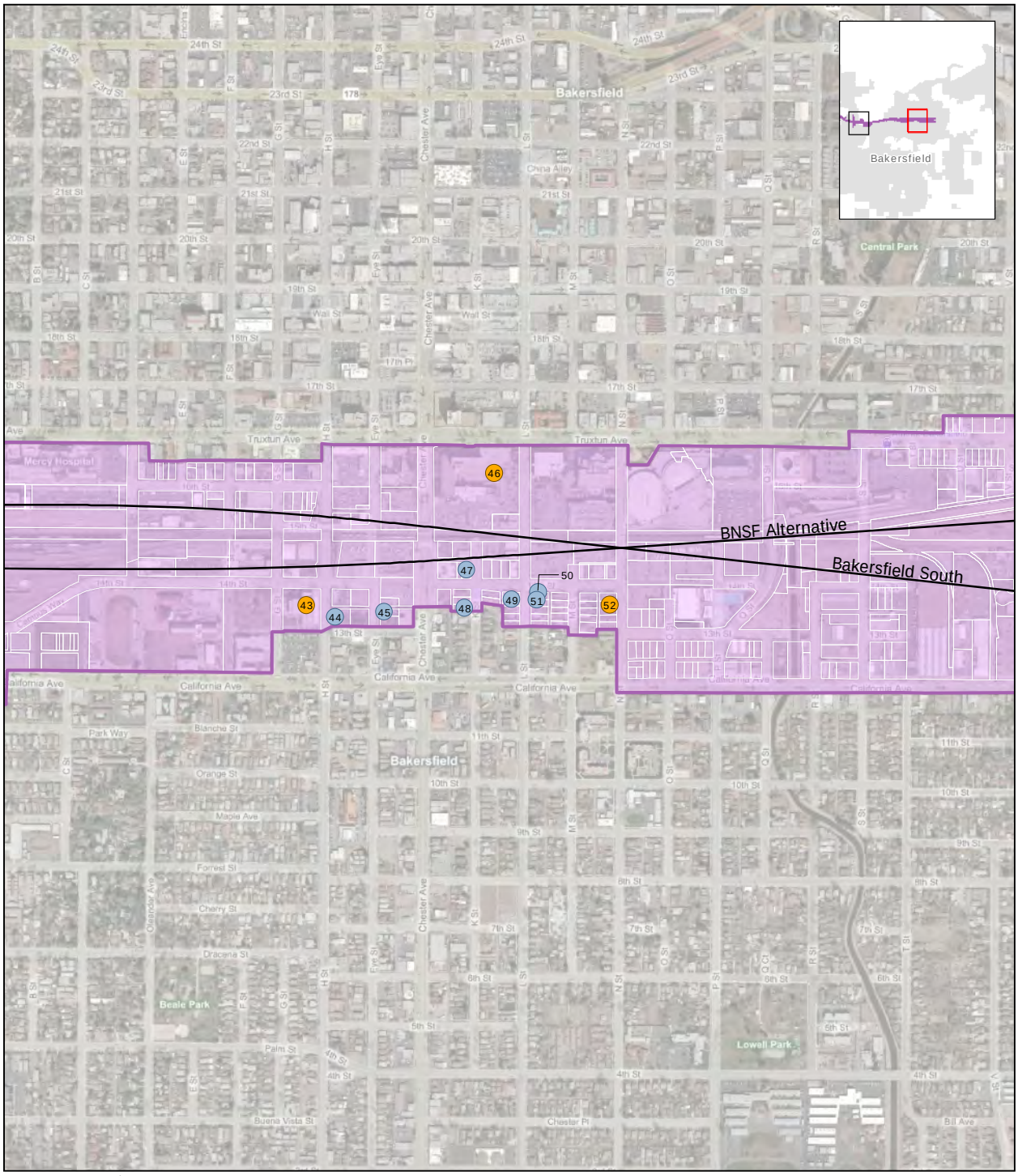
Meters

- CEQA-Only Historical Resource
- Section 106 Historic Property
- Section 106 Historic Property (canal)
- Alternative alignments
- Architectural APE
- Parcels

Figure 3.17-1
Sheet 10of 11
Historic properties and historical resources within the architectural APE



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

June 30, 2011

Source: URS, 2011

CEQA-Only Historical Resource

Section 106 Historic Property

Section 106 Historic Property (canal)

Alternative alignments

Architectural APE

Parcels

N

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Feet

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Meters

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

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Table 3.17-7
Significant Historic Architectural Resources by Alternative[+]

Map ID#	APN	Resource Name and Address	City County	Alternative/Option										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station–South	Heavy Maintenance Facility Site	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
1	4662040646620407	Budd & Quinn Showroom/Fresno Body & Fender Works 1560 H Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2		Budd & Quinn 1560 H Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	46620514	H.E. Jaynes & Son 1454 H Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4	46620513	H.E. Jaynes & Son 1452 H Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	46620219 46620220	Parker Nash Building 1460-1462 Broadway	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	46620207	1416 Broadway	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	46620505	Mayflower Hotel 1415-1417 Broadway	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8	46620511	Benham Ice Cream/Dale Bros. Coffee Building; Dale Bros. Coffee Sign 1420 H Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9*	46621401	Hotel Fresno 1257 Broadway	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
10*	46621212	Crest Theater 1160 Broadway Plaza	Fresno, Fresno	NA	X	NA	NA	NA	NA	NA	NA	NA	NA	NA
11*	46706508T	Fresno Fire Department Station No. 3 1406-1430 Fresno St	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
12*	46706208	Basque Hotel/EA Walrond Building 1102 F Street	Fresno, Fresno	X	X	NA	NA	NA	NA	NA	NA	NA	NA	NA
13*	46703031ST	Southern Pacific Railroad Depot 1033 H Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
14*	46621307	Bank of Italy 1015 Fulton Mall	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
15*	46710301	First Mexican Baptist Church 1061 E Street	Fresno, Fresno	NA	X	X	NA	NA	NA	NA	NA	NA	NA	NA

Table 3.17-7
Significant Historic Architectural Resources by Alternative[+]

Map ID#	APN	Resource Name and Address	City County	Alternative/Option										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station–South	Heavy Maintenance Facility Site	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
16*	46707401	Bank of America 947-951 F Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
17	46707101	1528 – 1548 Tulare Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
18	46704012S	Pacific Coast Seeded Raisin Company/Del Monte Plant No. 68 1626 Tulare Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
19	46704024S	Hobbs Parsons Produce Building 903-911 H Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
20*	46828101	Radin-Kamp Department Store 959 Fulton Mall	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21	46707402	Peacock Department Store 937-945 F Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22	46707402	H. Sargavak Building 942 Fagan Alley	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23	46707116	938-952 F Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
24	46707102	Haruji Ego Family Building 956 China Alley	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
25	46707201	Komoto's Department Store and Hotel 1536-1542 Kern Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
26	46707208	Dick's Shoes Building (Dick Avakian Shoe Repair) 1522-1526 Kern Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
27	46707206	Azteca Theatre 836-840 F Street	Fresno, Fresno	NA	NA	X	NA	NA	NA	NA	NA	NA	NA	NA
28	46828611	Liberty Laundry 1830 Inyo Street	Fresno, Fresno	X	X	X	NA	NA	NA	NA	NA	NA	NA	NA
29	46828604	Baskin's Auto Supply Sign 729 Broadway	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3.17-7
Significant Historic Architectural Resources by Alternative[+]

Map ID#	APN	Resource Name and Address	City County	Alternative/Option										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station–South	Heavy Maintenance Facility Site	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
30*	46709234	Vartanian Home 362 F Street	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
31*	46702013	Holt Lumber 1916 S. Cherry Avenue	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
32*	NA	South Van Ness Entrance Gate 2208 S. Van Ness Avenue (vicinity)	Fresno, Fresno	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
33*	NA	Washington Colony Canal	Fresno	X	NA	NA	NA	NA	X	NA	NA	NA	NA	NA
34*	NA	North Branch of Oleander Canal	Fresno	X	NA	NA	NA	NA	X	NA	NA	NA	NA	NA
35*	NA	Peoples Ditch	Kings	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
36*	028202004000	Lakeside Cemetery Kent Avenue	Kings	X	NA	NA	NA	NA	NA	NA	X	NA	NA	NA
37*	030184010000	Zuniga's Tortilleria 901 Flory Avenue	Corcoran, Kings	X	NA	NA	NA	NA	NA	X	NA	NA	NA	NA
38*	331100030 331130003 331141004 331151011 331161020 333350041	Allensworth Historic District 4129 Grant Drive	Earlimart (vicinity), Tulare	X	NA	NA	NA	NA	NA	NA	NA	X	NA	NA
39*	02703008	Santa Fe Depot 150-200 Central Valley Highway	Shafter, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
40*	02707028	San Francisco & San Joaquin Valley Railroad Section House 434 Central Valley Highway	Shafter, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
41*	08909029	Joe O'Brien Stables 1320 E. Lerdo Highway	Shafter, Kern	NA	NA	NA	NA	NA	NA	NA	NA		X	NA
42*	NA	Friant-Kern Canal	Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
43*	00405201	Harvey Auditorium, Bakersfield High School 1241 G Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3.17-7
Significant Historic Architectural Resources by Alternative+

Map ID#	APN	Resource Name and Address	City County	Alternative/Option										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station–South	Heavy Maintenance Facility Site	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
44	00641104	1300-1316 H Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
45	00641206	1310-1312 Eye Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
46*	00629001	Kern County Civic Administrative Center 1315-1415 Truxtun Avenue	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
47	00639102	1401-1409 K Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
48	00646003	1323 K Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
49	00645002	1323 L Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
50	00644026	1330 L Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
51	00644025	1326 L Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X
52*	00643002 00643003	Stark/Spencer Residence 1321 N Street	Bakersfield, Kern	X	NA	NA	NA	NA	NA	NA	NA	NA	NA	X

Notes:
+ These 52 historic architectural resources are listed, determined eligible for listing, or eligible for listing in the NRHP and/or CRHR
* = historic properties for the purposes of Section 106 (listed, determined eligible for listing, or eligible for listing in the NRHP). All others are listed in or eligible for CRHR, or are otherwise considered historical resources for the purposes of CEQA only.

X = significant historic architectural resource exists at this location
NA = not applicable

The 52 historic architectural resources are described in the following paragraphs, and are presented by alternative, from north to south. To differentiate between the types of historic status, the historic properties (NRHP) are underlined, while historical resources (CEQA) are bulleted. The historic architectural resources are described individually.

BNSF Alternative Alignment

Hotel Fresno, APN: 466-214-01, 1257 Broadway, Fresno; map ID #9. The Hotel Fresno is a 7-story, steel-frame and concrete-block building constructed in 1912. The building is eligible for listing in the NRHP under Criterion C as the first high-rise building in Fresno and as an early and representative example of the Central Valley work of prominent California architect Edward T. Foulkes. Additionally, the building is listed in the CRHR and the Fresno Local Register of Historic Resources (#166).

