CALIFORNIA HIGH-SPEED TRAIN

Project Environmental Impact Report / Environmental Impact Statement

DRAFT FINAL
Archaeological Survey Report

Merced to Fresno Section Project EIR/EIS

February 2012

CALIFORNIA
High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration

CALIFORNIA HIGH-SPEED TRAIN PROJECT EIR/EIS

DRAFT FINAL
TECHNICAL REPORT

Merced-to-Fresno Section
Archaeological Survey Report

Prepared by:

California High-Speed Rail Authority and Federal Railroad Administration

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List of Abbreviated Terms

APE	Area of Potential Effects
ASL	above sea level
ASR	Archaeological Survey Report
AU	auger test unit
Authority	California High-Speed Rail Authority
BNSF	Burlington Northern Santa Fe Railway
BRM	bedrock mortar
ca.	circa
CAL	calibrated
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
cmbs	centimeters below surface
CRHR	California Register of Historical Resources
DPR	Department of Parks and Recreation
DPR form	Department of Parks and Recreation 523 Primary Record Form
EIR	environmental impact report
EIS	environmental impact statement
FRA	Federal Railroad Administration
GPS	global positioning system
HMF	heavy maintenance facility
HPSR	Historic Property Survey Report
HST	high-speed train
mph	miles per hour
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NRCS	Natural Resource Conservation Service

NRHP	National Register of Historic Places
PA	programmatic agreement
QI	Qualified Individuals
SHPO	State Historic Preservation Officer
SR	State Route
STP	shovel test probe
TCP	traditional cultural properties
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 Introduction

This report describes work conducted by AECOM to identify and evaluate cultural resources that may be affected by the California High-Speed Train (HST) Project, Merced to Fresno Section. The overall project consists of new rail alignment construction, connecting northern and southern California (Figure 1-1). This particular document focuses on the three alternatives developed for the approximately 60-mile-long corridor between Merced and Fresno. Under the National Environmental Policy Act (NEPA), the Federal Railroad Administration (FRA) is the federal lead agency. As a federal undertaking (defined at 36 CFR Part 800.16[y]), this project must comply with the requirements of the National Historic Preservation Act of 1966 (NHPA) Section 106, as well as California Environmental Quality Act (CEQA).

The California High-Speed Rail Authority (Authority) was established in 1996 and has been authorized to undertake planning for the development of a proposed statewide high-speed train network that is fully coordinated with other public transportation services. In 2005, the Authority and the FRA completed a final Programmatic Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed California High-Speed Train System (referred to in this document as the "statewide program EIR/EIS") as the first phase of a tiered environmental review process. The Authority certified the final program EIR under CEQA and approved the proposed HST system, and the FRA issued a record of decision under NEPA on the federal program EIS. The statewide program EIR/EIS established the purpose and need for the HST system, analyzed an HST system (referred to as the "HST Alternative"), and compared it with the No Project Alternative and the Multimodal Alternative. In approving the statewide program EIR/EIS, the Authority and FRA selected the HST Alternative; recommended certain corridors, general alignments, and general station locations; incorporated mitigation strategies and design practices; and specified further measures to guide the development of the HST system at the site-specific project level of environmental review to avoid and minimize potential adverse environmental impacts.

A *Programatic 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* (PA) for the project was finalized on June 15, 2011. The PA is designed to coordinate all aspects of the cultural resources process and provide a common format for resource identification, documentation, evaluation, mitigation, and consultation for the project as a whole (Appendix B). The provisions of the PA include supervision of archaeological efforts by a professional archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards, conducting consultation with Native Americans and other parties such as local museums and historical societies, defining the Area of Potential Effects (APE), and identifying methods for the identification and evaluation of historic properties. These steps have been followed in the conduct of this investigation to date; however, despite three field sessions (two in 2010 and another in 2011), the lack of access to properties requiring field survey and sites that need to be evaluated for eligibility to the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR) has prevented completion of some of the provisions in the PA as of the date of this report. In the preparation of this Archaeological Survey Report (ASR), archaeologists acting on behalf of the Authority have conducted a pedestrian survey of all acreage within the APE for which legal entry was granted. Figures 3 and 4 in Appendix A show the areas in which pedestrian surveys were conducted. Approximately 26% (1,096 acres) of the UPRR/SR 99 Alternative has been surveyed; 15% (759 acres) of the BNSF Alternative has been surveyed; 20% (851 acres) of the Hybrid Alternative has been surveyed; and 70% (1,239 acres) of the HMFs have been surveyed. It is anticipated that the field inventory will be completed for previously-unsurveyed areas of the APE for the Preferred Alternative only. This work will be completed following adoption of the Preferred Alternative and when legal access has been gained. This document follows the outline and content for the Archaeological Survey Report (ASR) stipulated in Attachment C, Part B of the PA. The Final PA is included as Appendix B of this report.

Figure 1-1
California HST Project Alignment

2.0 Summary of Findings

This report presents the results of a combination of surface inventory, background research, Native American community consultation, field surveys of several previously identified archaeological sites to update conditions at those site locations, identification and recording of newly identified sites, and subsurface testing at selected locations. In preparing this ASR, archaeologists acting on behalf of the Authority, conducted a pedestrian survey of all acreage within the APE for which legal entry was granted (see Figures 3 and 4 in Appendix A for areas in which pedestrian surveys were conducted). It is anticipated that field inventory will be completed for previously-unsurveyed areas of the APE for the Preferred Alternative only. This work will be completed following adoption of the Preferred Alternative and when legal access has been gained. Due primarily to the issue of property access, field investigation to date has focused on the APE along the Union Pacific Railroad (UPRR)/State Route (SR) 99 Alternative, portions of the Burlington Northern Santa Fe (BNSF) Alternative that join or follow the UPRR/SR 99 Alternative, and within affected parcels along each of the alternatives for which access was achieved. Each of the alternatives is presented in detail in Section 3, Project Description, of this document. Because of the HST Project's size and engineering challenges, and because only initial data regarding appurtenant structures and indirect project effects are currently available, it is understood that additional fieldwork will be undertaken as planning becomes more complete. As permitted by Stipulation VI.E of the PA, phased identification of historic properties would occur when the identification of historic properties cannot be completed. In such cases, the completion of a Memorandum of Agreement (MOA), would include provisions for the development and implementation of a post-review identification and evaluation effort. Archival research identified 23 archaeological resources that are located within the 0.5-mile records search area for the Merced to Fresno Section of the HST. Of these, 11 previously recorded archaeological sites are located in, or immediately adjacent to, the APE. The remaining 12 sites are located outside of the APE, but within a 0.5-mile radius of the alternatives. Three newly identified archaeological sites and five archaeologically sensitive areas are also located in or immediately adjacent to the APE. The 19 resources below are those that are located in or immediately adjacent to the APE. The locations of these resources are presented in Appendix A, Figures 1 and 2.

2.1 NRHP-Eligible Resources

The two sites described below, CA-MER-381/H and CA-MER-383, have previously been determined as eligible with State Historic Preservation Officer (SHPO) concurrence (U.S. Department of Transportation et al. 2005) and are discussed in detail in the Historic Property Survey Report (HPSR) as per the PA VI.B.3.i.

CA-MER-381/H – [redacted]. This site, consisting of a prehistoric deposit and the historic remains [redacted], but the testing program carried out there in 2001 (SRI 2002; Becker 2003a) indicates that the prehistoric component of the site likely continues (subsurface) into the APE. Previous archaeological and geomorphological testing included backhoe trenching, hand excavation of test units and intensive surface survey. It has revealed that the Holocene deposits varied from 0.5 to 3.7 meters thick [redacted], and while the prehistoric artifact density was mostly low, artifacts were recovered at more than 2 meters below ground surface. The investigators noted that artifact density appeared to increase as they [redacted]. The Plainsburg/Arboleda Freeway Project Environmental Assessment (U.S. Department of Transportation et al. 2005) evaluated this site, found that it was eligible for listing in the NRHP, and received SHPO concurrence with that finding (Mellon 2003) (Appendix B).

CA-MER-383 – The Wilson Site is a large prehistoric habitation site with Native American burials that may [redacted]. Previous exploration of the site stopped at the [redacted], amidst indications that the site deposit was diminishing; however, it is possible that subsurface exploration would identify site elements extending to the [redacted]. In the late 1970s, an archaeological excavation at the site recovered multiple burials; although orchard

development in the area may have removed much of the surface portion of the site, intact components were found to extend to at least 1.4 meters below surface. Because of the presence of human remains and its data potential, site CA-MER-383 was recommended eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4. The Plainsburg/Arboleda Freeway Project Environmental Assessment (U.S. Department of Transportation et al. 2005) evaluated this site, found that it was eligible for listing in the NRHP, and received SHPO concurrence with that finding (Mellon 2003) (Appendix B).

2.2 NRHP Recommended Not Eligible Resources

Six sites—P-24-000087, CA-MER-359H, CA-MER-360/H, CA-MER-361H, CA-MER-362H, and CA-MAD-2335H—were also identified in the APE during background research, but currently do not appear to contain values or conditions that would make them eligible for listing in either the NRHP or CRHR. These sites are recommended not eligible for NRHP listing due to their lack of integrity, and/or because they lack associations with events or people significant in California or national history; lack the distinctive characteristics of a type, period, or method of construction; do not represent the work of a master or possess high artistic values; and would not yield information important in prehistory or history. Each of these sites is summarized below.

P-24-000087 – This resource is located along [redacted]. When it was recorded in 1993, this site consisted of a [redacted] (JRP 1993). Originally, the property was located between [redacted], and it was subject to seasonal overflows. Levee construction in the 1950s led to reclamation of the land and the eventual establishment of an orchard at the spot. In the 1980s, the surrounding orchard gave way to modern development, leaving the P-24-000087 area open for a soil stockpile. [redacted]. Consequently, it did not appear to be a resource eligible for the NRHP (JRP 1993). While access was not granted for the parcel during the current surveys, it can be seen [redacted].

CA-MER-359H – [redacted]. This archaeological site was recorded in 1999 during a Caltrans survey (Stillman et al. 1999a). At the time of the survey the site included 12 features (privies, wells, trash pits, and concrete foundations), and several privies and wells from an earlier period when several houses located there were part of a brothel and store. The current house standing on the property was moved there in 1970 and is not related to the archaeological deposits. It is not clear whether all of the features can be associated with these earlier uses, but several houses had add-ons including lean-tos, chicken coops, and dog houses. The earliest mapped structures at the site date to 1938, with more buildings added by 1942. The site was abandoned between 1960 and the early 1970s (Stillman et al. 1999a). At the time of the 1999 Caltrans survey, the property owner reported to the archaeological team that, 17 years previously, a long bone was excavated from a privy beneath one of the concrete slabs. The bone was taken to Leon Martinez of the Merced County Housing Authority, who told the owner that the bone was a human arm or leg bone. No written record was made of this, and no human remains were seen by the archaeologists. Caltrans evaluated the site for eligibility for the NRHP and found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:22) with SHPO concurrence (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:22). During the current 2011 survey, while direct access could not be achieved, it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and that the site location now lies entirely within the area of these recently constructed roadways.

CA-MER-360/H – [redacted]. The site has been variously documented as consisting of an existing residence at 3330 Harvard Lane and, either two isolated basalt flakes found on the parcel with residence (Cardiff et al. 1999), or one basalt flake and the residence

(Wilson and Van Bueren 1999). The form filed at the Information Center, however, indicates only the presence of a single basalt flake and categorizes the site as an isolate (Stillman et al. 1999b). The original recorded position of the parcel lies partially within the [redacted]. During the current 2011 survey, direct access to this location could not be achieved. Caltrans evaluated the site for eligibility for the NRHP during the [redacted] Project (also referred to as the [redacted] Project), found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:22-23), and received SHPO concurrence with that finding (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:22-23). Based, therefore, on the results of the previous evaluations, the site is recommended not eligible for inclusion in the NRHP or CRHR.

CA-MER-361H – [redacted]. This resource consisted of [redacted]. When the site was recorded during a survey for Caltrans in 1999, the property formed the backyard of several residences, and it was in use for gardens, chicken coops, and cattle pens (Stillman et al. 1999c). A sparse collection of artifacts was visible in open areas and included amethyst, clear, brown, and green glass; a piece of a medicine bottle; a plate fragment; a sawed bone fragment; and a piece of a clay pot. Caltrans evaluated the site for eligibility for the NRHP and found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:26) with SHPO concurrence (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:26). During the current 2011 survey, while direct access could not be achieved, it was observed that approximately the southern half of the site area, including the entire area that formerly contained the structural remains, has now been graded for the construction of new roadways associated with the expansion of SR 99, and that this portion of the site now lies entirely within the area of these recently constructed roadways.