Crest Theater, APN: 466-212-12, 1160 Broadway Plaza, Fresno; map ID #10. The Crest Theater is a tall 2-story, reinforced concrete building constructed in 1948. The building is eligible for listing in the NRHP under Criterion C, at the local level, for its Moderne style and neon marquee (and CRHR Criterion 3). The building was listed in the Fresno Local Register of Historic Resources in February 2011 and is not yet numbered.

- Budd & Quinn, APN: 466-204-06, 1514-1518 H Street, Fresno; map ID #2. The Budd & Quinn building is a single-story brick warehouse constructed in 1922. A local survey identified the building as eligible to Fresno Local Register as a contributor to a CEQA-only historic warehouse district.

- Budd & Quinn Showroom/Fresno Body & Fender Works, APN: 466-204-07, 1560 H Street, Fresno; map ID #1. 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. Additionally, the building appears individually eligible for 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. This 3-story reinforced concrete industrial building was constructed from 1912 to 1913 and includes a rooftop “Dale Brothers Coffee” coffee can sign. 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.

- Parker Nash Building, APNs: 466-202-19 and 466-202-20, 1460-1462 Broadway, Fresno; map ID #5. 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) and 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. 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, which is potentially eligible for inclusion on 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. 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. This building was identified in a local survey as being individually eligible for the CRHR and the Fresno Local Register.

- H.E. Jaynes & Son, APN: 466-205-13, 1452 H Street, Fresno; map ID #4. A local survey identified this 1928 warehouse as eligible for the CRHR and Fresno Local Register as a contributor to a CEQA-only historic warehouse district.

- H.E. Jaynes & Son, APN: 466-205-14, 1454 H Street, Fresno; map ID #3. This single-story warehouse was constructed in 1944. A local survey identified the building as eligible for the CRHR and Fresno Local Register as a contributor to a CEQA-only historic warehouse district.

BNSF Alternative Alignment, Fresno Station–Mariposa Alternative, Fresno Station–Kern Alternative:

Southern Pacific Railroad Depot, APN: 467-031-3ST, 1033 H Street, Fresno; map ID #13. Fresno's Southern Pacific Railroad Depot is a 1½-story, brick Queen Anne-style building constructed in 1899. The depot, which includes the Pullman Shed, is listed in the NRHP (NRHP Reference No. 78000665, certified on March 21, 1978). It is significant under Criterion A for its association with the development of Fresno, and Criterion C as an important example of the Queen Anne architectural style. Additionally, the building is listed in the CRHR and the Fresno Local Register (#11).

Bank of Italy, APN: 466-213-07, 1015 Fulton Mall, Fresno; map ID #14. The Bank of Italy building is an eight-story Italian Renaissance Revival building with an ornate terracotta and brick exterior. 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. The building is also listed in the Fresno Local Register of Historic Resources (#123).

Radin-Kamp Department Store, APN: 468-281-01, 959 Fulton Mall, Fresno; map ID #20. This four-story reinforced concrete building has brick exterior facing and terracotta Beaux Arts details at the frieze and cornice. It appears to be individually eligible for listing in the NRHP and the CRHR, (CHRIS status code 3S). The property is eligible under Criterion C and Criterion 3, as a good local example of early twentieth century commercial architecture. The building is listed in the Fresno Local Register of Historic Resources (#124).

- Hobbs Parsons Produce Building, APN: 467-040-24S, 903-911 H Street, Fresno; map ID #19. The Hobbs Parsons Produce Company building is a single-story masonry building constructed in 1903. The building is listed in the Fresno Local Register (#169) and is a significant architectural representative of warehouse/commercial construction.

Basque Hotel/E.A. Walrond Building, APN: 467-062-08, 1102 F Street, Fresno; map ID #12. The Basque Hotel is a 2-story, L-shaped brick building constructed in 1922. The building is eligible for the NRHR under Criterion A, for its significant role in the Basque community as a place for Basque immigrants to congregate and maintain its cultural tradition. The building also is eligible for the CRHR.

Fresno Fire Department Station No. 3, APN: 467-065-08T, 1406-1430 Fresno Street, Fresno; map ID #11. This four-story reinforced concrete building has brick exterior facing and terracotta Beaux Arts details at the frieze and cornice. It appears to be individually 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) as a good local example of a Works Progress Administration project, and for its Streamline Moderne architectural style. The building is listed in the Fresno Local Register of Historic Resources (#213).

- Pacific Coast Seeded Raisin Company/Del Monte Plant #68, APN: 467-040-12S, 1626 Tulare Street, Fresno; map ID #18. 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 3-story reinforced-concrete processing building constructed in the International style, as eligible for listing in the Fresno Local Register for its architecture.

- Commercial building, APN: 467-071-01, 1528 Tulare Street, Fresno; map ID #17. This 1895, 2-story, brick commercial building was identified in a local survey 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.

- Haruji Ego Family Building, APN: 467-071-02, 956 China Alley, Fresno; map ID #24. The Haruji Ego Family Building is a single-story brick commercial building constructed circa 1900. 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. Additionally, the building is a Fresno Heritage Property (#008).

- Liberty Laundry Building, APN: 468-286-11, 1830 Inyo Street, Fresno; map ID #28. This 1928, brick commercial 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 a prominent local family, and as a significant architectural representative of Fresno commercial construction.

First Mexican Baptist Church, APN: 467-103-01, 1061 E Street, Fresno; map ID #15. This two-story brick building was built between 1924 and 1929, and later reinforced in the 1960s. It has a restrained Mission Revival design that features a stepped parapet and three-story bell tower. It appears to be individually 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), for its association with the local Mexican American community, and as a good local example of this architectural style. The building is listed in the Fresno Local Register of Historic Resources (#23).

- 938-952 F Street, APN: 467-071-16, 938-952 F Street, Fresno; map ID #23. This circa 1925, 2-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.

Bank of America, APN: 467-074-01, 947-951 F Street, Fresno; map ID #16. This two-story, two-part commercial building has a stucco exterior and was built in about 1908. It appears to be individually 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), for its association with the local Mexican American community, and as a good local example of this architectural style. The building is listed in the Fresno Local Register of Historic Resources (#64).

- Peacock Department Store, APN: 467-074-02, 937-945 F Street, Fresno; map ID #21. This two-story brick commercial building has a stucco exterior. It was built in the mid-1920s and has undergone several alterations. Although it is not individually historically significant, and it is not eligible for listing in the NRHP, CRHR, or local register, it is a contributor to a potential local district (CHRIS status code 5D3) and is considered a historical resource for the purposes of CEQA. (The building at 942 Fagan Alley, below, is located on the same legal parcel as the department store).

- H. Sargavak Building, APN: 467-074-02, 942 Fagan Alley, Fresno; map ID #22. This simple one-story brick building was built in 1925. Although it does not appear to meet NRHP significance criteria, it appears to be meet CRHR Criterion C for its architectural type (CHRIS status code 3CS). The building also is eligible for listing in the Fresno Local Register of Historic Resources.

- Komoto's Department Store and Hotel, APN: 467-072-01, 1536-1542 Kern Street, Fresno; map ID #25. This 2-story brick commercial and residential building was constructed circa 1901. 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) and also is eligible for the Fresno Local Register as a contributor to a potential CEQA-only Chinatown District.

- Dick's Shoes Building, APN: 467-072-08, 1522-1526 Kern Street, Fresno; map ID #26. A local survey identified this 1922, 2-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.

- Azteca Theatre, APN: 467-072-06, 836-840 F Street, Fresno; map ID #27. The Azteca Theatre is an Art Deco-style theatre constructed circa 1950. A local survey identified the building as eligible for listing in the CRHR and Fresno Local Register, for its architecture. The building also appears to be eligible for the local register as a contributor to a potential CEQA-only Chinatown District.

- Baskin's Auto Supply Sign, APN: 468-286-04, 729 Broadway, Fresno; map ID #29. The neon Baskin's Auto Supply Sign was erected in 1953 and is listed in the Fresno Local Register (#263) as a heritage sign.

Vartanian Home, APN: 467-092-34, 362 F Street, Fresno; map ID #30. This farm complex consists of a Queen Anne-style residence, barn, tank house, and outhouse constructed in 1891. A local survey identified this property as eligible for listing in the NRHP under Criterion B for its association with a local Armenian settler, and under Criterion C as an important example of Queen Anne architecture and presumably as an example of an intact nineteenth-century farm complex. 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 S. Cherry Avenue, Fresno; map ID #31. This one-story brick Italian Renaissance Revival office building was constructed circa 1920. It is eligible for listing in the NRHP under Criterion C as a distinctive example of early twentieth-century Italian Renaissance commercial architecture. 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 #32. Constructed in the 1920s, the South Van Ness Entrance Gate is an arched truss with a sheet metal sign. A local survey identified the structure as eligible for listing in the NRHP under Criterion A within the context of early twentieth-century transportation, and under Criterion C, as an early roadside sign. 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).

BNSF Alternative Alignment and Heavy Maintenance Facility Sites:

North Branch of the Oleander Canal, Fresno County; map ID #34. The North Branch of the Oleander Canal is a dirt-lined irrigation canal constructed in the 1880s. A previous survey identified the canal as eligible for the NRHP as a contributor to the Washington Irrigated Colony Historic District, which is eligible under Criterion A for its association with the settlement and agricultural development of the Washington Colony. The canal is also eligible to the CRHR as a contributing element to the NRHP-eligible historic district.

Washington Colony Canal, Fresno County; map ID #33. The Washington Colony Canal is a dirt-lined irrigation canal constructed circa 1878 to 1880. A previous survey identified the canal as

eligible for the NRHP as a contributor to the Washington Irrigated Colony Historic District, which is eligible under Criterion A for its association with the settlement and agricultural development of the Washington Colony. The canal is also eligible to the CRHR as a contributing element to the NRHP-eligible historic district.

BNSF Alternative Alignment:

Peoples Ditch, APN: n/a, rural Kings County; map ID #35. This property is an earth-lined canal constructed between 1873 and 1878, specifically a 1.4-mile segment of the main ditch and a 4-mile section of its east branch. This historic property is eligible for NRHP at the local level of significance under Criterion A, for its association with the settlement pattern in the Mussel Slough region in the 1870s, and for association with the events that led to the Mussel Slough Tragedy. This property is also eligible for the CRHR (Criterion 1)

BNSF Alternative Alignment and Corcoran Bypass Alternative Alignment:

Lakeside Cemetery, APN: 028-202-004-000, Kent Avenue, rural Kings County; map ID #36. This historic property is a 1.5-acre rural cemetery located approximately 7 miles south of Hanford, and features masonry and concrete grave markers, lawn, and shade trees. Established in the 1870s, the cemetery is eligible for the NRHP under Criterion A, for its association with the early settlement of the area south of Hanford that would become the Lakeside District. This property is also eligible for the CRHR (Criterion 1)

BNSF Alternative Alignment:

Zuniga's Tortilleria, APN: 030-184-010-000, 901 Flory Avenue, Corcoran; map ID #27. Zuniga's Tortilleria is a one-story concrete-block building constructed circa 1950. The building is eligible for the NRHP under Criterion A for its association with a pattern of cultural practices that are directly linked with the customs of Corcoran's Mexican-American residents. It is also a significant reflection of traditional cultural values held by the Mexican-American community of Corcoran, and as an example of a woman-owned business. The building is also eligible for the CRHR.

BNSF Alternative Alignment and Allensworth Bypass Alternative Alignment:

Allensworth Historic District, APN: 331-100-030, etc., 4129 Grant Drive, Earlimart (vicinity); map ID #38. The Allensworth Historic District, also known as Colonel Allensworth State Historic Park, encompasses about 60 acres that include approximately 20 historic-era, reconstructed buildings, and contemporary park administration buildings. As the only town in California that was founded, financed, and governed by African-Americans, the historic district is listed in the NRHP (NRHP Reference No. 72000263, certified on February 23, 1972) and is significant under Criterion A within the context of agriculture, education, politics, religion, social history, military, literature, and social history. The district is also significant under Criterion B for its association with the town's founder Lieutenant Colonel Allen Allensworth. Contributing elements of the historic district include the elementary school, Lt. Col. Allensworth's residence, Grosse's Drugstore, railroad ticket office, and Singleton's General Store and Post Office. The property is also listed in the CRHR.

BNSF Alternative Alignment:

Santa Fe Freight Depot, APN: 027-03-008, 150-200 Central Valley Highway, Shafter; map ID #39. The Santa Fe freight depot in Shafter is a 2-story wood-frame railroad depot constructed in 1917. 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. The property is also listed in the CRHR.

San Francisco & San Joaquin Valley Railway Section House, APN: 027-070-28, 434 Central Valley Highway, Shafter; map ID #40. This building is a small, wood-frame, folk-style residence with Craftsman details. The building is eligible for the NRHP under Criterion A for its association with the founding of Shafter, and under Criterion C as an example of a section house built by the San Francisco & San Joaquin Valley Railway. The building is also eligible for the CRHR.

Wasco-Shafter Bypass Alternative Alignment:

Joe O'Brien Stables, APN: 089-090-29, 1320 E. Lerdo Highway, Shafter; map ID #41. This property consists of a horse track, a stables area with five buildings, and a residential area with two houses, two detached garages, and a storage building, all of which were constructed circa 1956. The stables complex is eligible for the NRHP under Criterion B for its association with a significant person. The building is also eligible for the CRHR.

BNSF Alternative Alignment:

Friant-Kern Canal, APN: n/a, Kern County; map ID #42. The Friant Kern Canal is a 152-mile gravity-fed earth and concrete lined canal that terminates at the Kern River northwest of Bakersfield. As a key component of California's Central Valley Project (CVP), the canal has been determined eligible for the listing in the NRHP (CHRIS Code 2S2). It is historically significant at the state level under NRHP Criterion A, within the context of development, construction, and operation of the CVP. The period of significance is 1945 to 1951, its period of construction. 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 #43. Bakersfield High School's Harvey Auditorium is a Streamline Moderne-style, concrete theater completed in 1948. The building is eligible for the NRHP under Criterion C as a significant example of local master architect Charles Biggar. The building is also eligible for the CRHR.

- 1300-1316 H Street, APN: 006-411-04, 1300-1316 H Street, Bakersfield; map ID #44. 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 #45. A local survey identified this 1926 Tudor-style duplex as eligible for the Bakersfield Register of Historic Places for its architectural design.

BNSF Alternative Alignment and Bakersfield South Alternative Alignment:

Kern County Civic Administration Center, APN: 006-29-001, 1315-1415 Truxtun Avenue, Bakersfield; map ID #46. This property consists of a large U-shaped governmental complex with four buildings built between 1956 and 1959 in the International style. The complex is eligible for listing in the NRHP under Criterion A as one of the key projects in the redevelopment of Bakersfield and Kern County following the devastating earthquakes that rattled the area in the summer of 1952. It also is eligible under Criterion C for its use of unifying architectural elements and materials to provide a cohesive design, as well as for its use of seismic safety features in response to the recent disaster. Additionally, the complex is eligible for the CRHR under Criteria 1 and 3.

- APN: 006-391-02, 1401-1409 K Street, Bakersfield; map ID #47. This property consists of three bungalows residences constructed in 1913. A local survey identified the buildings as eligible for the Bakersfield Register of Historic Places for their bungalow architectural design.

BNSF Alternative Alignment:

- APN: 006-460-03, 1323 K Street, Bakersfield; map ID #48. This property consists of a Georgian Revival apartment building and a small bungalow residence and garage constructed circa 1921. A local survey identified the only 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 #49. 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 #50. 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 #51. A local survey identified this 1920 single-story bungalow residence as eligible for the Bakersfield Register of Historic Places for its bungalow architectural design.

BNSF Alternative Alignment and Bakersfield South Alternative Alignment:

Stark/Spencer Residence, APN: 006-430-02, 006-430-03, 1321 N Street, Bakersfield; map ID #52. This 2-story wood-frame residence was constructed in 1898 in the Queen Anne and Eastlake styles. A local survey identified the building as eligible for listing in the NRHP under Criterion C as a distinguished example of its architecture. The property is also eligible for the CRHR and is listed in the Bakersfield Register of Historic Places.

D. 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 3.17-7 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 non-renewable 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.
Acronyms: 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 3.17-8. 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 2011d). UCMP did not produce a detailed report, although the records search found only one pre-existing locality in the project 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 Lake beds have all yielded fossilized remains of extinct species at numerous previously recorded sites throughout the San Joaquin Valley (see discussion below). Additionally, 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. During the field survey, stratigraphy was observed in road cuts, recent excavations, and the banks of drainage diversions, groundwater recharge basins, stormwater retention basins, streams, irrigation canals, ditches, and ponds.

Table 3.17-9
Geologic Units Underlying the Study Area

Map Symbol[a]	Age and Map Legend Identification[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

Table 3.17-9
Geologic Units Underlying the Study Area

Map Symbol[a]	Age and Map Legend Identification[b]	Formation[c]	Location	Lithology	Paleontological Sensitivity[d]

Notes:

[a.] Map units and symbols from: Geologic Map of California Bakersfield Sheet (Smith 1964) and Geologic Map of California Fresno Sheet (Matthews and Burnett 1965), 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.

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 Lake beds.
- 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 pliocenicus*), 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 pliocenicus* (deer mouse), and *Prosthennops kernensis* (peccary) (Authority and FRA 2011d). 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 have 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 2011d). 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 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 2011d). 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 2011d). 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 2011d). Based on the known fossils found within the Tulare Lake Formation, it is considered to have high paleontological sensitivity.

Quaternary Alluvium

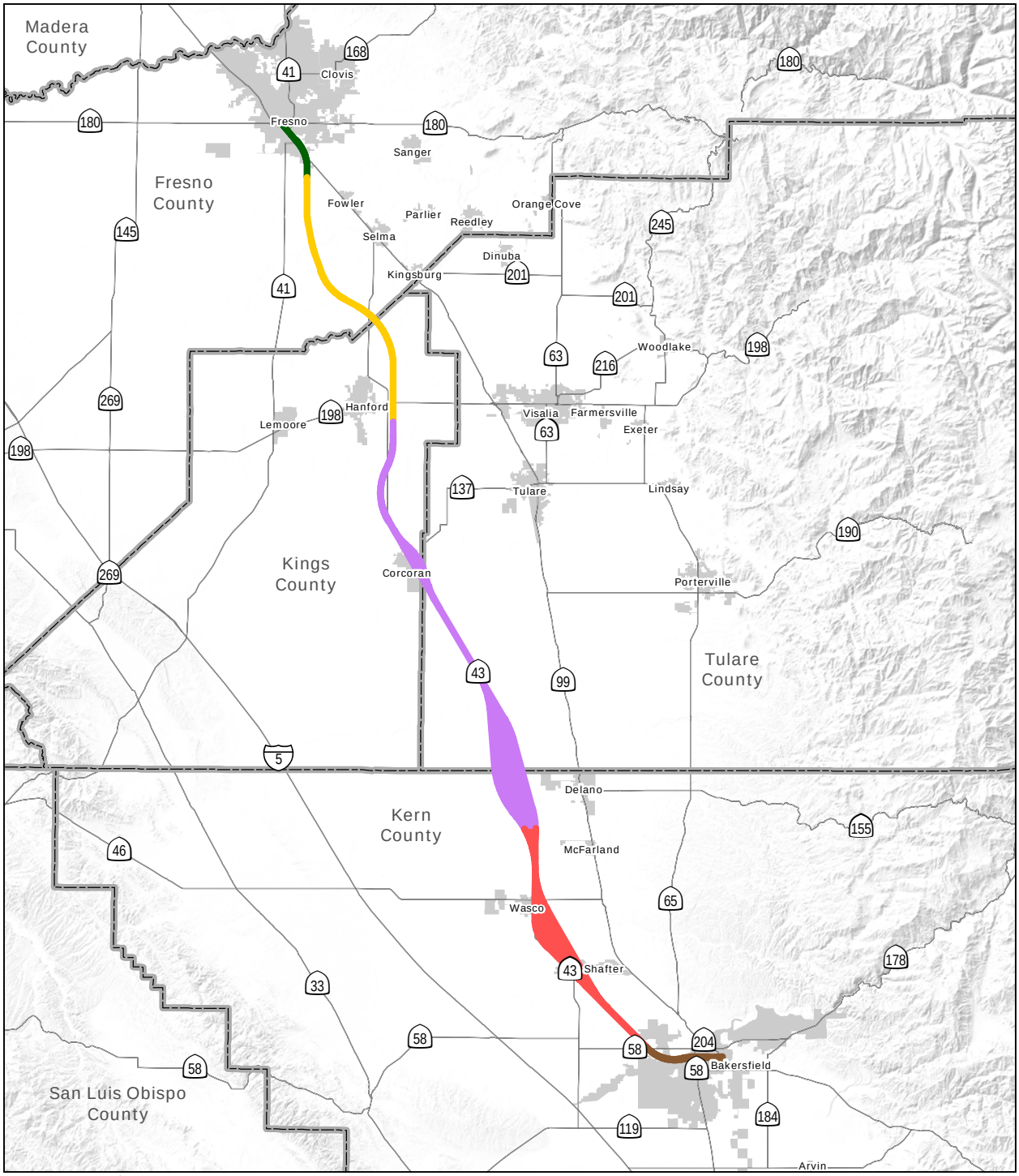
No previously recorded fossil sites were found in Quaternary alluvium (Quaternary basin deposits in Table 3.17-8) in the study area (Authority and FRA 2011d).

Summary

Table 3.17-8 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 HST alternative to another.

Based on the underlying geologic units, the HST alignment 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 2011d). The zonal analysis of sensitivity assumes that excavations will be deep enough to impact geologic 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 Lake beds 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.