CA-MER-362H – [redacted]. This resource consisted of the site of a former residence with a house on the property from pre-1935 to at least 1946 and perhaps longer (the building is not depicted on the 1961 U.S. Geological Survey [USGS] quadrangle map). Remains found in a 1999 survey for Caltrans (Stillman et al. 1999d) included five concrete slabs or foundation forms, Mason jar fragments, a ceramic insulator, and a wire milk bottle holder as well as remnant landscaping vegetation. Caltrans evaluated the site for eligibility for the NRHP and found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:26-27) with SHPO concurrence (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:26-27). During the current 2011 survey, while direct access could not be made, it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and the site location now lies entirely within the area of these newly constructed roadways.

CA-MAD-2335H – [redacted]. There were fairly extensive foundations documented in 2001/2002, including those for a signalman's house and a bunk house, plus associated utility lines; a cellar; and debris including ceramics, building rubble, and glass (Gassner et al. 2001; Love and Shaker 2002). The 2002 Department of Parks and Recreation (DPR) form states that the site did not meet the criteria for listing in the NRHP, and that no further work was recommended (Love and Shaker 2002); [redacted] site (identified as Temporary Field No. CRM TECH 727-1H) was determined ineligible with SHPO concurrence on November 26, 2002 (Mellon 2002) (Appendix B).

This site area could not be accessed during the current HST surveys. Based on the results reported by Love and Shaker (2002), the site appears to offer little potential data value.

2.3 Unevaluated Resources

No formal recommendations of NRHP eligibility have been made at this time for the following six sites and five archaeologically sensitive areas due to lack of access and the inability to conduct evaluative testing. However, under the terms of the PA (Stipulation VI.C.1), known resources that cannot be evaluated prior to the approval of the undertaking are presumed NRHP-eligible. The resources are discussed in detail in the HPSR but are briefly summarized here, as follows:

Previously Recorded Sites:

- P-24-001862 – Prehistoric artifact scatter
- CA-MAD-2064H – Historic [redacted] Station location
- CA-MAD-2121H – Historic artifact scatter associated with Chinese railroad labor camp

Newly Identified Sites:

- HST-H-JL-01 - Historic homestead with foundations and artifact scatter
- HST-H-JL-02 - Historic artifact scatter
- HST-H-TC-01 - Historic foundations, trash deposit, and prehistoric artifact scatter

Archaeologically Sensitive Areas:

- [redacted] Site
- [redacted]
- Two potential Native American villages [redacted]
- One potential burial ground

2.3.1 Previously Recorded Sites

Three previously recorded sites were mapped as within, partially within, or immediately adjacent to the APE—P-24-001862, CA-MAD-2064H, and CA-MAD-2121H. These sites are unevaluated but may include data values that make them eligible for listing in the NRHP or CRHR.

2.3.2 Newly Identified Sites

Three newly identified sites—HST-H-JL-01, HST-H-JL-02, and HST-H/P-TC-01—were located within, partially within, or immediately adjacent to the APE during the field survey. These sites all consist of historic artifacts and/or features that appear to be greater than 50 years old. One of these sites, HST-H/P-TC-01, also contains a prehistoric component. These sites are unevaluated but may include data values that make them eligible for listing in the NRHP or CRHR.

2.3.3 Archaeologically Sensitive Areas

During the field inventory, the [redacted] heavy maintenance facility (HMF) property was identified as being sensitive to prehistoric archaeological remains indicated by an isolated prehistoric artifact found [redacted] during the survey. An isolated prehistoric artifact was also found near [redacted] in Madera [redacted]. Neither of these archaeologically sensitive locations could be evaluated for NRHP or CRHR eligibility due to lack of access. While the PA exempts isolated artifact finds from evaluation, the artifacts in question were found in circumstances where buried site deposits could be present. The [redacted] HMF site is [redacted] with the landowner indicating the discovery, in the past, of occasional prehistoric artifacts on his property during earth-disturbing agricultural activities. Therefore, the potential for subsurface (buried) remains exists in this area. The [redacted] location is [redacted], and a recently excavated utility trench was noted to be present near the find, suggesting a possible source for the artifact. Therefore, the potential for subsurface remains exists in this area.

Three archaeologically sensitive areas were also identified during Native American consultation and may be affected by the project, depending on the alignment selected. These include two potential Native American villages [redacted], and a potential burial ground at [redacted]. Survey of the project APE [redacted] produced an isolated prehistoric artifact during the current survey. The village and burial locations have not been officially recorded but are known to Jim Redmoon, Cultural Resources Manager and designated Most Likely Descendant for the Dumna Wo-Wha[1] Tribal Council (Redmoon 2010). While the potential villages may not intersect the project APE, the potential burial ground will be within the APE regardless of which of the three alternatives is selected; each of these sensitive locations appears to be potentially eligible for listing in the NRHP or CRHR for their data potential.

[1] The Dumna Woh-Wah is not a federally recognized tribe.

3.0 Project Description

The purpose of the Merced to Fresno Section of the HST Project is to implement the California HST System between Merced and Fresno, providing the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit systems, and the highway network in the south San Joaquin Valley, and to connect the northern and southern portions of the HST System. The approximately 65-mile-long corridor between Merced and Fresno is an essential part of the statewide HST System. The Merced to Fresno Section is the location where the HST would intersect and connect with the Bay Area and Sacramento branches of the HST System; it would provide a potential location for the HMF where the HSTs would be assembled and maintained, as well as a test track for the trains; it would also provide Merced and Fresno access to a new transportation mode and would contribute to increased mobility throughout California.

3.1 No Project Alternative

The No Project Alternative refers to the projected growth planned for the region through the 2035 time horizon without the HST Project and serves as a basis of comparison for environmental analysis of the HST build alternatives. The No Project Alternative includes planned improvements to the highway, aviation, conventional passenger rail, and freight rail systems in the Merced to Fresno project area. There are many environmental impacts that would result under the No Project Alternative.

3.2 High-Speed Train Alternatives

As shown in Figure 3-1, there are three HST alignment alternatives proposed for the Merced to Fresno Section of the HST System: the UPRR/SR 99 Alternative, which would primarily parallel the UPRR railway; the BNSF Alternative, which would parallel the BNSF railway for a portion of the distance between Merced and Fresno; and the Hybrid Alternative, which combines features of the UPRR/SR 99 and BNSF alternatives. In addition, there is an HST station proposed for both the City of Merced and the City of Fresno, there is a wye connection (see text box on page 3-3) west to the Bay Area, and there are five potential sites for a proposed HMF.

The Authority has identified the Hybrid Alternative as the preferred alternative for the north-south alignment between Merced and Fresno. The Hybrid Alternative would connect to San Jose to the west along one of three wye design options. The San Jose to Merced Section Project EIR/EIS will fully evaluate the east-west alignment alternatives and wye configurations, including the Ave 24 Wye, the Ave 21 Wye, and another wye design option, the SR 152 Wye, which has not been reviewed in this document. A decision regarding the preferred east-west alignment, including the preferred wye design option, will take place after circulation of the San Jose to Merced Section Project EIR/EIS; that decision will finalize the alignment and profile of the Hybrid Alternative. In addition, the Authority has identified the Mariposa Street Station Alternative as the preferred alternative for an HST station in Downtown Fresno.

3.2.1 UPRR/SR 99 Alternative

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

3.2.1.1 North-South Alignment

The north-south alignment of the UPRR/SR 99 Alternative would begin at the HST station in Downtown Merced, located on the west side of the UPRR right-of-way. South of the station and leaving Downtown Merced, the alternative would be at-grade and cross under SR 99. Approaching the City of Chowchilla, the UPRR/SR 99 Alternative has two design options: the East Chowchilla design option, which would pass Chowchilla on the east side of town, and the West Chowchilla design option, which would pass Chowchilla

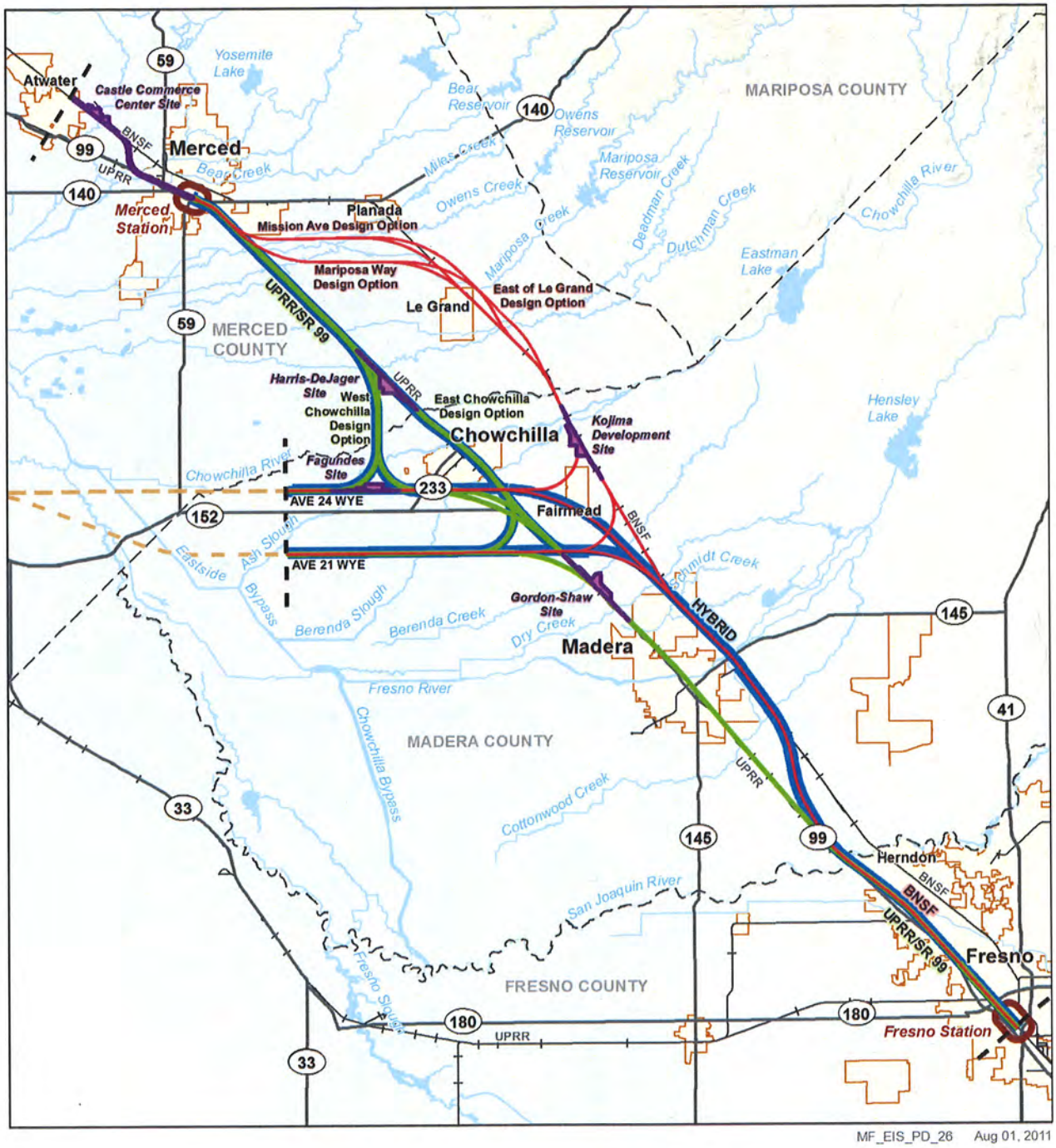


Figure 3-1
Merced to Fresno Section
HST Alternatives

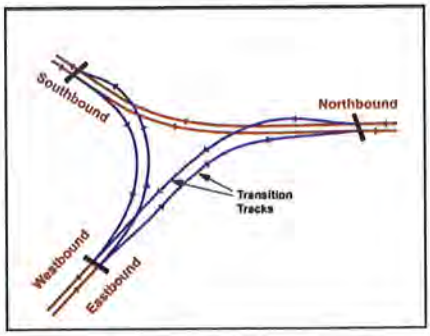
3 to 4 miles west of the city before turning back to rejoin the UPRR/SR 99 transportation corridor. These design options would take the following routes:

- **East Chowchilla design option:** This design option would transition from the west side of the UPRR/SR 99 corridor to an elevated structure as it crosses the UPRR railway and N. Chowchilla Boulevard just north of Avenue 27, continuing on an elevated structure away from the UPRR corridor along the west side of and parallel to SR 99 to cross Berenda Slough. Toward the south side of Chowchilla, this design option would cross over SR 99 north of the SR 99/SR 152 interchange near Avenue 23½ south of Chowchilla. Continuing south on the east side of SR 99 and the UPRR corridor, this design option would remain elevated for 7.1 miles through the communities of Fairmead and Berenda until reaching the Dry Creek Crossing. The East Chowchilla design option connects to the HST sections to the west via either the Ave 24 or Ave 21 wyes (described below).
- **West Chowchilla design option:** This design option would travel due south from Sandy Mush Road north of Chowchilla, following the west side of Road 11¾. The alignment would turn southeast toward the UPRR/SR 99 corridor south of Chowchilla. The West Chowchilla design option would cross over the UPRR and SR 99 east of the Fairmead city limits to again parallel the UPRR/SR 99 corridor. The West Chowchilla design option would result in a net decrease of approximately 13 miles of track for the HST System compared to the East Chowchilla design option and would remain outside the limits of the City of Chowchilla. The West Chowchilla design option connects to the HST sections to the west via the Ave 24 Wye, but not the Ave 21 Wye.