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

July 1, 2011

Source: PaleoResource Consultants, 2011

- Urban area
- Zone 1 - Modesto and/or Riverbank Formations at or near the surface and overlaying the Turlock Lake Formation
- Zone 2 - Modesto and/or Riverbank Formations overlain by unnamed Quaternary alluvium
- Zone 3 - Tulare Lake Beds overlain by/ interfingered with unnamed Quarternary alluvium
- Zone 4 - Modesto Formation equivalent overlain by unnamed Quarternary alluvium
- Zone 5 - Kern River Formation overlain by unnamed Quaternary alluvium

N

0 5 10
Miles

0 10 20
Kilometers

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

A. 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, 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 undeveloped land outside of regional centers. This HST section would have the greatest potential to affect historic architectural resources in the urbanized areas, while undisturbed prehistoric archaeological sites and paleontological localities would be more likely to be affected in rural areas because these areas are less disturbed by development.

No archaeological sites that are eligible for the listing on the NRHP were identified within the alternatives, i.e., BNSF Alternative, the Corcoran Bypass, the Allensworth Bypass, the Wasco-Shafter Bypass, and the Bakersfield South. Therefore, none of the proposed alternatives have the potential to affect archaeological resources.

Surveys identified 52 historic architectural resources within the APE: 25 historic properties under Section 106, and 52 are historical resources under CEQA (inclusive of the 25 Section 106 historic properties). The BNSF Alternative Alignment would cause adverse effects to 10 of the Section 106 historic properties, and to 16 of the CEQA historical resources. These effects include direct adverse effects through demolition and property takes, which are major adverse effects (substantial effects under NEPA), as well as indirect adverse visual effects, which would range from minor to moderate adverse effects under NEPA.

The Fresno Station – Mariposa Alternative would not cause adverse effects on Section 106 historic properties (a minor effect under NEPA), and would cause substantial adverse changes to one CEQA historical resource, through demolition. The Fresno Station – Kern Alternative would not cause adverse effects on Section 106 historic properties (a minor effect under NEPA), and substantial adverse changes to two CEQA historical resources, through demolition. The Corcoran Bypass Alternative Alignment would cause an adverse effect on one Section 106 historic property, and the Allensworth Bypass Alternative Alignment would cause an adverse effect on one Section 106 historic property (both moderate adverse effects under NEPA). The Section 106 historic properties affected by these three alignments are also historical resources under CEQA and would have substantial adverse changes under all three.

The Bakersfield South Alternative Alignment would cause direct adverse effects to one Section 106 historic property through physical alteration (a moderate adverse effect under NEPA), and no substantial adverse changes to CEQA historical resources.

None of the other alternatives (Kings/Tulare Regional Station, Bakersfield Station–South Alternative, Corcoran Elevated Alternative Alignment, Wasco-Shafter Bypass Alternative Alignment, and the HMF site alternatives) would cause any adverse effects to either Section 106 historic properties or substantial adverse changes to CEQA historical resources. These alternatives would have no effects to historic architectural resources under NEPA.

No specific paleontological localities have been recorded within the APE. However, five geologic formations that intersect the project APE, as shown in Table 3.17-8, are considered highly sensitive for potentially significant, yet unidentified, paleontological resources, depending on the depth of potential ground disturbances.

B. NO PROJECT ALTERNATIVE

Cultural resources will continue to be affected in the Central Valley urban areas 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 number of these projects are likely to undergo CEQA review.

C. IMPACTS

Activities that cause impacts to cultural and paleontological resources are typically associated with construction of the project: disturbance of the ground, the material or physical alteration of the built environment, or the alteration of the visual setting. Because the project operations will not require these types of actions or cause any further visual discord or vibration that would result in additional adverse effects (Section 106) or substantial adverse changes (CEQA), no project operational activities from operation of any of the Fresno to Bakersfield HST alternatives would affect archaeological resources, traditional cultural resources, or paleontological resources. However, the analysis has identified operational effects (noise) to one Section 106 historic property under two of the Fresno to Bakersfield HST alternatives.

Archaeological Resources

Archaeological sites will 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 guide way 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. There is a possibility for new sites to be discovered during construction, but these would be managed under supervision of a trained archaeologist to record sites and treat artifacts according to the draft PA and associated MOA and treatment plan. Therefore, project operation would not result in effects on archaeological resources. The impact is considered less than significant under CEQA and minor under NEPA.

Potential Adverse Effects on Archaeological Resources Caused by Construction Activities

Construction of the HST would result in possible substantial effects to unknown archaeological deposits or paleontological resources from ground-disturbing construction operations associated with the project. This would cause substantial adverse changes in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5, and NHPA (36 CFR Part 800) and is therefore considered a potentially significant impact under CEQA and/or a substantial adverse effect under NEPA and an adverse effect under Section 106. These potential impacts/effects would be the same for all alternative alignments (the BNSF, Corcoran Elevated, Corcoran Bypass, Allensworth Bypass, Wasco-Shafter Bypass, and Bakersfield South alternative alignments); all station alternatives (Fresno Station–Mariposa Alternative, Fresno Station–Kern Alternative, Kings/Tulare Regional Station, Bakersfield Station–North Alternative, and Bakersfield Station–South Alternative); 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, including subsurface buried archaeological deposits, may exist within the urbanized or rural areas that are not observable when conducting standard surface archaeological inspection. 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 CFR Part 800). The intensity of these impacts under NEPA is discussed in Section 3.17.3 [F]; to reiterate, because an adverse effect/significant impact is expected, the intensity of these impacts are considered local, long-term, and substantial, and is therefore considered a significant impact under CEQA.

BNSF Alternative Alignment

The two prehistoric archaeological sites known to exist within the BNSF Alternative Alignment 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, and Bakersfield Station, or for any of the alternatives of the station configurations. However, unknown or unrecorded archaeological resources, including subsurface buried archaeological deposits, may exist within the urbanized or rural areas that are not observable when conducting standard surface archaeological inspection. Construction-related ground disturbance in areas that could contain unknown historical resources or properties 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, a potential substantial adverse effect under NEPA, and an adverse effect under Section 106.

Five alternative locations are being considered for the HMF. No previously recorded archaeological resources have been identified within these areas.

Other Alternative Alignments

There is one recorded archaeological resource within Allensworth Bypass, and two within Bakersfield South alternative. There are no known archaeological resources within the APE for the corresponding segments of the BNSF Alternative. Therefore, impacts to known archaeological resources would be similar to those of the BNSF Alternative. Construction-related ground disturbance in areas known to contain historical resources or properties would cause substantial

adverse changes in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5 and is therefore considered a significant impact.

No previously recorded archaeological resources are within the APE for the Corcoran Bypass, Corcoran Elevated, and Wasco-Shafter Bypass alternative alignments; therefore, the construction effects would be a negligible effect under NEPA and no adverse effect under Section 106.

Heavy Maintenance Facility Site Alternatives

No previously recorded archaeological resources are within the APEs for any of the proposed HMF locations; therefore, the construction effects would be a negligible effect under NEPA and no adverse effect under Section 106.

Historic Architectural Resources

Common Adverse Effects on Historic Architectural Resources

Construction activities may cause impacts on cultural resources and can include excavation, staging, heavy-equipment usage and movement, drilling, demolition, or relocation, as well as increases in vibration levels, or introduction of new visual elements. The MOA for the Fresno to Bakersfield Section will establish mitigation measures to implement before, during, and after construction to ensure that construction activities would avoid and minimize causing these adverse effects or changes, to the extent possible. Nevertheless, some of the HST alternatives, would cause these common types of adverse effects or changes -- either directly through demolition or alteration, or indirectly through visual effects or changes. Furthermore, some of the alternatives would have no adverse effect or changes to historic architectural resources. There are no historic architectural resources in the Fresno to Bakersfield Section that would be adversely affected or subject to substantial adverse change under all the alternatives. The effects and changes to historic architectural resources are described in the section below, by alternative, and the summary of these findings is provided in Table 3.17-9.

One common potential adverse effect or change is construction noise and vibration, and in response the project will develop avoidance mitigation to ensure that there would be no indirect adverse effects or indirect substantial adverse change to any historic properties (Section 106) or historical resources (CEQA) from noise or vibration caused by construction activities for any of the Fresno to Bakersfield Section alternatives. Vibration from impact pile-driving during construction is anticipated to reach up to 0.12 in/sec 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 causing vibration of less than o.12 in/sec PPV, will be developed near historic properties or historical resources located within 135 feet from the project centerline (Authority and FRA 2011g).

The development of alternative construction methods at these locations would avoid indirect adverse vibration effects to historic properties (Section 106) and would avoid substantial adverse vibration changes to historical resources (CEQA), and would be negligible effects under NEPA. Potential noise impacts from the construction of this alternative are not anticipated to cause adverse effects or substantial adverse changes to historic properties (Section 106) or historical resources.

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Table 3.17-10
Effects on Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station-South	Heavy Maintenance Facility	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
1	46620407	Budd & Quinn Showroom/Fresno Body & Fender Works 1560 H Street (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2	46620406	Budd & Quinn 1514-1518 H Street (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3	46620514	H.E. Jaynes & Son 1454 H Street (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4	46620513	H.E. Jaynes & Son 1452 H Street (located in the CEQA-only Warehouse District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
5	46620219 46620220	Parker Nash Building 1460-1462 Broadway	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6	46620207	1416 Broadway	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
7	46620505	Mayflower Hotel 1415-1417 Broadway	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 3.17-10
Effects on Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station-South	Heavy Maintenance Facility	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
8	46620511	Benham Ice Cream/Dale Bros. Coffee Building; Dale Bros. Coffee Sign 1420 H Street	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9*	46621401	Hotel Fresno 1257 Broadway	Fresno, Fresno	No Adverse Effect	No Adverse Effect	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10*	46621212	Crest Theater 1160 Broadway Plaza	Fresno, Fresno	n/a	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
11*	46706508T	Fresno Fire Department Station No. 3 1406-1430 Fresno Street	Fresno, Fresno	No Adverse Effect	No Adverse Effect	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
12*	46706208	Basque Hotel/EA Walrond Building 1102 F Street	Fresno, Fresno	No Adverse Effect	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
13*	46703031ST	Southern Pacific Railroad Depot 1033 H Street	Fresno, Fresno	Adverse Effect Indirect	No Adverse Effect	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
14*	46621307	Bank of Italy 1015 Fulton Mall	Fresno, Fresno	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
15*	46710301	First Mexican Baptist Church 1061 E Street	Fresno, Fresno	n/a	No Adverse Effect	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
16*	46707401	Bank of America 947-951 F Street	Fresno, Fresno	Adverse Effect – Indirect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
17	46707101	1528 - 1548 Tulare Street (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	Substantial Adverse Change – Indirect	No Substantial Adverse Change	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
18	46704012S	Pacific Coast Seeded Raisin Company/Del Monte Plant No. 68 1626 Tulare Street	Fresno, Fresno	Substantial Adverse Change – Direct	Substantial Adverse Change - Direct	Substantial Adverse Change - Direct	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 3.17-10
Effects on Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station-South	Heavy Maintenance Facility	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
19	46704024S	Hobbs Parsons Produce Building 903-911 H Street	Fresno, Fresno	Substantial Adverse Change Indirect	No Substantial Adverse Change	Substantial Adverse Change - Direct	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
20*	46828101	Radin-Kamp Department Store 959 Fulton Mall	Fresno, Fresno	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
21	46707402	Peacock Department Store 937-945 F Street (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
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	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
23	46707116	938-952 F Street	Fresno, Fresno	No Substantial Adverse Change	No Substantial Adverse Change	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
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	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
25	46707201	Komoto's Department Store and Hotel 1536-1542 Kern Street (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	Substantial Adverse Change – Indirect	No Substantial Adverse Change	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 3.17-10
Effects on Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station-South	Heavy Maintenance Facility	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
26	46707208	Dick's Shoes Building (Dick Avakian Shoe Repair) 1522-1526 Kern Street (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	No Substantial Adverse Change	No Substantial Adverse Change	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
27	46707206	Azteca Theatre 836-840 F Street (located in the potential CEQA-only Chinatown District, which is not eligible for NRHP)	Fresno, Fresno	n/a	n/a	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
28	46828611	Liberty Laundry 1830 Inyo Street	Fresno, Fresno	No Substantial Adverse Change	No Substantial Adverse Change	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
29	46828604	Baskin's Auto Supply Sign 729 Broadway	Fresno, Fresno	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
30*	46709234	Vartanian Home 362 F Street	Fresno, Fresno	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
31*	46702013	Holt Lumber 1916 S. Cherry Avenue	Fresno, Fresno	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
32*	n/a	South Van Ness Entrance Gate 2208 S. Van Ness Avenue (vicinity)	Fresno, Fresno	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
33*	n/a	Washington Colony Canal (eligible component of the Washington Irrigated Colony Historic District)	Fresno	Adverse Effect – Direct (Adverse Effect – Direct)	n/a	n/a	n/a	n/a	No Adverse Effect	n/a	n/a	n/a	n/a	n/a

Table 3.17-10
Effects on Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station-South	Heavy Maintenance Facility	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
34*	n/a	North Branch of Oleander Canal (eligible component of the Washington Irrigated Colony Historic District)	Fresno	Adverse Effect – Direct (Adverse Effect – Direct)	n/a	n/a	n/a	n/a	No Adverse Effect	n/a	n/a	n/a	n/a	n/a
35*	n/a	Peoples Ditch	Kings	Adverse Effect – Direct	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
36*	028202004000	Lakeside Cemetery Kent Avenue	Kings	Adverse Effect – Indirect	n/a	n/a	n/a	n/a	n/a	n/a	Adverse Effect – Indirect	n/a	n/a	n/a
37*	030184010000	Zuniga's Tortilleria 901 Flory Avenue	Corcoran, Kings	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	No Adverse Effect	n/a	n/a	n/a	n/a
38*	331100030 331130003 331141004 331151011 331161020 333350041	Allensworth Historic District 4129 Grant Drive	Earlimart (vicinity), Tulare	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Adverse Effect - Indirect	n/a	n/a
39*	02703008	Santa Fe Depot 150-200 Central Valley Highway	Shafter, Kern	Adverse Effect - Indirect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
40*	02707028	San Francisco & San Joaquin Valley Railroad Section House 434 Central Valley Highway	Shafter, Kern	Adverse Effect - Indirect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
41*	08909029	Joe O'Brien Stables 1320 E. Lerdo Highway	Shafter, Kern	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Adverse Effect	n/a
42*	n/a	Friant-Kern Canal	Kern	Adverse Effect – Direct	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Adverse Effect – Direct
43*	00405201	Harvey Auditorium, Bakersfield High School 1241 G Street	Bakersfield, Kern	Adverse Effect - Indirect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
44	00641104	1300-1316 H Street	Bakersfield, Kern	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
45	00641206	1310-1312 Eye Street	Bakersfield, Kern	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Table 3.17-10
Effects on Historic Architectural Resources by Component of the HST Project

Map ID #	APN	Resource Name and Address	City County	Alternative										
				BNSF Alignment	Fresno Station–Mariposa	Fresno Station–Kern	Kings/Tulare Regional Station	Bakersfield Station-South	Heavy Maintenance Facility	Corcoran Elevated Alignment	Corcoran Bypass Alignment	Allensworth Bypass Alignment	Wasco-Shafter Bypass Alignment	Bakersfield South Alignment
46*	00629001	Kern County Civic Administrative Center 1315-1415 Truxtun Avenue	Bakersfield, Kern	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Adverse Effect
47	00639102	1401-1409 K Street	Bakersfield, Kern	Substantial Adverse Change - Direct	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Substantial Adverse Change
48	00646003	1323 K Street	Bakersfield, Kern	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Substantial Adverse Change
49	00645002	1323 L Street	Bakersfield, Kern	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Substantial Adverse Change
50	00644026	1330 L Street	Bakersfield, Kern	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Substantial Adverse Change
51	00644025	1326 L Street	Bakersfield, Kern	No Substantial Adverse Change	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Substantial Adverse Change
52*	00643002 00643003	Stark/Spencer Residence 1321 N Street	Bakersfield, Kern	No Adverse Effect	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No Adverse Effect

Notes:
* = 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, or are otherwise considered historical resources for the purposes of CEQA only.

APN = Assessor's Parcel Number
CEQA = California Environmental Quality Act of 1970
n/a = not applicable

BNSF Alternative Alignment: Impacts to Historic Architectural Resources

Twenty-seven historic architectural resources would be directly or indirectly affected by construction activities associated with the BNSF Alternative Alignment, as shown in Table 3.17-9.

The BNSF Alternative Alignment would cause *direct* adverse effects (Section 106) on four historic architectural properties: Property Nos. 33, 34, 35, and 42, which is a substantial adverse effect under NEPA. Property Nos. 33, 34, and 35 are in the direct path of this alternative and its construction would result in the physical destruction, damage, or alteration of these resources. Similarly, the construction of a roadway overcrossing as part of this alternative would result in the physical destruction, damage, or alteration to Property No. 42.

Construction of this alternative would also cause a *direct* substantial adverse change to two historical resources (CEQA). Proposed construction activities under this alignment would intersect with Property Nos. 18 and 47, and would result in the physical demolition, destruction, relocation, or alteration of these resources.

Construction of the BNSF Alternative would cause *indirect* adverse effects on six historic properties (Section 106) from visual effects, which is a moderate adverse effect under NEPA. The historic properties indirectly affected by this alternative are Property Nos.13, 16, 36, 39, 40, and 43. Visual effects on these properties would consist of the construction of new roadway overcrossings where these features do not currently exist, as well as construction of an at-grade and elevated rail line where such structures do not currently exist.

New roadway overcrossings would cause indirect adverse visual effects on Property Nos. 13, 16, and 36.

- The BNSF Alternative Alignment includes construction of a Tulare Street overcrossing that would be adjacent to the southern side of the Southern Pacific Depot in Fresno (Property No. 13). The size, scale, and massing of this elevated structure constitutes the introduction of a visual element that would diminish the historic integrity of the design of its layout, further diminish the setting of the building which 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. The BNSF Alternative Alignment also includes an option for an undercrossing at Tulare Street and this option would have no adverse effect on this property.

- The BNSF Alternative Alignment includes construction of a Tulare Street overcrossing immediately adjacent to the Bank of America Building (Property No. 16). The introduction of a raised structure within 15 feet of this building would diminish the historic design of this building by altering its relationship to the formerly at-grade store fronts 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. The BNSF Alternative Alignment also includes an option for an undercrossing at Tulare Street and this option would have no adverse effect on this property.

- The BNSF Alternative Alignment includes the construction of an at-grade rail line and a grade separation and overcrossing for Kent Avenue right next to the Lakeside Cemetery (Property No. 36). The at-grade rail line and overcrossing constitute the introduction of two large-scale structures right next to the southern boundary of the cemetery, where currently no such features exist. Established in the 1870s, this cemetery has been an open park-like landscape, surrounded by open agricultural fields for its 140-year history. The BNSF Alternative Alignment would cause indirect adverse effects to this historic property from the introduction of visual elements that would diminish the integrity of the historic property. The construction of these structures so close to the cemetery is not consistent with its historic design, location, feeling, or setting and would adversely affect views of and from the property.

The elevated rail line would cause indirect adverse visual effects on Property Nos. 39, 40, and 43. The introduction of elevated structures near these historic properties would diminish the integrity of their significant historic features and would result in an adverse indirect effect.

- The BNSF Alternative Alignment includes construction of an elevated structure up to 65 feet high next to the existing at-grade railroad. The Shafter Santa Fe Freight Depot (Property No. 39) would be 70 feet from the elevated track structures. The depot was originally constructed to serve Shafter as part of a nineteenth-century, at-grade railroad system, and the introduction of an elevated rail line right next to it introduces a visual element that would diminish the integrity of the historic property. The size, scale, and massing of such a structure is not consistent with the historic design, setting, and feeling of the building and would diminish the historic integrity of the historic property.

- The BNSF Alternative Alignment includes construction of an elevated structure up to 65 feet high next to the existing at-grade railroad. The San Francisco and San Joaquin Valley Railroad Section House (Property No. 40) would be 70 feet from the elevated track structures. The section house was originally constructed to serve as employee housing as part of a nineteenth-century, at-grade railroad system, and the introduction of an elevated rail line right next to it introduces a visual element that would diminish the integrity of the historic property. The size, scale, and massing of such a structure is not consistent with the historic design, setting, and feeling of the building and would diminish the historic integrity of the historic property.

- The BNSF Alternative Alignment includes construction of an elevated rail line between 50 and 70 feet in height and a power traction station. Both structures would be adjacent to an existing at-grade railroad in an area that historically consisted of a mixture of institutional and education-related buildings. Harvey Auditorium (Property No. 43), the only building on the Bakersfield High School campus that is eligible for the NRHP, is right across the street south of the BNSF Alternative Alignment and within approximately 125 feet of the elevated track structure. The auditorium is about 200 feet east of the traction station, which would be located on the north side of the elevated tracks. The traction station construction, therefore, would not cause an adverse effect on the auditorium. The construction of the BNSF Alternative Alignment would have an indirect adverse effect because it would alter the setting of the auditorium through the demolition of buildings just north, northeast, and northwest of the auditorium, which would diminish the integrity of its setting, association, and feeling. The construction of the BNSF Alternative Alignment would also have an indirect adverse effect through the introduction of a large scale (50 to 70 feet tall) elevated rail line across the street from the auditorium. This construction diminishes the historic design, setting, association, and feeling of this building and would diminish its historic integrity.

Although noise impacts from the construction of this project are temporary and are not anticipated to affect historic properties (Section 106) or historical resources (CEQA), operational noise levels are predicted to have an effect on one historic architectural resource. Operation of the BNSF Alignment would cause an adverse effect (Section 106) and substantial adverse change (CEQA) to Property No. 36 because it is near the historic Lakeside Cemetery. The operational noise level of 74 dB Ldn is predicted for this site for the BNSF Alignment. This is determined as a severe impact according to the FRA methodology and would be an adverse indirect effect to the historic property, which is a moderate adverse effect under NEPA. As with all other identified adverse effects, this effect will be subject to mitigation that will be stipulated in the MOA (BETP) prepared for the Fresno to Bakersfield Section.

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 substantial adverse change (CEQA) (Authority and FRA 2011f), and would have no adverse effect under NEPA.