The UPRR/SR 99 Alternative would continue toward Madera along the east side of the UPRR south of Dry Creek and remain on an elevated profile for 8.9 miles through Madera. After crossing over Cottonwood Creek and Avenue 12, the HST alignment would transition to an at-grade profile and continue to be at-grade until north of the San Joaquin River. After the San Joaquin River crossing, the HST alignment would require realignment (a mostly westward shift) of Golden State Boulevard and of a portion of SR 99 to create right-of-way adjacent to the UPRR railroad that would not preclude future expansion of these roadways. After crossing the San Joaquin River, the alternative would rise over the UPRR railway on an elevated guideway, supported by straddle bents, before crossing over the existing Herndon Avenue and again descending into an at-grade profile and continuing west of and parallel to the UPRR right-of-way. After elevating to cross the UPRR railway on the southern bank of the San Joaquin River, south of Herndon Avenue, the alternative would transition from an elevated to an at-grade profile. Traveling south from Golden State Boulevard at-grade, the alternative would cross under the reconstructed Ashlan Avenue and Clinton Avenue overhead structures. Advancing south from Clinton Avenue between Clinton Avenue and Belmont Avenue, the HST guideway would run at-grade adjacent to the western boundary of the UPRR right-of-way and then enter the HST station in Downtown Fresno. The HST guideway would descend in a retained-cut to pass under the San Joaquin Valley Railroad spur line and SR 180, transition back to at-grade before Stanislaus Street, and continue to be at-grade into the station. As part of a station design option, Tulare Street would become either an overpass or undercrossing at the station.

What is a "Wye"?

The word "wye" refers to the "Y"-like formation that is created where train tracks branch off the mainline to continue in different directions. The transition to a wye requires splitting two tracks into four tracks that cross over one another before the wye "legs" can diverge in opposite directions to allow bidirectional travel. For the Merced to Fresno Section of the HST System, the two tracks traveling east-west from the San Jose to Merced Section must become four tracks—a set of two tracks branching to the north and a set of two tracks branching to the south.



3.2.1.2 Wye Design Options

The following text describes the wye connection from the San Jose to Merced Section to the Merced to Fresno Section. There are two variations of the Ave 24 Wye for the UPRR/SR 99 Alternative because of the West Chowchilla design option. The

Ave 21 Wye does not connect to the West Chowchilla design option and therefore does not have a variation.

Ave 24 Wye

The Ave 24 Wye design option would travel along the south side of eastbound Avenue 24 toward the UPRR/SR 99 Alternative and would begin diverging onto two sets of tracks west of Road 11 and west of the City of Chowchilla. Under the East Chowchilla design option, the northbound set of tracks would travel northeast across Road 12, joining the UPRR/SR 99 north-south alignment on the west side of the UPRR right-of-way just north of Sandy Mush Road. Under the West Chowchilla design option, the northbound set of tracks would travel northeast across Road 12 and would join the UPRR/SR 99 north-south alignment just south of Avenue 26. The southbound HST guideway would continue east along Avenue 24, turning south near SR 233 southeast of Chowchilla, crossing SR 99 and the UPRR railway to connect to the UPRR/SR 99 Alternative north-south alignment on the east side of the UPRR near Avenue 21½. Under the West Chowchilla design option, the southbound tracks would turn south near Road 16 south of Chowchilla, crossing SR 99 and the UPRR to connect to the UPRR/SR 99 north-south alignment on the east side of the UPRR adjacent to the city limits of Fairmead.

(a) Ave 24 Wye with the East Chowchilla Design Option

(b) Ave 24 Wye with the West Chowchilla Design Option

Figure 3-2a and b
Ave 24 Wye and Chowchilla Design Options

Figure 3-2a shows the wye alignment for the East Chowchilla design option and Figure 3-2b shows the alignment for the West Chowchilla design option. Together, the figures illustrate the difference in the wye triangle formation for each design option connection. The north-south alignment of the West Chowchilla design option between Merced and Fresno diverges along Avenue 24 onto Road 12, on the north branch of the wye, allowing the HST alternative to avoid traveling through Chowchilla and to avoid constraining the city within the wye triangle.

Ave 21 Wye

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

3.2.1.3 HST Stations

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

Downtown Merced Station

The Downtown Merced Station would be between Martin Luther King Jr. Way to the northwest and G Street to the southeast. The station would be accessible from both sides of the UPRR, but the primary

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

Downtown Fresno Station Alternatives

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

Mariposa Street Station Alternative (Preferred Alternative)

The Mariposa Street Station Alternative is located in Downtown Fresno, less than 0.5 mile east of SR 99. The station would be centered on Mariposa Street and bordered by Fresno Street on the north, Tulare Street on the south, H Street on the east, and G Street on the west. The station building would be approximately 75,000 square feet, with a maximum height of approximately 60 feet. The two-level station would be at-grade, with passenger access provided both east and west of the HST guideway and the UPRR tracks, which would run parallel with one another adjacent to the station. Entrances would be located at both G and H Streets. The eastern entrance would be at the intersection of H Street and Mariposa Street, with platform access provided via the pedestrian overcrossing. The main western entrance would be located at G Street and Mariposa Street.

The majority of station facilities would be located east of the UPRR tracks. The station and associated facilities would occupy approximately 18.5 acres, including 13 acres dedicated to the station, bus transit center, surface parking lots, and kiss-and-ride accommodations. A new intermodal facility would be included in the station footprint on the parcel bordered by Fresno Street to the north, Mariposa Street to the south, Broadway Street to the east, and H Street to the west. The site proposal includes the potential for up to three parking structures occupying a total of 5.5 acres. Two of the three potential parking structures would each sit on 2 acres, and each would have a capacity of approximately 1,500 cars. The third parking structure would have a slightly smaller footprint (1.5 acres), with five levels and a capacity of approximately 1,100 cars. Surface parking lots would provide approximately 300 additional parking spaces.

Kern Street Station Alternative

The Kern Street Station Alternative for the HST station would also be in Downtown Fresno and would be centered on Kern Street between Tulare Street and Inyo Street. This station would include the same components and acreage as the Mariposa Street Station Alternative, but the station would not encroach on the historic Southern Pacific Railroad depot just north of Tulare Street and would not require relocation of existing Greyhound facilities. Two of the three potential parking structures would each sit on 2 acres and each would have a capacity of approximately 1,500 cars. The third structure would have a slightly smaller footprint (1.5 acres) and a capacity of approximately 1,100 cars. Like the Mariposa Street Station Alternative, the majority of station facilities under the Kern Street Station Alternative would be east of the HST tracks.

3.2.2 BNSF Alternative

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

3.2.2.1 North-South Alignment

The north-south alignment of the BNSF Alternative would begin at the proposed Downtown Merced Station. This alternative would remain at-grade through Merced and would cross under SR 99 at the south end of the city. Just south of the interchange at SR 99 and E Childs Avenue, the BNSF Alternative

would cross over SR 99 and UPRR as it begins to curve to the east, crossing over the E Mission Avenue interchange. It would then travel east to the vicinity of Le Grand, where it would turn south and travel adjacent to the BNSF tracks.

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

- **Mission Ave design option:** This design option would turn east to travel along the north side of Mission Avenue at Le Grand and then would elevate through Le Grand adjacent to and along the west side of the BNSF corridor.
- **Mission Ave East of Le Grand design option:** This design option would vary from the Mission Ave design option by traveling approximately 1 mile farther east before turning southeast to cross Santa Fe Avenue and the BNSF tracks south of Mission Avenue. The HST alignment would parallel the BNSF for a 0.5 mile to the east, avoiding the urban limits of Le Grand. This design option would cross Santa Fe Avenue and the BNSF railroad again approximately 0.5 mile north of Marguerite Road and would continue adjacent to the west side of the BNSF corridor.
- **Mariposa Way design option:** This design option would travel 1 mile farther than the Mission Ave design option before crossing SR 99 near Vassar Road and turning east toward Le Grand along the south side of Mariposa Way. East of Simonson Road, the HST alignment would turn to the southeast. Just prior to Savana Road in Le Grand, the HST alignment would transition from at-grade to elevated to pass through Le Grand on a 1.7-mile-long guideway adjacent to and along the west side of the BNSF corridor.
- **Mariposa Way East of Le Grand design option:** This design option would vary from the Mariposa Way design option by traveling approximately 1 mile farther east before turning southeast to cross Santa Fe Avenue and the BNSF tracks less than 0.5 mile south of Mariposa Way. The HST alignment would parallel the BNSF to the east of the railway for 0.5 mile, avoiding the urban limits of Le Grand. This design option would cross Santa Fe Avenue and the BNSF again approximately a 0.5 mile north of Marguerite Road and would continue adjacent to the west side of the BNSF corridor.

Continuing southeast along the west side of the BNSF corridor, the BNSF Alternative would begin to curve just before Plainsburg Road through a predominantly rural and agricultural area. One mile south of Le Grand, the HST alignment would cross Deadman and Dutchman creeks. The alignment would deviate from the BNSF corridor just southeast of S White Rock Road, where it would remain at-grade for another 7 miles, except at the bridge crossings, and would continue on the west side of the BNSF corridor through the community of Sharon. The HST alignment would continue at-grade through the community of Kismet until crossing at Dry Creek. The BNSF Alternative would then continue at-grade through agricultural areas along the west side of the BNSF corridor through the community of Madera Acres north of the City of Madera; in the vicinity of Madera Acres, the HST Project would provide a grade separation of Road 26 and Road 28, which would cross over both the existing BNSF tracks and the new HST guideway. South of Avenue 15 east of Madera, the alignment would transition toward the UPRR corridor, following the east side of the UPRR corridor near Avenue 9 south of Madera, then continuing along nearly the same route as the UPRR/SR 99 Alternative over the San Joaquin River to enter the community of Herndon. After crossing the San Joaquin River, the alignment would be the same as for the UPRR/SR 99 Alternative

3.2.2.2 Wye Design Options

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

Ave 24 Wye

As with the UPRR/SR 99 Alternative, the Ave 24 Wye would follow along the south side of Avenue 24 and would begin diverging into two sets of tracks (i.e., four tracks) beginning west of Road 17. Two tracks

would travel north near Road 20½, where they would join the north-south alignment of the BNSF Alternative on the west side of the BNSF corridor near Avenue 26½. The two southbound tracks would join the BNSF Alternative on the west side of the BNSF corridor south of Avenue 21.

Ave 21 Wye

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

3.2.3 Hybrid Alternative (Preferred Alternative)

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

3.2.3.1 North-South Alignment

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

- In conjunction with the Ave 24 Wye, the HST alignment would veer due south from Sandy Mush Road along a curve and would continue at-grade for 4 miles parallel to and on the west side of Road 11¾. The Hybrid Alternative would then curve to a corridor on the south side of Avenue 24 and would travel parallel for the next 4.3 miles. Along this curve, the southbound HST track would become an elevated structure for approximately 9,000 feet to cross over the Ave 24 Wye connection tracks and Ash Slough, while the northbound HST track would remain at-grade. Continuing east on the south side of Avenue 24, the HST alignment would become identical to the Ave 24 Wye connection for the BNSF Alternative and would follow the alignment of the BNSF Alternative until Madera.
- In conjunction with the Ave 21 Wye connection, the HST alignment would transition from the west side of UPRR and SR 99 to an elevated structure as it crosses the UPRR and N. Chowchilla Boulevard just north of Avenue 27, continuing on an elevated structure along the west side of and parallel to SR 99 away from the UPRR corridor while it crosses Berenda Slough. Toward the south side of Chowchilla, the alignment (with the Ave 21 Wye) would cross over SR 99 north of the SR 99/SR 152 interchange near Avenue 23½ south of Chowchilla. It would continue to follow along the east side of SR 99 until reaching Avenue 21, where it would curve east and run parallel to Avenue 21, briefly. The alignment would then follow a path similar to the Ave 21 Wye connection for the BNSF Alternative, but with a tighter 220 miles per hour (mph) curve. The alternative would then follow the BNSF Alternative alignment until Madera.

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

3.2.3.2 Wye Design Options

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

Ave 24 Wye

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

Ave 21 Wye

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

3.2.4 Heavy Maintenance Facility Alternatives

The Authority is studying five HMF sites (see Figure 3-1) within the Merced to Fresno Section, one of which may be selected. (The sponsor of the Harris-DeJager site withdrew its proposal from the Authority's consideration of potential HMF sites [Kopshever 2011]. However, to remain consistent with previous analysis and provide a basis of comparison among the HMFs, evaluation of the site continues in this document.)

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

4.0 Description of the APE

The APE in this document was designed in accordance with the criteria stipulated in the PA and by 36 CFR 800.16(d), and reflects the configuration of the project alignment alternatives and infrastructure elements as of March, 2011. According to Appendix B of the PA (2011:B-1), for archaeological resources, "an APE is typically established based on an undertaking's potential for direct effects from ground-disturbing activities. On occasion, archaeological sites may also have qualities that could be affected indirectly."

The APE for archaeological properties is the area of ground proposed to be disturbed during construction, operation, and/or maintenance of the undertaking, including grading, cut-and-fill, easements, staging areas, utility relocation, borrow pits, and biological mitigation areas, if any.

"Traditional cultural properties and cultural landscapes are more likely to be subject to indirect, as well as direct, effects, thus the APE for such properties is usually broader than the archaeological APE in order to include the potential for such effects. For instance, the first row of potential properties beyond the right-of-way may be subject to such effects and thus included in an indirect APE when warranted" (2011:B-1).

The original APE for the HST Merced to Fresno Section was approved by the Office of Historic Preservation (OHP) on August 16, 2010. Since that time, the project footprint has evolved, but still remains within the overall corridor examined for potential project effects. The APE for archaeological properties has been revised since the earlier submission as project designs have evolved. The current APE covers all areas of proposed land disturbance and/or acquisition associated with the three project alternatives, the five potential HMF sites, and the proposed station locations and associated parking facilities.

The APE for archaeological properties (Figures 4-1, 4-2, 4-3, and 4-4) extends from a point 4.3 miles northwest of the City of Merced, southeasterly to the City of Fresno, and includes all locations potentially subject to HST project-related ground-disturbing activities associated with the HST alternatives as described below. The APE map meets the scale and detail requirements of the PA Attachment C and is included as an appendix to the ASR.

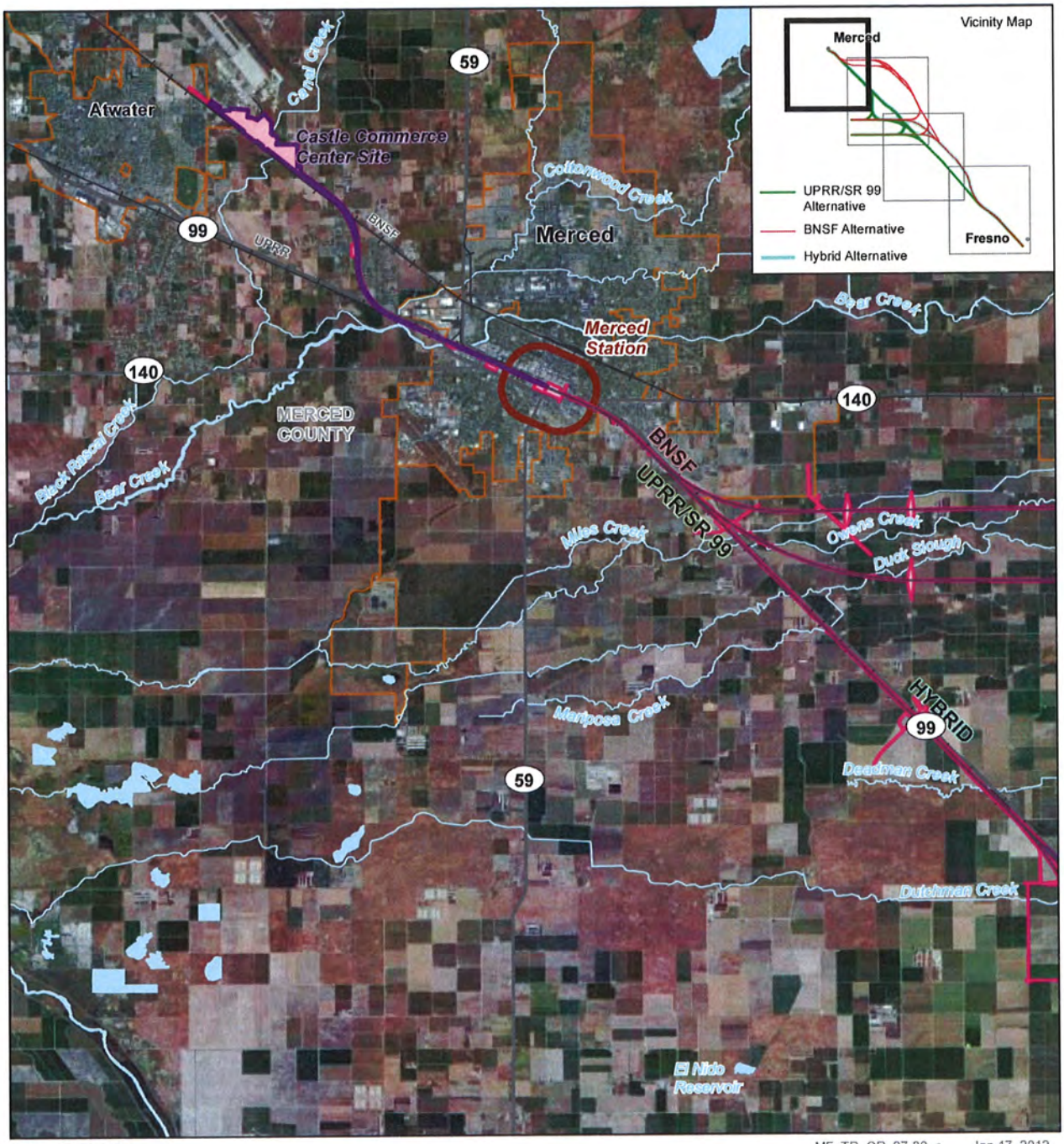
The Horizontal APE for each alternative can generally be described as follows:

- UPRR/SR 99 Alternative alignment primarily follows the existing UPRR corridor, and ranges from 100 feet to 2,500 feet wide, expanding and contracting with anticipated HST project effects, totaling approximately 3,122 acres (Figures 4-1, 4-2, and 4-3). The wider (i.e., 2,500 feet) sections of the APE are to accommodate the proposed HMFs.

- The BNSF Alternative alignment splits from the UPRR tracks south of Merced and then follows the BNSF alignment (and parallels the UPRR tracks roughly 4.5 miles to the east) until it rejoins the UPRR tracks at the Madera/Fresno county line. The APE along this alternative is much narrower, ranging from 150 feet to 300 feet wide and totals approximately 3,328 acres.

- The Hybrid Alternative is a combination of elements of the UPRR/SR 99 Alternative and the BNSF Alternative, and follows the UPRR/SR 99 Alternative from the northern terminus of the segment south (and to the west of) Chowchilla. It then traverses eastward to follow the BNSF Alternative south to the southernmost terminus, totally approximately 2,175 acres. The APE along this alternative is also a blend of widths, ranging from 100 feet to 2,500 feet, depending upon project element (e.g., construction staging areas, access or temporary roads, detours, etc.).

Vertical APE: The vertical impacts associated with the HST alternatives are not known with great specificity at this time and the "vertical" APE will be modified as that information becomes available. That said, the majority of the impacts will be near-surface, i.e., to a depth of less than 6 feet. This is not the case, however, for elevated sections of the corridor, where it is assumed that supporting columns for elevated trackage (or road crossovers) will have the potential to penetrate the entire soil column of



Source: ESRI (2009).

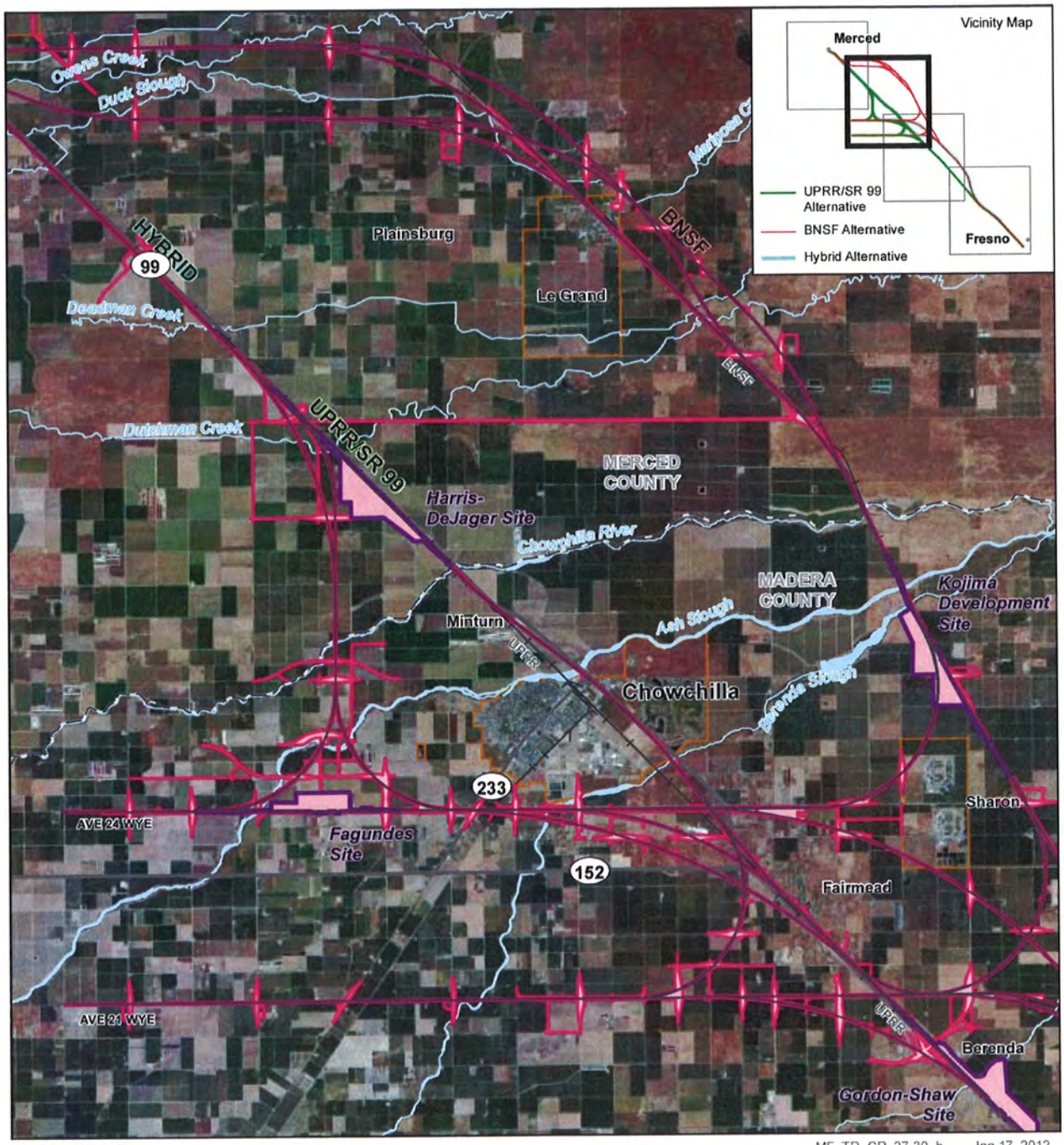
MF_TR_CR_27-30_a Jan 17, 2012

N

0 2.5
Miles

- HST Alignment
- Archaeological APE/Property Acquisition Footprint
- Potential Heavy Maintenance Facility
- Station Study Area
- City Limit
- County Boundary
- Railroad

Figure 4-1
APE, Merced Area



Source: ESRI (2009).