Construction of the BNSF Alternative Alignment would also cause an *indirect* substantial adverse change to four historical resources (CEQA). The introduction of new visual elements right next to the following resources would cause a substantial indirect adverse change to: Property Nos. 17, 19, 24, and 25. Therefore, CEQA impacts to historic architectural resources from construction activities associated with the BNSF Alternative Alignment would be substantial and adverse and would be significant.

- The BNSF Alternative Alignment includes construction of an overcrossing for Tulare Street within approximately 15 feet of the main façade of 1528-1548 Tulare Street (Property No. 17). 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 store front of this commercial building, and diminish the setting, association, and feeling of this late nineteenth-century building, and would cause an indirect substantial adverse change to this historical resource. The BNSF Alternative Alignment also includes an option for an undercrossing at Tulare Street and this option would have no adverse effect on this property.

- The BNSF Alternative Alignment includes construction of an overcrossing for Tulare Street within approximately 22 feet of the main façade of the Hobbs Parsons Produce Building (Property No. 19). 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 store front of this commercial/light industrial building, diminish the setting, association, and feeling of this early twentieth-century building, and would cause an indirect substantial adverse change to this historical resource. The BNSF Alternative Alignment also includes an option for an undercrossing at Tulare Street and this option would have no adverse effect on this property.

- The BNSF Alternative Alignment includes construction of an at-grade rail line and temporary precast concrete yard near the Haruji Ego Family Building (Property No. 24), approximately 125 feet and 77 feet, respectively. This alignment would cause a substantial adverse change to this historical building as a contributor to a CEQA-only historic district through the demolition of buildings that alter the visual linkage of this resource and its district. The construction of the project would require the demolition of all buildings fronting the eastern side of G Street (immediately east of this historical resource) and would alter the view when looking north and east from this building. This area has historically consisted of one- to three-story industrial buildings, and the demolition of such structures for the proposed project would cause a substantial adverse change to the setting, feeling, and visual linkage of this resource within its district.

- The BNSF Alternative Alignment includes construction of an at-grade rail line and temporary precast concrete yard near the Komoto's Department Store and Hotel (Property No. 25), approximately 125 feet and 77 feet, respectively. This alignment would cause a substantial adverse change to this historical building as a contributor to a CEQA-only historic district through the demolition of buildings that alter the visual linkage of this resource and its district. The construction of the project would require the demolition of all buildings fronting the eastern side of G Street (immediately east of this historical resource) and would alter the view when looking north and east from this building. This area has historically consisted of one- to three-story industrial buildings, and the demolition of such structures for the proposed project would cause a substantial adverse change to the setting, feeling, and visual linkage of this resource within its district.

Fresno Station–Mariposa Alternative and Fresno Station–Kern Alternative: Impacts to Historic Architectural Resources

One historic architectural resource would be affected by construction of the Fresno Station–Mariposa Alternative, as shown in Table 3.17-9.

The Fresno Station–Mariposa Alternative would not have any *direct* adverse effects on any historic properties (Section 106) because it would not cause the physical destruction, damage, or alteration of these resources.

Construction of the Fresno Station - Mariposa alternative would not have an adverse visual effect on historic properties (Section 106), which is a moderate adverse effect under NEPA. The design for the Fresno Station - Mariposa alternative was refined to minimize visual effects to Property No. 13, the historic SP Depot. The construction of the other project features will take place near Properties No. 11 and 15, but will not cause adverse effects because this construction does not diminish the integrity of the historic properties (Section 106). Although the project activities would be nearby and would be visible, they would have no adverse effect on the properties, which is a minor effect under NEPA.

The Fresno Station – Mariposa alternative would cause a *direct* substantial adverse change on a historical resource (CEQA) because it would cause the physical destruction, damage, or alteration of the resource. Property No. 18 would be demolished for construction of the Fresno Station - Mariposa alternative, which is a substantial adverse change to this historical resource.

The Fresno Station – Kern alternative would not have any *direct* adverse effects on any historic properties (Section 106) because it would not cause the physical destruction, damage, or alteration of these resources.

Two historic architectural resources would be affected by construction of the Fresno Station–Kern Alternative, as shown in Table 3.17-9.

The Fresno Station – Kern alternative would cause a *direct* substantial adverse change on two historical resources (CEQA) because it would cause the physical destruction, damage, or alteration of the resources. Property Nos. 18 and 19 would be demolished for construction of the Fresno Station - Kern alternative, which is a substantial adverse change to these historical resources.

Construction of the Fresno Station – Kern Alternative would not have an adverse visual effect on historic properties (Section 106). This alternative includes the construction of a five-story parking structure, where structures of this scale do not currently exist; however, this construction does not introduce a visual element that diminishes the historic integrity of the nearby historic properties: Property Nos. 11 and 15. These project actions, therefore, will not cause adverse effects on historic properties (Section 106) and although the project activities would occur nearby, they would have no adverse effect to the properties, which is a minor effect under NEPA.

Therefore, construction activities associated with the Fresno Station–Mariposa Alternative would have a minor effect under NEPA because, although project activities would occur near historic properties, they would not have caused adverse effects on historic properties (Section 106). The Fresno Station – Mariposa alternative would cause a *direct* substantial adverse change on a historical resource (CEQA) because the resource would be demolished for construction of the alternative, which is a substantial adverse change.

Construction activities associated with the Fresno Station–Kern Alternative would have a minor effect under NEPA because, although project activities would occur near historic properties, they would not have caused adverse effects on historic properties (Section 106). The Fresno Station –

Kern alternative would cause a *direct* substantial adverse change on two historical resources (CEQA) because the resources would be demolished for construction of the alternative, which is a substantial adverse change.

Kings/Tulare Regional Station, Corcoran Elevated Alternative, and Wasco-Shafter Bypass Alternative: Impacts to Historic Architectural Resources

The Kings/Tulare Regional Station would have no effects on historic properties (Section 106), or substantial adverse changes to historical resources (CEQA), because there are no historic properties or historical resources in immediate proximity to the construction of the Kings/Tulare Regional Station. This alternative would have no effects on historic architectural resources under NEPA.

The Corcoran Elevated Alternative Alignment would have no adverse effects on historic properties (Section 106), or substantial adverse changes to historical resources (CEQA), because there are no historic properties or historical resources in immediate proximity to the construction of the Corcoran Elevated Alternative Alignment. This alternative would have no effects on historic architectural resources under NEPA.

The Wasco-Shafter Bypass Alternative Alignment would have no adverse effects on historic properties (Section 106) or substantial adverse changes to historical resources (CEQA) because there are no historic properties or historical resources in immediate proximity to the construction of the Wasco-Shafter Bypass Alternative Alignment. This alternative would have no effects on historic architectural resources under NEPA.

Corcoran Bypass Alignment: Impacts to Historic Architectural Resources

The Corcoran Bypass Alignment would cause an adverse effect and a substantial adverse change to one historic property (Section 106) / historical resource (CEQA). Construction of this alignment would cause an *indirect* adverse effect (Section 106) to Property No. 36. The construction of a roadway overcrossing and at-grade rail line as part of this alternative would introduce new visual elements that would diminish the integrity of the significant historic features of this property, which is a moderate adverse effect under NEPA. These activities would also constitute a substantial adverse change to this historical resource (CEQA). The Corcoran Bypass Alignment includes the construction of an at-grade rail line and a grade separation and overcrossing for Kent Avenue right next to the Lakeside Cemetery (Property No. 36). The at-grade rail line and overcrossing constitute the introduction of two large-scale structures right next to the southern boundary of the cemetery, where currently no such features exist. Established in the 1870s, this cemetery has been an open park-like landscape, surrounded by open agricultural fields for its 140-year history. The Corcoran Bypass Alignment would cause indirect adverse effects to this historic property from the introduction of visual elements that would diminish the integrity of the historic property. The construction of these structures in such close proximity to the cemetery is not consistent with its historic design, location, feeling, or setting and would adversely affect views of and from the property.

Although noise impacts from the construction of this project are temporary and are not anticipated to affect historic properties (Section 106) or historical resources (CEQA), operational noise levels are predicted to have an effect on one historic architectural resource. Operation of the Corcoran Bypass Alignment would cause an adverse effect (Section 106) and substantial adverse change (CEQA) to Property No. 36 because it is in close proximity to the historic Lakeside Cemetery. The operational noise level of 74 dB Ldn is predicted for this site for the Corcoran Bypass Alignment. This is determined as a severe impact according to the FRA methodology, and would be an adverse indirect effect to the historic property, which is a moderate adverse effect under NEPA. As with all other identified adverse effects, this effect will

be subject to mitigation that will be stipulated in the MOA (BETP) prepared for the Fresno to Bakersfield Section.

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 substantial adverse change (CEQA) (Authority and FRA 2011f), and would have no adverse effect under NEPA.

Allensworth Bypass Alternative Alignment: Impacts to Historic Architectural Resources

Under certain circumstances, the Allensworth Bypass Alternative Alignment could cause an adverse effect and a substantial adverse change to one historic property (Section 106) / historical resource (CEQA). Construction of this alignment could cause an *indirect* adverse visual effect (Section 106) to Property No. 38 if 22 miles of the BNSF railroad is relocated as part of this alternative. This relocation is an option being considered but is not necessary for the Allensworth Bypass Alternative. Property No. 38 is Allensworth State Historic Park, which is recognized for its significance as the only town in California that was founded, financed, and governed by African Americans. The historic district is also recognized for its significance in agricultural and social history, which is expressed in the site and town plat that are directly associated with the railroad line. The town was purposely founded right next to the ATSF (later acquired by BNSF), the nineteenth-century railroad line that provided the necessary shipping facilities for the town's agricultural economy during the most significant period of the town's existence (1908-late 1930s). The railroad has continuously operated along this alignment for more than 100 years. If the BNSF railroad is relocated to parallel the new HST line, the berm and ballast will remain after the railroad relocation. However, the removal of other key components (rails, ties, and other safety and operational features) could adversely affect this property in a manner that is not consistent with the historic design, location, feeling, or setting of the historic early twentieth-century settlement and could diminish the historic integrity of the historic property. This indirect adverse visual effect would be a moderate adverse effect under NEPA. This activity would also constitute a substantial adverse change to this historical resource (CEQA).

Bakersfield South Alternative Alignment: Impacts to Historic Architectural Resources

One historic property (Section 106) would be *directly* affected by construction activities associated with this alternative, as shown in Table 3.17-9, which is a substantial adverse effect under NEPA. Construction of the Bakersfield South Alternative Alignment would require relocation of a pipeline that would physically alter the Friant Kern Canal (Property No. 42, causing a direct adverse effect (Section 106) and substantial adverse change (CEQA).

The Bakersfield South Alternative would not cause adverse visual effects on historic properties (Section 106), which is a moderate adverse effect under NEPA. The alignment includes construction of an elevated rail line ranging between 50 and 70 feet high through urban and rural areas where elevated rail lines do not currently exist, and this construction will take place near the Kern County Civic Administrative Center (Property No. 46) and the Start/Spencer Residence (Property No. 52), but will not cause adverse effect because this construction does not diminish the integrity of the historic properties. Although the project activities would be nearby and would be visible, they would have no adverse effect on the properties, which is a minor effect under NEPA.