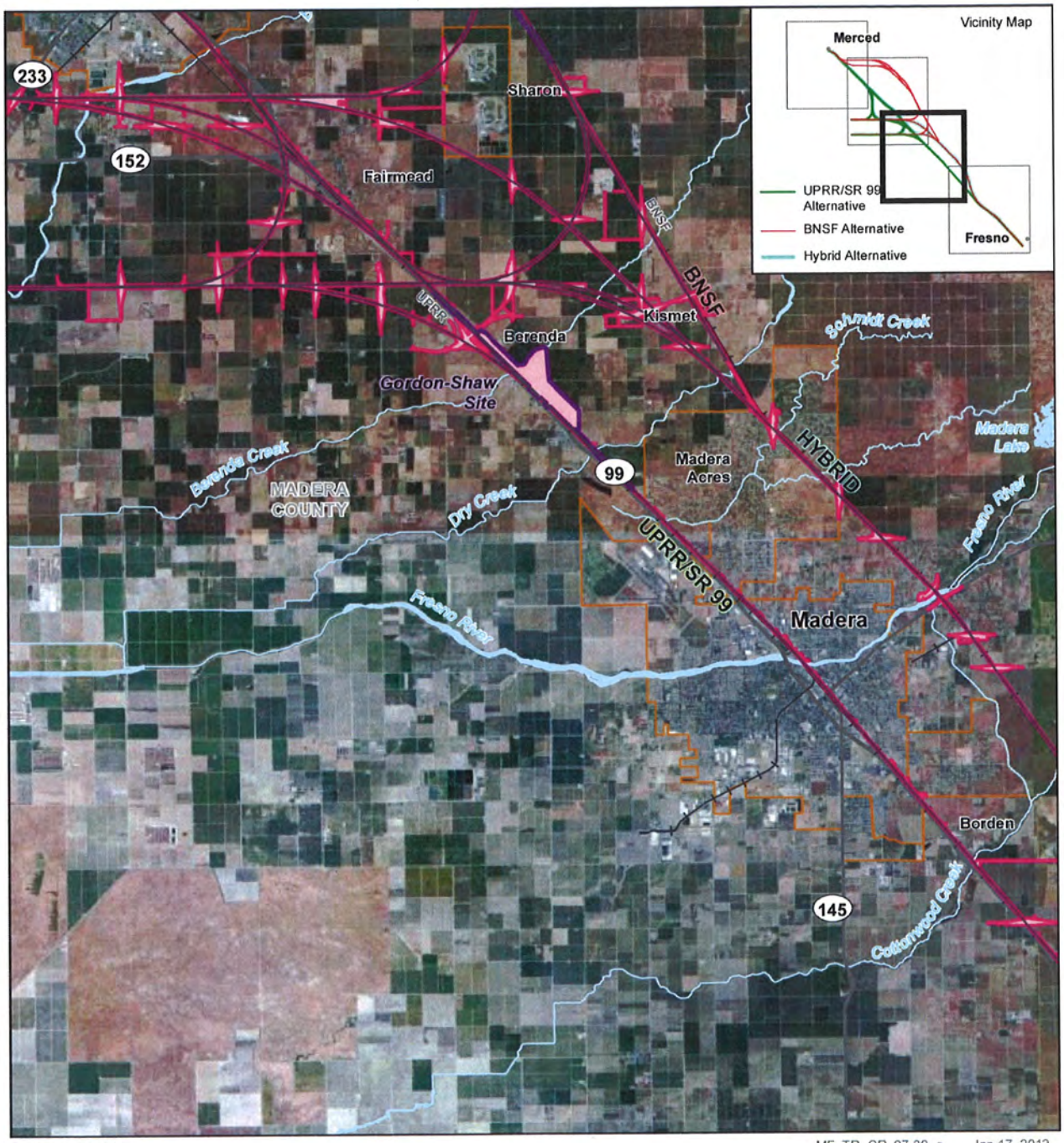
MF_TR_CR_27-30_b Jan 17, 2012

N

0 2.5
Miles

- HST Alignment
- Archaeological APE/Property Acquisition Footprint
- Potential Heavy Maintenance Facility
- Station Study Area
- City Limit
- County Boundary
- Railroad

Figure 4-2
APE, Chowchilla Area



Source: ESRI (2009).

MF_TR_CR_27-30_c Jan 17, 2012

N

0 2.5

Miles

- HST Alignment
- Archaeological APE/Property Acquisition Footprint
- Potential Heavy Maintenance Facility
- Station Study Area
- City Limit
- County Boundary
- Railroad

Figure 4-3
APE, Madera Area

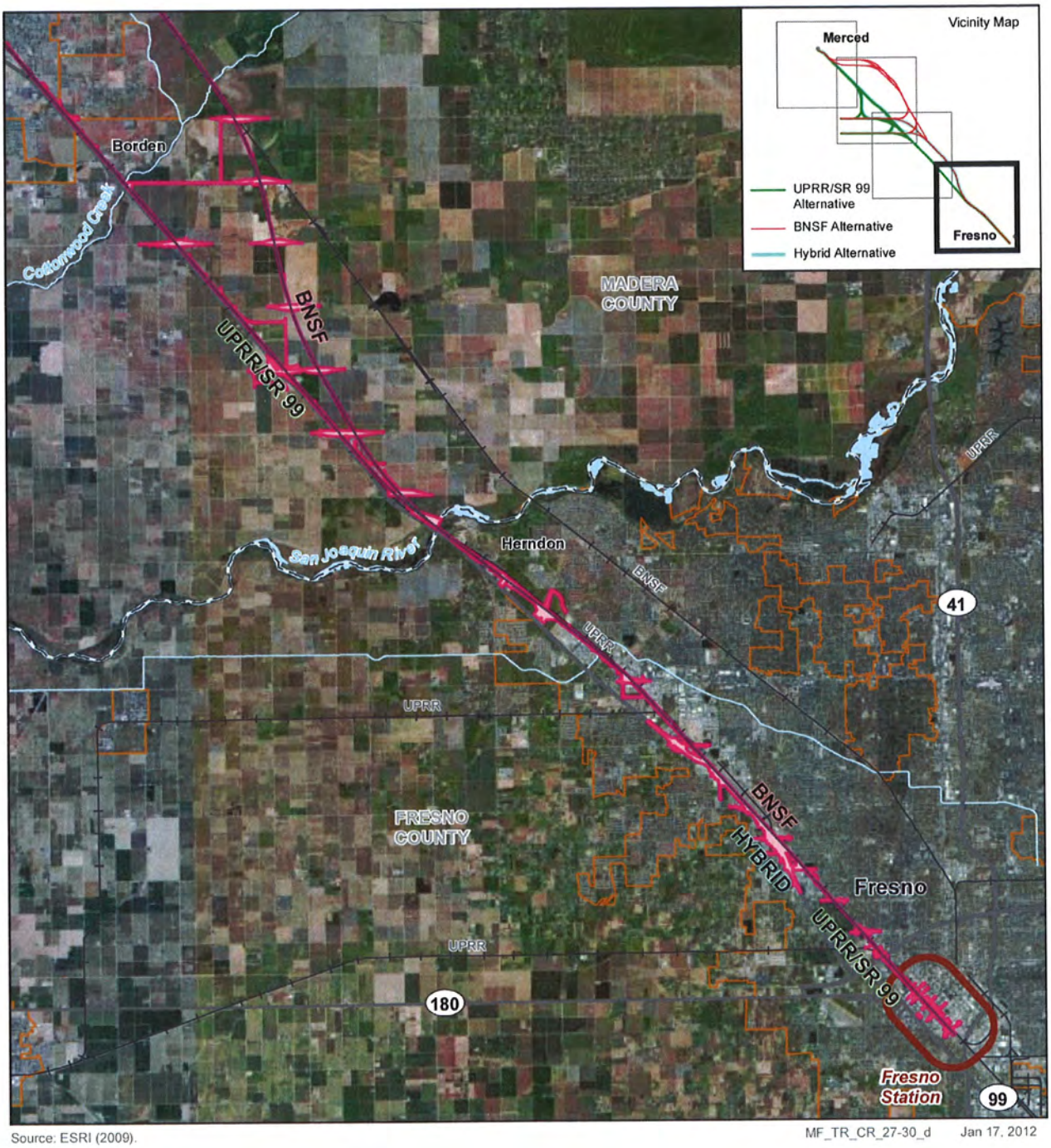


Figure 4-4
APE, Fresno Area

Holocene alluvium, which may have the potential to contain archaeological deposits. Detailed studies to determine the depth of Holocene deposits have yet to be conducted, but based on previous geoarchaeological studies conducted in the area; they may be as deep as 10 meters (Moratto 1984:214). To a lesser extent, the installation of catenary poles has the potential to disturb any deeply-buried artifact that may be present in the APE.

Information on the size and depth of the footings for these poles is not currently known, but will be incorporated into the APE once design has advanced to a point where the extent of ground disturbance is known. It is assumed that these poles would extend through most, if not all, of the Holocene soils to reach a solid base.

Construction staging areas, access road, temporary roads or detour roads, and other elements of the project with the potential to disturb or affect existing land surfaces will also be added to the APE as details of those features and the horizontal and vertical extent of their effects become known. The horizontal extent of these areas will depend on their specific uses, but it is anticipated that vertical impacts may extend only a couple of feet beneath the current ground surface.

The APE coverage for this technical report for the Merced to Fresno Section analysis extends only to Amador Street in Downtown Fresno. The ASR for the Fresno to Bakersfield Section discusses the resources from Amador Street to and including the Fresno Station (Authority and FRA 2011). This separation avoids redundancy in the technical analyses needed for formal Section 106 compliance.

5.0 Summary of Identification Effort

This section describes the methods used to identify cultural resources in the HST project APE to satisfy the relevant statutory and regulatory framework. The methodology is consistent with state and federal standards, and was developed to meet the requirements of CEQA, Section 106, and the PA for the project (Appendix B). In the preparation of this ASR, archaeologists acting on behalf of the Authority conducted a pedestrian survey of all acreage within the APE for which legal entry was granted (Figures 3 and 4 in Appendix A). It is anticipated that field inventory will be completed for previously-unsurveyed areas of the APE for the Preferred Alternative only. This work will be completed following adoption of the Preferred Alternative and when legal access has been gained.

Under terms of the PA (and as specified in Attachment D to the PA), the following properties are exempt from evaluation, based on professional judgment of Qualified Individuals (QIs) qualified in the area of archaeology:

- Isolated prehistoric finds consisting of fewer than three items per 100 square meters.
- Isolated historic finds consisting of fewer than three items per 100 square meters (e.g., several fragments from a single glass bottle are one artifact).
- Refuse scatters less than 50 years old (scatters containing no material that can be dated with certainty as older than 50 years old).
- Features less than 50 years old (those known to be less than 50 years old through map research, inscribed dates, etc.).
- Isolated refuse dumps and scatters over 50 years old that lack specific associations.
- Isolated mining prospect pits.
- Placer mining features with no associated structural remains or archaeological deposits.
- Foundations and mapped locations of buildings or structures more than 50 years old with few or no associated artifacts or ecofacts, and with no potential for subsurface archaeological deposits.
- Building and structural ruins and foundations less than 50 years old.

The overall cultural resources inventory effort will necessarily be completed in phases, when access to private lands within the APE is acquired and as the APE is refined. Under the PA (Stipulation VI.E), a phased identification may occur in situations where identification of historic properties cannot be completed. In these cases, subsequent Memoranda of Agreement will provide a provision for the development and implementation of a post-review identification and evaluation effort.

The HST project investigation included multiple records searches at two California Historical Resources Information System (CHRIS) centers and at the California Department of Transportation (Caltrans), as well as a review of historic Sanborn Company fire insurance maps and other historic maps. After the results of the records searches were obtained, a pedestrian inventory of accessible portions of the APE for the various alignments was performed in 2010 and 2011, regardless of whether the area had been inventoried previously. Archaeologists walked transects parallel to the APE, over areas with variable surface visibility. A brief shovel testing/auger program was undertaken in 2010 at several drainage crossings along the UPRR/SR 99 Alternative to look for cultural deposits no greater than 6 feet beneath the current ground surface. Most of the shovel testing was conducted on the UPRR/SR 99 Alternative due to lack of access to private properties along the BNSF Alternative; the results are documented in Section 5.3.1, Shovel Test and Auger Results, below.

5.1 Background Research

5.1.1 Literature Search

The HST project investigation included multiple records searches at two CHRIS centers; on April 22, 2009, and January 26, 2011, at the Central California Information Center for Merced County and the Southern San Joaquin Valley Information Center; on May 7, 2009, November 30, 2009, January 25, 2010, and January 27, 2011, for Madera and Fresno counties, as well as at Caltrans District 6 offices[2] in Fresno on May 21, 2010, and again on May 26, 2010, to examine records of road improvement projects along SR 99 and connectors within the HST project APE. DPR site record forms with new and updated information for these previously identified sites are provided in Appendix C. The records searches included a 0.5-mile radius around each of the alternatives, the wyes, and the HMF sites.

In addition to the site and studies plot base maps and site form records at the CHRIS information centers, the following sources of information at the centers were consulted as part of the records searches:

- *National Register of Historic Places–Listed Properties* (2007)
- *California Register of Historical Resources–Listed Properties* (2007)
- *California Inventory of Historical Resources* (1976 and updates)
- *California State Historical Landmarks* (1996 and updates)
- *The Survey of Surveys* (1989)
- Government Land Office maps
- *California Points of Historical Interest* (1992 and updates)
- The State Office of Historic Preservation's *Directory of Properties–Historical Resources Inventory* (2009)
- Historical USGS Maps
- Sanborn Historical Maps

The records searches by the CHRIS centers indicated that more than 105 cultural resources studies have been conducted within a 0.5-mile radius buffer of the project APE. More than 130 other cultural resource studies have also been performed within the project corridor. Reports from those previous studies regarding archaeological resources in the APE are included in Table 5-1.