The introduction of these new visual elements would also have no substantial adverse change to four nearby historical resources (CEQA): Property Nos. 47, 49, 50, and 51. Although visible, this construction would not diminish the integrity of the historical resources and would cause no substantial adverse changes.

Therefore, construction activities associated with the Bakersfield South Alternative would have adverse effects on an historic property (Section 106), which is a substantial adverse effect under NEPA, and no substantial adverse changes to historical resources (CEQA).

Bakersfield Station–South Alternative: Impacts to Historic Architectural Resources

The Bakersfield Station – South Alternative would have no anticipated effects on historic properties (Section 106), or substantial adverse changes to historical resources (CEQA), because there are no historic properties or historical resources in immediate proximity to the construction of the Bakersfield Station – South Alternative. This alternative would have no effects to historic architectural resources under NEPA.

Heavy Maintenance Facility Site Alternatives: Impacts to Historic Architectural Resources

Five locations are under consideration for a heavy maintenance facility. Of these, only the Fresno Works–Fresno site in Fresno County contains historic architectural resources. These properties (the Washington Canal and the North Branch of the Oleander Canal, Property Nos. 33 and 34, see Table 3.17-9) are historic properties under Section 106, and are also historical resources for the purposes of CEQA. There are no anticipated direct or indirect adverse effects or substantial adverse changes to these canals that would be caused by construction of the HMF at the Fresno Works–Fresno site, because construction of the facility would not result in the physical destruction, damage, or alteration of these canals. Construction of proposed HMFs would have no adverse effects on historic properties (Section 106) and would cause no substantial adverse change to historical resources (CEQA). Construction of the HMFs would have no effects to historic architectural resources under NEPA.

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-C, Construction Period Impacts. Disturbance of sediments with high paleontological sensitivity could have impacts that are significant under CEQA and adverse under NEPA, but mitigatable 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.

Because impacts on paleontological resources occur from 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.

Common Adverse Effects on Paleontological Resources

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 impact paleontologically sensitive sediment.

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

As discussed in Section 3.17.4 [C], 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 still could 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 Pal-MM#1, Pal-MM#2, and Pal-MM#3 would reduce these impacts.

3.17.6 Mitigation Measures (Treatment of Adverse Effects)

The HST project has considered avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program EIR/EIS commitments. There are several regulatory requirements that must be followed during construction of any federal and state funded project including NEPA and Section 106. In addition, the following options for mitigation are available to reduce impacts that cannot be minimized or avoided to less than significant or negligible levels. Cultural resources mitigation measures occur prior to, during, and following construction. Protective measures, such as building stabilization or archaeological site capping, and recordation of resources would take place prior to construction; other protective measures such as vibration monitoring for built resources or monitoring for archaeological resources during ground-disturbing activities occur during construction. Mitigation that could take place after construction may include interpretive programs (displays, interpretive signage, etc.).

The Section 106 PA establishes the framework for development and implementation of measures to avoid, minimize, and/or mitigate adverse effects to historic properties caused by the HST System, in compliance with Section 106 and NEPA. The PA also establishes that a MOA will be prepared for each of the nine sections, including the Fresno to Bakersfield Section, to detail the HST project commitments to implement these mitigations. The MOA for this section will be tiered from the Statewide and Bay Area to Central Valley Program EIR/EIS and is being developed in consultation with the SHPO and the ACHP. Per the Section 106 PA, treatment plans will also be prepared for the Fresno to Bakersfield Section: an Archaeological Treatment Plan (ATP) and a Built Environment Treatment Plan (BETP). The MOA and the treatment plans will describe the mitigation and treatment activities to be conducted prior to construction, during construction, and after construction.

The ATP and BETP will provide a detailed description of mitigation measures for historic properties (Section 106) and historical resources (CEQA) adversely affected by the project. The plans will include descriptions of measures that will be implemented to avoid, minimize, and mitigate adverse effects and impacts to historic properties and historical resources. The BETP will be based on preconstruction investigations that include, but are not limited to: conditions assessments; vibration analysis; and feasibility studies to identify the requirements for moving, storing, shoring, stabilizing, monitoring, and rehabilitation, or restoration of buildings. The ATP will focus on the treatment of known buried historic properties and guidance in the event of unanticipated discoveries. The ATP and BETP will also outline the provisions of the other mitigation measures to be carried out for this project, such as responses to inadvertent damage, or interpretation mitigation (see mitigation measures below). The treatment plans will be completed prior to construction activities that could adversely affect historic properties or historical resources, and will likely include one or more of the mitigation measures listed below.

The Society of Vertebrate Paleontology standard guidelines (SVP 1995) recommend widely adopted mitigation measures to minimize impacts to paleontological resources. These include selection of a qualified paleontologist to supervise mitigation activities and the development of a project- or phase-specific Paleontological Resources Monitoring and Mitigation Plan that would

include protocol for monitoring of construction excavations in paleontologically sensitive sediment. In addition, there are procedures to follow should a paleontological discovery be made, including evaluation to establish the scientific significance of the find, construction-avoidance during recovery, scientific recovery, and recording and curation of the find.

A. ARCHAEOLOGICAL RESOURCES

Arch-MM#1: Conduct Archaeological Training

Prior to ground-disturbing activities within the project alternatives, a qualified professional archaeologist, who meets the Secretary of Interior's 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 prior to commencing construction within discrete portions of the project alternatives or as needed as construction personnel crews and supervisors may change.

Arch-MM#2: Halt Work in the Event of an Archaeological Discovery

If any prehistoric or historic subsurface cultural resources are discovered during ground-disturbing activities, all work within 50 feet of the resources will be halted, and the Authority will consult with a qualified archaeologist, who qualifies to assess the significance of the find, according to CEQA Guidelines Section 15064.5. Any work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out. If any find is determined to be significant by the consulting archaeologist, the Authority and the archaeologist will meet to determine the appropriate avoidance measures or other appropriate mitigation. All significant cultural materials recovered will be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. In considering any suggested mitigation proposed by the consulting archaeologist to mitigate impacts on historical resources or unique archaeological resources, the Authority shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations.

If in consultation with the consulting archaeologist, it is determined that a significant archaeological resource is present and that the resource could be adversely affected by the proposed project, the following actions will be followed, as feasible:

- Redesign the project to avoid any adverse effect on the significant archaeological resource.
- Implement Arch-MM#3, Intentional site burial for site preservation.
- Implement an archaeological data recovery program (ADRP) (unless the archaeologist, in consultation with lead agency, determines that the archaeological resource is of greater interpretive use than research significance and that interpretive use of the resource is feasible). If the circumstances warrant an ADRP, such a program will be conducted. Together with a project archaeologist, determine the scope of the ADRP. The archaeologist will prepare a draft ADRP. The ADRP will identify how the proposed data recovery program will preserve the significant information the archaeological resource is expected to contain. That is, the ADRP will identify the scientific/historical research questions that are applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes will address the applicable research questions. Pursuant to Section VIII[C][1] of the Section 106 PA, the Authority shall provide the ADRP, as an element of the

Treatment Plan prepared for the section , to the MOA signatories and MOA concurring parties for review and comment. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods will not be applied to portions of the archaeological resources if nondestructive methods are practical.

Arch-MM#3: Plan an Intentional Site Burial Preservation In Place

If project engineering concludes that avoidance is not feasible, a process to determine whether the site can be preserved through intentional site burial would be considered. When complete avoidance is not possible, preservation in place is the preferred form of mitigation for a "historical resource of an archaeological nature" because it retains the relationships between artifact and context, and may avoid conflicts with groups associated with the site, pursuant to PRC 15126.4[b][3][A].

To intentionally bury a site, it will be necessary to conduct test excavations to determine the vertical and horizontal extent of the identified resources discovered as planning proceeds or through accidental discovery. If excavations have not yet been conducted for the purposes of evaluating the sites for eligibility in accordance with the Section 106 PA, the Authority will contract with a qualified archaeologist to conduct a formal excavation of the site to delineate the site boundaries as well as determine the site's eligibility for the CRHR or NRHP.

If found to be eligible and avoidance is not possible, consideration will be given to intentional site burial. The contracted archaeologist will, in addition to the formal delineation of the site boundaries, prepare and implement a design plan to dictate the conditions of the intentional site burial according to the recommendations discussed in the *National Park Service Technical Brief Number 5, Intentional Site Burial: A Technique to Protect Against National or Mechanical Loss* (Thorne 1991).

Among the requirements of an effective capping, the mechanical process of burying the site must be designed in a manner that will ensure that the site matrix is protected during the placement process and during the operation of the HST. Preconstruction testing can be used to determine the construction equipment and fill-material load limits that are allowable without causing compression or warpage of the artifact and feature components of the site.

If the preconstruction testing determines that compression or warpage of the site is probable and this mitigation will not effectively reduce the effects of the project to less-than-significant levels, additional mitigation, such as data recovery, will be necessary. Furthermore, if it is determined that the engineering requirements of the construction and operation of the CHST at the location of the site prohibit the effective avoidance of the site, or if the surrounding conditions prohibit the protection or preservation of the archaeological components, the mitigation of data recovery would be the only feasible mitigation (see Arch-MM-2). In addition, the Authority will make provisions with the contracted archaeologist to monitor the site after the burial process is completed.

Arch-MM#4: Conduct Preconstruction Geoarchaeological Testing in Proximity to CA-KER-2507

Ground-disturbing activities have the potential to affect archaeological remains 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 *Woilo*. 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 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 FB section also concluded that this location would be highly sensitive for buried deposit potential (Authority and FRA 2011h). Therefore, in accordance with the Section 106 PA in terms of phasing identification efforts, a preconstruction geoarchaeological testing program shall be implemented at this location to help identify whether substantial archaeological deposits exist within the APE at this location. This investigation shall be conducted once permissions to conduct excavations in active rail yards and adjacent businesses have been granted to the Authority. The geoarchaeological testing shall be conducted in accordance with the methods disclosed in the *Fresno-Bakersfield Geoarchaeological Investigation* (Authority and FRA 2011h). Representatives of established Native American organizations shall be invited to participate in the testing program prior to initiation of subsurface investigation.

In the event that cultural resources are exposed during construction, the archaeologist shall temporarily halt activities in the immediate vicinity of the discovery while it is evaluated for significance and implement mitigation measure Arch-MM#2

B. HISTORIC ARCHITECTURAL RESOURCES

Hist-MM#1: Avoid Adverse 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. Vibration from impact pile-driving during construction is anticipated to reach up to 0.12 in/sec PPV at 135 feet from the project centerline, a level which would could cause the physical destruction, damage, or alteration of historic properties or historical resources, if the pile-driving is within 80-140 feet of the building. Because this impact pile-driving could cause adverse effects or substantial adverse changes, alternative construction methods causing less than 0.12 peak particle velocity of one inch per second (0.12 PPV in/sec) measured at the receptor will be developed for construction activities near historic properties or historical resources if they are determined to be extremely susceptible to vibration damage (Authority and FRA 2011g). The development of alternative construction methods at these locations would avoid indirect adverse vibration effects to historic properties (Section 106) and would avoid substantial adverse vibration changes to historical resources (CEQA).

Hist-MM#2: Develop Protection and Stabilization Measures

The BETP will identify historic properties/historical resources that will require protection and/or stabilization prior to the start of construction of the project. Properties subject to this mitigation activity will include any properties physically affected, and/or relocated, and/or in close enough proximity to require protection. This mitigation will ensure that adverse effects to historic properties/historical resources will be either avoided entirely, or minimized to the extent possible. This mitigation will be developed in consultation with the landowner, land-owning agencies, as well as SHPO and the MOA signatories, as required by the Section 106 PA. Such measures will include, but are not necessarily limited to: vibration monitoring of construction in the vicinity of historic properties; cordoning off resources from construction activities such as traffic, equipment storage, and personnel; shielding resources from dust or debris; and stabilization of buildings adjacent to construction. For buildings that are to be moved: stabilization of buildings and structures before, during, and after relocation; and protection of buildings and structures during temporary storage, relocation at a new site and during subsequent rehabilitation.

Hist-MM#3: Avoid Historic Architectural Resources at 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 will 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 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.

Hist-MM#4: Minimize Adverse Effects Through Relocation of Historic Structures

The BETP will identify historic properties/historical resources that will be relocated to help avoid destruction and minimize the direct adverse effect of their physical damage or alteration. The plan for relocation and implementation of relocation will take place prior to 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), as well as their potential re-use. All structures will be thoroughly recorded in a Historic Structure Report (HSR) (see below), and the relocation plan will provide for stabilization of the structures before, during, and after the move.

Hist-MM#5: Minimize Adverse Noise Effects

The BETP will identify historic properties/historical resources that will be subject to treatment to help minimize indirect adverse effects caused by operational noise of the Project. Properties subject to this mitigation will be identified in the BETP and will be identified and treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency. Project design options will be developed to help reduce noise impacts and will follow FRA methodologies for noise abatement. These options will be developed during project design and will be implemented during construction. Historic properties / historical resources subject to this mitigation measure will be thoroughly recorded in the appropriate format of the HABS/HAER/HALS programs (see Hist-MM#8, below) prior to construction of the Project.

Hist-MM#6: Prepare and Submit NRHP Nominations

The BETP will identify specific historic properties/historical resources for nomination to the NRHP Program of the National Park Service (NPS). Properties subject to this mitigation will be identified in the BETP and will be identified and treated in consultation with the landowner, or land-owning agencies, and the CEQA lead agency. Current photographs of the property used in the nomination(s) will be made prior to the start of Project construction. The nomination document may also use other current and/or historic images prepared as part of other mitigation activities.

Hist-MM#7: Prepare and Submit CRHR Nominations

The BETP will identify specific historical resources for nomination to the CRHR Program at the State Office of Historic Preservation. Current photographs of the resource used in the nomination(s) will be made prior to the start of construction. The nomination document may also use current and/or historic images prepared as part of other mitigation activities.

Hist-MM#8: Prepare and Submit Historic American Building Survey (HABS)/Historic American Engineering Record (HAER)/ Historic American Landscape Survey (HALS) Documentation

Historic properties/historical resources that will be physically altered, damaged, relocated, or destroyed by the Project may be documented in compliance with the HABS/HAER/HALS programs. Prior to the start of construction, in consultation with the Western Regional Office of the NPS, Oakland, California, large-format (4-by-5-inch, or larger, negative-size) black and white photographs will be taken of these historic properties/historical resources showing them in context, as well as details of character-defining features. The photographs will be processed for archival permanence in accordance with HABS/HAER/HALS photographic specifications. Each view will be fully captioned, and if necessary, perspective corrected. Oblique aerial photography will be considered as a photographic recordation option in these coordination efforts.

The recordation will follow the NPS HABS/HAER/HALS Guidelines; the report format, views, and other documentation details will be coordinated with the NPS. It is anticipated that the recordation of historic properties will be completed to Level II HABS written data standards, and will include archival and digital reproduction of historic images, plans, and drawings, if available. Copies of the documentation will be offered to the appropriate local governments, historical societies and agencies, and libraries. The documentation will also be offered in printed and electronic form to any repository or organization upon which SHPO, the Authority, and local agency with jurisdiction over the property, through consultation, may agree. The electronic copy of the report may also be placed on an agency or organization's web site.

Hist-MM#9: Prepare Historic Structure Reports

The BETP will identify historic properties/historical resources that will be physically altered, damaged, or relocated that will be subject to the HSR. The HSR will be prepared prior to the start of construction. The HSR will follow the general guidelines for such reports as described in the California Office of Historic Preservation (OHP) publication "Historic Structure Report Format" (OHP n.d.). The scope of each HSR will be developed in consultation with the land-owning agencies, and copies of the reports will be provided to the same. The HSR will include, if appropriate, documentation of existing landscaping. The HSRs may be used in the ongoing planning process and re-use of the properties, and may be coordinated with the other mitigation documentation activities, such as HABS/HAER records.

Hist-MM#10: Prepare Interpretive Exhibits

Some historic properties/historical resources may be identified in the BETP for historic interpretation. Interpretive exhibits that will provide information regarding the specific historic property or historical resource. The interpretive exhibits will utilize images, narrative history, drawings, or other material produced for the mitigation described above, including the HABS/HAER reports, NHRP and CRHR nominations, or other archival sources. The interpretive exhibits may be in the form of, but are not necessarily limited to interpretive display panels and/or printed material for dissemination to the public. The interpretive exhibits may be installed at local libraries, historical societies, or public buildings.

All historic properties/historical resources demolished by the project will be the subject of informative permanent metal plaques that will be installed at the site of the demolished historic property, or at nearby public locations. The plaques will provide a brief history of the property, its engineering/architectural features and characteristics, and the reasons for and date of its demolition.

Hist-MM#11: Plan Repair of Inadvertent Damage

The BETP will provide a plan for the repair of inadvertent damage to historic properties/historical resources. The plan will be developed prior to construction to ensure that any damage resulting from the project to any of the historic properties/historical resources near construction activities will be repaired in accordance with the Secretary of the Interior's Standards for Rehabilitation. The HSR, and/or HABS/HAER/HALS recordation will photographically document the condition of historic properties/historical resources prior to the start of construction to establish the baseline condition for assessing damage. A copy of this photographic documentation will be provided to the landowner or land-owning agencies. Prior to implementation, provide the plans for any repairs to historic properties for SHPO review and comment to ensure conformance with the SOI's Standards for Rehabilitation.

C. PALEONTOLOGICAL RESOURCES

Pal-MM#1: Engage Paleontological Resources Specialist to Direct Monitoring during Construction

At least 120 days prior to construction, a paleontological resources specialist (PRS) will be designated for the project. It will be the responsibility of the PRS to determine 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 and implementing the Worker Environmental Awareness Program (WEAP). All management and supervisory personnel and construction workers involved with ground-disturbing activities will be required to take this training prior to beginning work on the project. The PRMs will be provided with the necessary resources to respond in case paleontological resources are found during construction. The PRS will document any discoveries, as needed, evaluate the potential resource, and assess significance of the find under the criteria set forth in CEQA Guidelines Section 15064.5.

Pal-MM#2: Prepare and Implement a Paleontological Resource Monitoring and Mitigation Plan

Paleontological monitoring and mitigation measures will be applied only to those construction-related activities that will result in the disturbance of paleontologically-sensitive sediments. The PRMMP will include a description of preconstruction coordination procedures, 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-related impacts to 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.

Pal-MM#3: 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

A. CULTURAL RESOURCES

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. This would be a substantial adverse effect.

Creating the potential for archaeological deposits to be revealed, exposing them to potential looting, more traffic, and compaction would also be a substantial adverse effect.

Construction effects can result in reduced use of historic structures, which in turn might allow them to deteriorate. These effects can diminish the eligibility of the resources for the NRHP, which is a substantial adverse effect under NEPA.

Material or physical alteration, especially demolition of an NRHP-listed or eligible property would be a substantial adverse effect under NEPA. Alteration of the visual setting when it is part of the property's significance would result in a moderate adverse effect under NEPA. Other permanent effects, such as those that could directly alter the physical integrity, use, or setting of historic architectural resources, also result in moderate to substantial adverse effects and would occur if specific HST alternatives are implemented.

To the extent that visual effects and vibration could degrade the elements that make the resource eligible, these long-term effects would be moderate and adverse.

As discussed in Section 3.17.3 [D], although actions determined to have an adverse effect under NEPA may be mitigated and have a lesser effect, for Section 106 the effect determination remains adverse after mitigation.

B. PALEONTOLOGICAL RESOURCES

Absent appropriate mitigation measures, the destruction of a fossil deposit as a result of construction-related activities could be a significant adverse effect on 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 into a qualified museum. Therefore, mitigation measures Pal-MM#1 through Pal-MM#3 will reduce potential adverse impacts to paleontological resources to a less than significant level. With these measures the resources would be available for subsequent scientific study and educational use, and the values of the resources largely realized. Therefore implementation of mitigation measures Pal-MM#1 through Pal-MM#3 will reduce potential adverse impacts to paleontological resources to a level well below that of significant.

3.17.8 CEQA Significance Conclusions

Table 3.17-10 summarizes cultural- and paleontological-related impacts, associated mitigation measures, and the level of significance after mitigation. After mitigation, impacts related to cultural resources would be significant under CEQA when historic structures are demolished.

Table 3.17-11
Summary of Significant Cultural and Paleontological Impacts and Mitigation Measures

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure	CEQA Level of Significance after Mitigation
Impact CUL-1: Effect on Significant Prehistoric and Historic-Era Archaeological Resources During Construction The HST alternatives would affect archaeological resources as follows: BNSF: 3 Resources; Allensworth Bypass: 1 Resource.	Potentially Significant	Arch-MM#1, Arch-MM#2, Arch-MM#3, Arch-MM#4,	Less than Significant
Impact CUL-2: Effect on Historically Significant Built-Environment Resources During Construction The HST alternatives would affect 27 historic architectural resources.	Significant	Hist-MM#1, Hist-MM#3, Hist-MM#11 _____ Hist-MM#2, Hist-MM#4, Hist-MM#5, Hist-MM#6, Hist-MM#7, Hist-MM#8, Hist-MM#9, Hist-MM#10	Less than Significant Significant and Unavoidable
Impact CUL-3: Effect on Paleontological Resources during Construction The HST alternatives have the potential for significant impacts due to excavations in sediments with high paleontological sensitivity (Table 3.17-8)	Potentially Significant	Pal-MM#1, Pal-MM#2, Pal-MM#3	Less than Significant
Impact CUL-4: Effect on Historically Significant Built-Environment Resources During Operation The HST alternatives would have no adverse effect on properties listed or eligible for the NRHP, nor any substantial adverse change to historical resources.	Less than Significant	Hist-MM#2, Hist-MM#8	n/a

Acronyms and Abbreviations:

CEQA = California Environmental Quality Act of 1970
HST = high-speed train
n/a = not applicable
NRHP = National Register of Historic Places