Table 5-1
Reports for Previous Studies Conducted within the APE and within 0.5 Mile of the APE

Report Title	Author	Date
Merced County		
Archaeological Field Reconnaissance of the La Branza Water District	Varner, D.M.	1975
Final Report on the Archaeological Reconnaissance of the Merced County Streams Project, California	Clewlow, C.W. Jr.	1976
Archaeological Survey of the Planada Water Treatment Plant	Napton, L.K., and E.A. Greathouse	1977
Cultural Resources Survey of Santa Fe Drive Between Buhach Road and Highway 59 in Merced County, California	Napton, L.K.	1980

[2] Caltrans District 6 has environmental responsibility for several counties. District 10 includes Merced County and District 6 includes Madera County and Fresno County.

Report Title	Author	Date
Archaeological Survey Report for Two Proposed Bridge Widening Projects and One Bridge Improvement Project in Merced County, California	Swenson, L	1980
Merced County Streams Project, California: Intensive Cultural Resources Survey (Downstream Channel Improvements)	Peak and Associates, Inc	1982
Cultural Resources Investigation of the Alfarata Ranch, Merced County, California	Napton, L.K.	1989
Cultural Resource Evaluation of Three Parcels of Land Proposed for Cellular Telephone Facilities, Merced and Madera Counties, California	Archeo-Tec	1990
An Archaeological Survey of the Proposed Sunrise Terrace #2 Subdivision Near Planada in Merced County, California	Dougherty, J.W., and R. Werner	1991
Negative Archaeological Survey Report for a Proposed Bridge Replacement Project, Arboleda Drive at Duck Slough, Merced County, California	Napton, L.K.	1991
Negative Archaeological Survey Report; 10-Merced, 99 P.M. 0.01/1/8-316941	Page, S.	1991
Cultural Resources Investigation for the Proposed New Century Park and New Century Estates, Merced County, California	Syda, K.	1991
Historical Property Survey Report and Negative Archaeological Survey Report for a Proposed Bridge Replacement and Road Realignment Project, Avenue Two at Canal Creek, Merced County, California	Napton, L.K.	1992
Historical Property Survey Report and Negative Archaeological Survey Report for a Proposed Bridge Replacement and Road Realignment Project, Avenue Two at Canal Creek, Merced County, California (Phase Two)	Napton, L.K.	1992
Archaeological Investigations of Castle Air Force Base, Merced County, California	Earth Tech	1994
Architectural and Historic Evaluation of World War II-Era Facilities, Castle Air Force Base, Merced County, California	Earth Tech	1994
Cultural Resources Investigations of the Proposed 359-Acre Weaver Area Annexation/Master Planned Community Project in Merced County, California	Napton, L.K.	1994
Intensive Phase I and Phase II Archaeological Investigation of Castle Air Force Base, Merced County, California	Earth Tech	1995
Class I Overview - Santa Fe Pacific Pipeline Partners, L.P.; Proposed Concord to Colton Pipeline Project	Self, W., and Associates	1995
Archaeological Inventory Survey; Tracy to Fresno Longhaul Fiberoptics Data Transmission Line, Portions of Fresno, Madera, Merced, Stanislaus, and San Joaquin Counties, California	Jenson, Peter	1996
Le Grand Community Services District Sewer Collections System Project	Ananian, B., and C. Rice	1997
Cultural Resource Investigation of the Proposed Merced Irrigation District, Atwater-Merced 115kV Loop, Merced County, California	Napton, L.K.	1997

Report Title	Author	Date
Cultural Resources Investigations of the Proposed Merced Irrigation District, Atwater-Merced 115-kV Loop, Merced County, California - Addendum 1: Cultural Resources Investigations Along Revised Atwater-Merced Routes, Color Press Substation Addendum	Napton, L.K.	1997
Initial Study/Proposed Negative Declaration for the Le Grand Community Services District Wastewater Treatment Plant Sewer Collection Improvements, Merced County, California	Valley Planning Consultants, Inc.	1997
Historic Resource Evaluation Report-Livingston Canal, Merced Irrigation District, Merced County, California	Byrd, D.S.	1998
Historic Property Survey Report: Mission Interchange Project, 10-MER-99, K.P. 16.9/20.1, P.M. 10.5/12.5, 10-363100	Caltrans	1999
Archaeological Survey Report for the Proposed [redacted] Merced County (10-363100)	Cardiff, D., et al.	1999
Historic Architectural Survey Report and Historic Resource Evaluation Report for [redacted], Merced, Merced County, California	Eastman, B., and J. Hupp	1999
Department of Transportation Negative Archaeological Survey Report - Third Supplemental, 10-MER-99, P.M. 10.5/12.5, K.P. 16.9/20.1, EA 10-363100	Laylander, D.	1999
Department of Transportation Negative Archaeological Survey Report.- First Supplement; 10-MER-99, P.M. 10.5/12.5, E.A. 10-363100	Laylander, D., and B.A. Silva	1999
Department of Transportation Negative Archaeological Survey Report - Second Supplement, 10-MER-99, P.M. 10.5/12.5, E.A. 10-363100	Laylander, Don	1999
An Archaeological Survey Report for a Proposed Rehabilitation of State Route 140 Between Highway 99 and the Mariposa County Line, Merced County, California	Pierce, W.N.	1999
Historical Study Report for the [redacted] in Merced, Merced County, California	Wilson, Kelda, and Thad M. Van Bueren	1999
Department of Transportation Negative Archaeological Survey Report - Fourth Supplement: 10-MER-99, P.M. 10.5/12.5, K.P. 16.9/20.1, EA 10-363100	Laylander, Don	2000
Cultural Resource Survey for the Level (3) Communications Long Haul Fiber Optic Project; Segment WS04: Sacramento to Bakersfield	Nelson, W.J.	2000
Historical Cultural Resource Assessment. Existing Telecommunications Facility, Site No. CV-504-03, 1392 Healy Rd., Merced Co., California	Pastron, A.G.	2000
Supplemental Historic Resources Evaluation Report for [redacted], Merced, Merced County, California, 10-MER-99, P.M. 10.5/12.5, 10-363100	Welch, L.	2000

Report Title	Author	Date
Completion of Fieldwork Letter Report for Extended Phase I and Phase II Investigations at the Wilson Site (MER-99-1) Merced 99 Freeway Conversion, EA 10-415700	Becker, Kenneth	2001
Historic Resources Evaluation Report Ten Canals of the Merced Irrigation District Campus Parkway Project Merced County, CA	JRP Historical Consulting Services	2001
Archaeological Investigations for Tower Modifications at 34 Cell Tower Sites	Nadolski, J.A.	2001
Archaeological Survey Report - Addendum 1, Merced Campus Parkway (Draft Technical Report, Federal Aid Project #RPHP21L-0484[001])	URS Corporation	2001
Archaeological Survey Report, Merced Campus Parkway (Draft Technical Report, Federal Aid Project #RPHP21L-0484[001])	URS Corporation	2001
Historic Study Report for CA-MER-381/H the [redacted] (CA-MER-381)	Bischoff, M.C. and T. Majewski	2002
Historic Property Survey Report, 10-MER-Henry Street. P.M. 12.37, EA 10-363101; Henry Street Rehabilitation	Brady, J., and D. Lanner	2003
Cultural Resources Assessment for an Industrial Park Site, City of Merced, Merced County, California	Peak and Associates, Inc	2004
Revised Finding of Effect: Merced 99/Plainsburg-Arboleda Freeway Project	Caltrans	2005
A Cultural and Paleontological Resources Study for Eight KB Home Projects, Stanislaus, Merced, Madera, and Tulare Counties, CA	Kaptain, N., and B. Matzen	2005
Collocation ("CO") Submission Packet, FCC Form 621, Crown Castle International Motel Drive Tower, EXI 2006-064, Merced County, California	Vecker, H.G.	2005
Request for SHPO Review of FCC Undertaking FRSNCAMD002 (USID #42575), 3550 B Street, Castle Air Force Base, Atwater, CA	Bonner, W.H.	2006
Archaeological Inventory for the Merced Irrigation District Bellevue Substation and Transmission Line, Merced County, California	Byrd, B.F., and M. Darcangelo	2006
Cultural Resources Survey for the Willow Creek Specific Plan/EIR, City of Atwater, Merced County, California	Nettles, W.	2006
Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California	SWCA Environmental Consultants	2006
Atwater Federal Penitentiary Access Road Improvements	URS Corporation	2006
Collocation ("CO") Submission Packet FCC Form 621 Project Name: McKee & Santa Fe, Project Number; SAC-390A	Billat, L.	2007
Archaeological Survey Report for the Atwater-Merced Expressway Project, Merced County, California	Byrd, B.F. et al.	2007
A Cultural Resource Study for the Planada Community Service District, Merced County, California	Varner, D.M.	2007
An Archival Study to Identify Potential Cultural Resources Located in the City of Atwater General Plan and Program EIR Project Area, Merced County, CA	Holman, M., and R. Hellmann	2008

Report Title	Author	Date
Cultural Resources Survey for the Wilson-Oro Loma 115-kV Transmission Line Reconducting Project, Merced County, California	Monastero, A. P., and M. C. Baloan	2008
Phase I Cultural Resources Assessment Merced Gateway East Project city of Merced, Merced County, California	Wills, C. D.	2008
Department of Water Resources Archaeological Survey Report, San Joaquin Flood Protection 2009 Project	Schmid, T. and J. Offarman	2009
Madera County		
Final Report of Archaeological Reconnaissance on the Fresno River, Ash Slough, and Berenda Slough, San Joaquin Valley, California	Nissley, C.A., G.L. Fenenga, and Wilke, P.J.	1975
Cultural Resource Reconnaissance for the Ogo Apartment Site, Madera County	Crist, M.K.	1981
Negative Archaeological Survey Report for a Proposed Road Widening Project on Route 145 (P.M. 7.56 to 7.95)	O'Connor, Denise	1981
Cultural Resource Reconnaissance for the Trigo Industrial Park EIR, Madera County, California	Crist, M.K.	1982
Negative Archaeological Survey Report for a Proposed Bridge Modification Project; Bridge #41-45	McManus, J.	1986
Cultural Resources Investigations for the Madera County Women's Prison Project, Madera County, California	Chavez, D.	1987
Cultural Resource Assessment of the Chowchilla Terrace Apartments, Madera County, California	Peak and Associates, Inc	1988
Negative Archaeological Survey Report for a Proposed AC Overlay, Pavement Recycling, and Minor Road Widening on Route 145 in Madera between Fig Ave., and the ATSF Railroad Overcrossing	Weigal, Larry	1988
Archaeological Survey of a Portion of the Proposed Madera County Prison, Fairmead, Madera County, California	Werner, Roger H.	1988
A Cultural Resources Investigation of the Fairmead Landfill Expansion Project, Madera County, California	Werner, Roger H.	1988
Cultural Resource Investigation of the Eastside Annexation Area, 1370 Acres in Chowchilla, Madera County, California	Napton, L.K.	1989
Cultural Resource Investigation of the Proposed Residential Development of 150 Acres in Chowchilla, Madera County, California	Napton, L.K.	1989
Negative Archaeological Survey Report for a Proposed Bridge Replacement Project; Bridge #41-01L, Bridge #41-01 R	Riley, L.	1989
Cultural Resource Evaluation for the Fairmead Colony Acres in the City of Chowchilla, County of Madera	Archaeological Resource Management	1991
Cultural Resource Evaluation for the River Ridge Estates in the City of Fresno, County of Madera	Archaeological Resource Management	1991
Cultural Resources Investigations of the CCSI-Madera, Inc. Materials Recovery Facility Project Sites A and B, Approximately 60 Acres in Chowchilla and Fairmead, Madera County, California	Napton, L.K.	1991

Report Title	Author	Date
Negative Archaeological Survey Report for a Proposed Rehabilitation of a Section of Eastbound Route 152 from Merced County Line to post mile 15.6 in Western Madera County	Osborne, R.	1994
First Supplemental Negative Archaeological Survey Report for a Proposed Bridge Replacement Project; Bridge #41-04 R	Osborne, R.	1994
Combined Archaeological Survey Report and Historical Study Report for a Proposed Realignment of State Route 99 at Berenda, Madera County, California	Van Bueren, T.M. and D. Clement	1994
Cultural Resources Inventory Report for the Proposed Mojave Northward Expansion Project	Hatoff, B. et al	1995
An Archaeological Survey of the Weldon Property; 11 Ave. Road 30, Madera County, C.U.P. #94-25	Wren, Donald G.	1995
Letter Report for Archaeological Surface Reconnaissance of the Fairmead Sewer Improvement Project	Ananian, B.	1996
Negative Archaeological Survey Report for a Proposed Fresno-Tracy Fiberoptics Data Transmission Line. CALTRANS' Right-Of-Way at Six State Highway Crossings	Jenson, Peter	1996
An Archaeological Assessment Within Portions of the Lower San Joaquin Levee District and the Madera County Flood Control and Water Conservation Levees, Merced and Madera Counties, California	Shapiro, W.	1997
Cultural Resources Assessment of Pacific Bell Mobile Services Facility CV-509-03, Madera, Madera County, California	Applied Earth Works, Inc	1998
Cultural Resources Assessment of Pacific Bell Mobile Services Facility CV-507-01, Madera, Madera County, California	Applied Earth Works, Inc	1998
Negative Archaeological Survey Report for a Proposed Median Barrier on a Portion of State Route 99 near Berenda in Southwest Madera County	Binning, J.D.	1999
Negative Archaeological Survey Report for a Proposed Rehabilitation of a Section of State Route 99 between the San Joaquin River and Cottonwood Creek in Southern Madera County	Laylander, Don	1999
Negative Archaeological Survey Report for Proposed Traffic Surveillance Stations along Interstate 5,State Route 41, and State Route 99 in Madera and Fresno Counties	Jeanne Day Binning	1998
Lease of Several Vacant Parcels for a New Main Post Office in the City of Chowchilla, Madera County	Abeyta, D.	2000
Historic Resources Evaluation Report and Historic Architectural Survey Report for Fairmead Freeway Conversion State Route 99, Madera County	Hattersley-Drayton, K.	2000
Archaeological Survey Report [redacted] Private Railroad Crossing Closure, MP 1025.9, Burlington Northern Santa Fe Railway, Madera County, California	Love, B., and B. Tang	2001
An Archaeological Survey Madera County Solid Waste Facilities Project	Wren, Donald G.	2002

Report Title	Author	Date
A Cultural Resource Study: A Resurvey of Land, APN 026-130-017 & 026-130-013, Chowchilla, California	Wren, Donald G.	2003
Inventory Property Located at 5574 Avenue 22 1/2, Chowchilla, California (Madera County)	Zerger, D.G.	2003
Cultural Resources Technical Report, Ash Slough Management, City of Chowchilla, FEMA-1267-DR-CA, HMGP #1267-447-008	Dexter, S.D.	2004
Cultural Resources Assessment for Cingular Wireless Services Facility, Chowchilla, Madera County, California (#CC-543-02)	Jones, K.	2004
Cultural Resources Survey for the Village at Chowchilla, Madera County, California	Lloyd, J.B., and R. Baloain	2004
Letter Report for Cultural Resource Assessment for the North Madera Cell Tower, Project CC-544-02	Pacific Legacy, Inc	2004
New Tower ("NT") Submission Packet FCC Form 620	Cunneen, M.	2005
Archaeological Survey of the Proposed DT Chowchilla Cingular Wireless Cell Site (FS-540-01), Madera County, California	Jones, K.	2005
New Tower ("NT") Submission Packet FCC Form 620; Project #36301462.01462	Maushardt, P.	2005
New Tower ("NT") Submission Packet FCC Form 620; Project #FAT-052C	Metzler, V.A.	2005
New Tower ("NT") Submission Packet FCC Form 620; Project No. FCC050610H	Valerie Metzler	2005
New Tower ("NT") Submission Packet FCC Form 620; Project No. FCC057021F	Valerie Metzler	2005
A Cultural Resources Survey for the 916.81-Acre Creekside Land Company Parcel, Avenue 9 at State Route 99, Madera County, California	Roper, K.C.	2006
SHPO Request for Review of the Nextel Communications Wireless Telecommunications Service Facility, Madera County	Billat, L.	2001
New Tower ("NT") Submission Packet FCC Form 620	Michael Brandman Associates	2005
Fresno County		
Archaeological Assessment of Cultural Resources - Mid-Valley Canal Project in Fresno, Tulare, Merced, Madera, and Kings Counties, California	Cultural Resources Section State Department of Parks and Recreation	1975
Archaeological Reconnaissance of the Helms Project Transmission Line and the Construction Facilities	Wren, Donald G.	1976
Archaeological Field Reconnaissance Report Summary for the Herndon Substation Area, Fresno and Madera Counties, California	Pacific Gas & Electric Co.	1979
Cultural Resources Survey for Central Unified School District, Adult School, Fresno County, California	Paoli, M. and Associates	1991
Supplemental Historic Architectural Survey Report / Historic Property Survey Report for Highway Construction in the City and County of Fresno, California	Pavlik, R.C.	1995

Report Title	Author	Date
Cultural Resources Survey Report for Level (3) Long Haul Fiber Optic Project: WS04 Connection to Fresno 3R Facility, in the City of Fresno, Fresno County, California	Mason, R.D.	2000
A Cultural Resource Study of the Riverfront Ventures Property, in the City of Fresno, Fresno County, California	Varner, D.M.	2005
Cultural Resources Assessment - Riverfront Ventures LLC Tract 5358 Fresno, City of Fresno, Fresno County, CA	Busby, C.I.	2006
A Cultural Resources Survey for the Bella Serra Residential / Commercial Development, Herndon, Fresno County, California	Roper, K.C.	2007

5.1.1.1 Previously Recorded Sites in the Area of Potential Effects

A review of site records showed that 11 sites have been previously recorded in or near the APE within the footprints of the UPRR/SR 99, BNSF, and Hybrid alternatives, wyes, and HMFs (see Appendix A, Figure 1). Because a preferred alternative has not yet been selected, and because project design has not been completed, it is not possible to fully determine which sites may be affected by the HST project. Table 5-2 lists the 11 previously recorded sites, by alternative, identifying those sites that represent potential NRHP- or CRHR-eligible resources. An overview of each of the 11 previously recorded sites within or adjacent to the APE is presented below. Site record forms for each of these resources are presented in Appendix C.

Table 5-2
Previously Recorded Cultural Resources within or adjacent to the High-Speed Train Project's Area of Potential Effects

Resource	Description	Eligibility for NRHP or CRHR	Alternative			HMF (Heavy Maintenance Facility
			UPRR/ SR 99	BNSF	Hybrid	
Merced County						
P-24-000087	Historic-era earthen mound	Not eligible Destroyed	X			
P-24-001862	Lithic scatter	Potentially eligible				[redacted]
P-24-000602 (CA-MER-359H)	Remains of residence, former brothel and store	Not eligible Destroyed		X		
P-24-000603 (CA-MER-360/H)*	Residence/ Isolated prehistoric artifact find	Not eligible		X		
P-24-000604 (CA-MER-361H)	Multiple Family Property circa 1914–1950s	Not eligible Destroyed		X		
P-24-000605 (CA-MER-362H)	Five concrete foundation	Not eligible Destroyed		X		

Resource	Description	Eligibility for NRHP or CRHR	Alternative			HMF (Heavy Maintenance Facility
			UPRR/ SR 99	BNSF	Hybrid	
	features with associated construction debris					
P-24-001676 (CA-MER-381/H)*	Prehistoric artifact deposit/[redacted]	Eligible	X		X	
P-24-001686 (CA-MER-383*)	Large prehistoric habitation site with burials	Eligible	X		X	
Madera County						
P-20-002064 (CA-MAD-2064H)	[redacted] Station	Potentially eligible	X			
P-20-002122 (CA-MAD-2121H)	Artifact scatter assoc. w/ Chinese RR labor camp	Potentially eligible	X			
P-20-002428 (CA-MAD-2335H)	Archaeological vestiges of [redacted] Station	Recommended not eligible		X		

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

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

P-24-000087

[redacted]. This site, when recorded in 1993, was a large earthen borrow mound (JRP 1993). Originally, the property was located [redacted], and was subject to seasonal overflows. Levee construction in the 1950s led to reclamation of the land and the eventual establishment of an orchard at the spot. In the 1980s, the surrounding orchard gave way to modern development, leaving the P-24-000087 area open for a soil stockpile. The original recorders indicated that the mound was a modern feature created since 1976 and was in the process of being removed for use as fill elsewhere for construction purposes. Consequently, it did not appear to be a resource eligible for the NRHP (JRP 1993).

P-24-001862

[redacted] This site consists of prehistoric artifacts discovered in a plowed field by the property owner since approximately 1997. Artifacts include a pestle, bowl mortars, and a battered cobble. Far Western Anthropological Research Group, Inc. (Far Western) archaeologists who investigated the field during a pedestrian survey in 2007 did not identify any additional artifacts (Byrd and Waechter

2007; Darcangelo 2007). [redacted]. The site is unevaluated.

P-24-001676 (CA-MER-381/H)

[redacted]. CA-MER-381/H includes prehistoric elements and historic remnants [redacted], identified during earlier surveys focused to the [redacted]. The historic remnants consist of numerous structural features and refuse deposits containing a variety of artifacts and faunal remains. The prehistoric element consists of both moderate-density and low-density areas containing flaked stone (including obsidian), ground stone tools, and abundant faunal remains including both bone and marine shell fish remains. Twelve backhoe trenches were excavated during an extended Phase I, which included geomorphological and archaeological data (SRI 2002, Becker 2003a). Site stratigraphy consisted of Holocene stream channel deposits incised into older Pleistocene deposits. Holocene material had been spread over the general area, resulting in artifacts being found in farm fields and roadbeds [redacted]). Additional work was recommended, and additional excavation and geoarchaeological trenches were excavated during a Phase II investigation that included hand-excavated units and intensive surface survey and mapping efforts (SRI 2002, Becker 2003a). Archaeologists found that the Holocene deposits varied from 0.5 to 3.7 meters thick [redacted]. The letter report prepared for the project stated that "infilling of this channel appears to have been moderately rapid and uninterrupted by periods of significant down-cutting, suggesting that intact occupation surfaces may be present," as well as pointing out that field leveling over time had dispersed Holocene sediments as well as Pleistocene material, which might cap intact Holocene deposits. The investigators noted that artifact density appeared to increase as they got closer to SR 99 and stated that the site probably extended below the highway. Although the prehistoric artifact density was mostly low, artifacts were recovered at more than 2 meters below ground surface. The site was evaluated during the Plainsburg/Arboleda Freeway Project Environmental Assessment (U.S. Department of Transportation et al. 2005), found eligible for listing in the NRHP under Criterion D, and received SHPO concurrence with that finding (Appendix B).

P-24-001686 (CA-MER-383)

The Wilson Site is a large prehistoric habitation site with Native American burials [redacted]. The site was recorded in a location on the [redacted] (Johnston 2001). Previous archaeological exploration of the site [redacted], amidst indications that the site deposit was tapering off; however, it is possible that subsurface exploration would identify site elements extending [redacted]. In the late 1970s, an archaeological excavation at the site recovered multiple burials; although orchard development in the area may have removed much of the surface portion of the site, intact components were found to extend to at least 1.4 meters below surface. Work done for Caltrans in 2001 included the excavation of multiple trenches and test units in and around the Wilson Site, but again, the work focused on the northeast side of SR 99; the site record form acknowledged that the site boundaries are unknown (Johnston 2001). The site boundary indicated by SRI extends up to the [redacted] (SRI 2001:5; Becker 2003b). Because of the presence of human remains and its data potential, site CA-MER-383 was recommended eligible for listing in the NRHP under Criterion D or the CRHR under Criterion 4. The site was evaluated during the Plainsburg/Arboleda Freeway Project Environmental Assessment (U.S. Department of Transportation et al. 2005), found eligible for listing in the NRHP under Criterion D, and received SHPO concurrence with that finding (Appendix B).

P-24-000602 (CA-MER-359H)

[redacted]. At the time of the survey the site included 12 features (privies, wells, trash pits, and concrete foundations), and several privies and wells from an

earlier period when several houses located there were part of a brothel and store. The current house standing on the property was moved there in 1970 and is not related to the archaeological deposits. It is not clear whether all of the features can be associated with these earlier uses, but several houses had add-ons including lean-tos, chicken coops, and dog houses. The earliest mapped structures at the site date to 1938, with more buildings added by 1942. The site was abandoned between 1960 and the early 1970s (Stillman et al. 1999a). At the time of the 1999 Caltrans survey, the property owner reported to the archaeological team that 17 years previously, a long bone was excavated from a privy beneath one of the concrete slabs. The bone was taken to Leon Martinez of the Merced County Housing Authority, who told the owner that the bone was a human arm or leg bone. No written record was made of this, and no human remains were seen by the archaeologists. The site was evaluated during the Mission Interchange Project (Caltrans 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000) (Appendix B). The area of this site has now been graded for new roadways associated with the interchange construction as part of the expansion of SR 99.

P-24-000603 (CA-MER-360/H)

This site, as originally recorded, consisted of an existing residence and parcel of land where two isolated basalt flakes were found (Cardiff et al. 1999). The form filed at the Information Center, however, indicates only the presence of a single basalt flake (Stillman et al. 1999b). The original recorded position of the parcel [redacted]. The site was evaluated during the Mission Interchange Project (Caltrans 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000) (Appendix B).

P-24-000604 (CA-MER-361H)

[redacted]. When the site was recorded during a survey for Caltrans in 1999, the property formed the backyard of several residences, and it was in use for gardens, chicken coops, and cattle pens (Stillman et al. 1999c). A sparse collection of artifacts was visible in open areas and included amethyst, clear, brown, and green glass; a piece of a medicine bottle; a plate fragment; a sawed bone fragment; and a piece of a clay pot. The site was evaluated during the Mission Interchange Project (Caltrans 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000) (Appendix B). The area of this site has now been graded for new roadways associated with the interchange construction as part of the expansion of SR 99.

P-24-000605 (CA-MER-362H)

[redacted]. It consisted of the site of a former residence with a house on the property from pre-1935 to at least 1946 and perhaps longer (the building is not depicted on the 1961 USGS quadrangle map). Remains found in a 1999 survey for Caltrans included five concrete slabs or foundation forms, Mason jar fragments, a ceramic insulator, and a wire milk bottle holder as well as remnant landscaping vegetation (Stillman et al. 1999d). The site was evaluated during the Mission Interchange Project (Caltrans 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000) (Appendix B). The area of this site has now been graded for new roadways associated with the interchange construction as part of the expansion of SR 99.

P-20-002064 (CA-MAD-2064H)

[redacted]. It consists of the archaeological vestiges of the [redacted] Station, a rail depot [redacted] (Van Bueren and Comeyne 1993). When documented in 1993, the site covered approximately 70 acres with six planted nonnative trees and nine archaeological features: five building foundations, two demolished structures, and two moderately dense concentrations of cultural material (amethyst glass; creamware ceramics; porcelain stoneware;

buttons; marbles; slag; brick fragments; and clear, cobalt, aqua, and olive-green glass shards). This site has not yet been evaluated for the CRHP and NRHP.

P-20-002122 (CA-MAD-2121H)

P-20-002122 (CA-MAD-2121H) is a highly disturbed artifact scatter related to a Chinese railroad labor camp (Waechter et al. 1993); [redacted]. The artifacts appear to have been displaced when improvements to the current railroad berm were undertaken. Soils were borrowed from each side of the original berm to increase the width and height of the new berm; labor camp deposits were included in the borrow material and were either incorporated into the new berm or scattered throughout the adjacent field. Based on temporal diagnostic material within the artifact scatter, the site dates to circa (ca.) the 1860s to 1870s. Items recovered by Far Western in 1993 included bottle fragments of amethyst glass, Chinese porcelain bowl fragments (peach and fungus pattern), and numerous fragments of Min Gei brownware (soy vessels, tiger jars, and food containers) (Waechter et al. 1993). This site has not yet been evaluated for the CRHP and NRHP.

P-20-002428 (CA-MAD-2335H)

This site, recorded in 2001 and 2002, consists of the remains of the [redacted] Station along the [redacted] Railroad, established in 1896. [redacted]. There were fairly extensive foundations documented in 2001/2002, including those for a signalman's house and a bunk house, plus associated utility lines; a cellar; and debris including ceramics, building rubble, and glass. A note on the 2002 DPR form and a subsequent ASR report state that the site did not meet the criteria for listing in the NRHP, and that no further work was recommended (Love and Shaker 2002; Love and Tang 2002). SHPO concurred that the [redacted] Station site was ineligible with SHPO in 2002 (Mellon 2002).

5.1.1.2 Previously Recorded Cultural Resources within 0.5-Mile Radius of the Alternatives

The review of site records showed that 12 cultural resources are located within a 0.5-mile radius of the centerline of all of the alternatives, and therefore, may be affected by the HST Project if the APE shifts sufficiently. Table 5-3 lists these 12 resources. An overview of these 12 previously recorded resources within 0.5-mile radius of the centerline is presented below. If the APE changes, any sites that may fall within or adjacent to the revised APE will be investigated in greater detail and effort.

Table 5-3
Previously Recorded Cultural Resources Outside the APE within 0.5-Mile Radius of an Alternative

Trinomial and/or Primary Number	Resource Description	Resource Condition	NRHP/CRHR Eligibility Status	Recorded by and Year
Merced County				
P-24-000230 (CA-MER-140)	Isolated artifact find	Poor	Unknown	Peak and Gerry 1975a
P-24-000232 (CA-MER-142)	Prehistoric tool scatter	Unknown	Unknown	Peak and Gerry 1975b
P-24-000593 (CA-MER-350H)	Concrete slabs	Poor	Not Eligible	Stillman and Mills 1999a (Caltrans)
P-24-000594 (CA-MER-351H)	Four concrete pads	Fair	Not Eligible	Cardiff and Levy 1999 (Caltrans)

Trinomial and/or Primary Number	Resource Description	Resource Condition	NRHP/CRHR Eligibility Status	Recorded by and Year
P-24-000595 (CA-MER-352H)	Historic: foundation, trash-filled cistern, and palm tree	Poor	Not Eligible	Mills and Stillman 1999 (Caltrans)
P-24-000597 (CA-MER-354H)	Farmstead, burger stand	Poor	Not Eligible	Stillman and Mills 1999b (Caltrans)
P-24-000599 (CA-MER-356)	Lithic scatter – basalt	Poor	Not Eligible	Mills, Stillman, and Cardiff 1999 (Caltrans)
Madera County				
P-20-000349 (CA-MAD-349)	Prehistoric artifact scatter (mortars, pestles, projectile points)	Reported Destroyed	Unknown	Fenenga and Nissley 1975
P-20-002367 (CA-MAD-2297H)	Historic cabin location	Poor	Unknown	Haney and Chick 2000
P-20-002496 (CA-2379H)	Francis Cavin residence location	Poor	Unknown	Kelly and Kaptain 2001
Fresno County				
P-10-005648 (CA-FRE-3424H)	Historic quarry	Poor	Not eligible	Lanner 2007
P-10-004702 (CA-FRE-3195H)	Historic debris scatter ca. mid-late 1900s	Poor	Not Eligible	Medin et al. 2001 (Caltrans)

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

P-24-000230 (CA-MER-140)

This find was an isolated cobble mano, found in a field that had been graded level for agricultural uses (Peak and Gerry 1975a). No evidence was found indicating that evaluation of this resource has occurred.

P-24-000232 (CA-MER-142)

This prehistoric tool scatter is located on the [redacted] and consists of one shaped sub-rectangular mano, and two cobble manos (Peak and Gerry 1975b). No evidence was found indicating that evaluation of this resource has occurred.

P-24-000593 (CA-MER-350H)

This site consisted of two concrete slabs with a sparse collection of modern debris. A 1938 Caltrans map (Stillman and Mills 1999a) shows the property owned by [redacted] and depicts a residence, tank house and shed, and orchards. The property was still intact when the Merced USGS quadrangle map was updated in 1961. The site was evaluated during the Caltrans [redacted]) (Caltrans 1999; Wilson and Van Bueren 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000).

P-24-000594 (CA-MER-351H)

This site consisted of four concrete foundation pads and associated walkways, with several piles of concrete debris gathered up by bulldozer. Artifacts noted included green-glazed earthenware, brown and green glass shards, a milk glass shard, iron pipe, tire pieces, PVC pipe, linoleum, and glazed tiles. The original site record from 1999 noted that the debris post-dated 1945 (Cardiff and Levy 1999). The site was evaluated during the [redacted] Project (also referred to as the [redacted] Project) (Caltrans 1999; Wilson and Van Bueren 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000).

P-24-000595 (CA-MER-352H)

When recorded in 1999, this site consisted of a heavily disturbed area that had been used for staging road construction materials as well as a modern trash dump. Caltrans 1938 "As Built" plans indicated the presence of an auto court owned by [redacted]; at that time, the property included two gas pumps, a hydrant, a house, a pigeon house, and a detached restroom. By 1946 (Mills and Stillman 1999), five houses were on the property, but by 1961, only one house remained. Remnants of a former residence still at the site included exotic vegetation, a historic foundation depression with a partial foundation wall, a concrete stairway with an associated trash-filled cistern, and a palm tree. Artifacts included green and clear glass, milk glass, a rusted kerosene can, barbed wire, and assorted pieces of steel pipe. The site was evaluated during the [redacted] Project (also referred to as the [redacted] Project) (Caltrans 1999; Wilson and Van Bueren 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000).

P-24-000597 (CA-MER-354H)

This site included several components, such as a [redacted] which may or may not be related. Modern use as a parking lot, truck staging area, and illegal trash dump has left the site in poor condition. Five features have been recorded, including a light post, a rectangular concrete slab, asphalt, three aligned circular concrete slabs, and a [redacted] sign. A house was depicted on USGS quadrangle maps as early as 1914, owned by the [redacted] family (Stillman and Mills 1999b). A [redacted] at this location was noted on the property in the 1950s and 1960s. The site was evaluated during the Caltrans [redacted] Project (also referred to as the [redacted] Project) (Caltrans 1999; Wilson and Van Bueren 1999), found not eligible for listing in the NRHP, and received SHPO concurrence with that finding (Abeyta 2000).

P-24-000599 (CA-MER-356)

This site consisted of two basalt flakes, one found in a plowed field and the other on the [redacted] (Mills et al. 1999). The site was evaluated as an isolate during the [redacted] Project (also referred to as the [redacted] Project) (Caltrans 1999; Wilson and Van Bueren 1999), and as such was found not eligible for listing in the NRHP. As an isolate, no SHPO concurrence was required.

P-20-000349 (CA-MAD-349)

[redacted] The site was briefly documented in 1975, when archaeologists identified prehistoric artifacts scattered over a large area (approximately 1,500 meters by 500 meters) on the [redacted]. It was noted that at least the upper portions of the site have been disturbed by agricultural activities. Artifacts found included portable mortars, pestles, metate fragments, an acorn anvil, and an obsidian projectile point (Fenenga and Nissley 1975). Other than the description by the original recorders of the site as "largely destroyed by 40 or more years of leveling" (Fenenga and Nissley 1975), no evidence was found indicating that an official evaluation of this resource has occurred.

P-20-002367 (CA-MAD-2297H)

This site was the location of a cabin built in 1915 and demolished in 1971 (Haney and Chick 2000). All that remains now are piles of broken concrete, portions of a concrete foundation, glass and ceramic fragments, metal fragments, and modern debris. Archaeologists who documented the site noted that historic materials were visible in rodent burrows, suggesting that a subsurface deposit might be present at the site (Haney and Chick 2000). No evidence was found indicating that an official evaluation of this resource has occurred.

P-20-002496 (CA-MAD-2379H)

This site consists of the remains of the [redacted] residence and includes areas of construction debris, concrete slabs, utility poles, rusted automobile parts, bricks, asphalt shingles, culvert and irrigation pipe fragments, and other modern debris (Kelly and Kaptain 2001). Preparers of the original California DPR site record forms in 2001 noted that the site had been effectively destroyed (Kelly and Kaptain 2001). No evidence was found, however, indicating that an official evaluation of this resource has occurred.

P-10-005648 (CA-FRE-3424H)

CA-FRE-3424H is the [redacted] site, and is situated at the [redacted]; features and artifacts were found at the base of human-made soil mounds, created by the [redacted] (Lanner 2007). Features included subsurface oil tanks, a vehicle weight scale, and a support structure as well as hundreds of glass bottle fragments, milled lumber, iron piping, nuts and bolts, broken concrete, rebar, and terra cotta pipe fragments. The quarry was in operation from at least 1937 until the 1960s, and was later demolished. According to the site record form, the site has little or no potential to add to a greater understanding of California history; archival research would suffice for a determination of NRHP or CRHR eligibility (Lanner 2007).

P-10-004702 (CA-FRE-3195H)

This was the site of a residence built in 1948 and subsequently demolished; the irregular landscape indicates that heavy machinery was used to clear the property. Remnants of the occupation visible during a 2001 Caltrans survey included ornamental vegetation; well pump; shingles; and a scatter of late 19th to early 20th century artifacts including modern bottle glass, PVC pipe, tile, ceramics, concrete, milk glass, and aqua glass (Medin et al. 2001). The original recorders noted that the site did not appear to retain archaeological research value because of the period of occupation, and insufficient volume and integrity of artifacts and features. The DPR form states that the site does not appear to retain any archaeological research value, and that the site did not have sufficient data potential or integrity to address any important research questions (Medin et al. 2001); there was no reference in the SHPO files of concurrence with this recommendation.

5.1.2 Historical Institution Consultation

In addition to the records search, appropriate historical societies and museums were also consulted including the following:

- Clovis-Big Dry Creek Historical Society, in the Clovis Museum
- Fresno Art Museum
- Fresno City and County Historical Society
- Gustine Museum
- Kearney Mansion Museum
- Madera County Historical Society
- Merced County Historical Society and Merced County Courthouse Museum
- Society for California Archaeology Department of Anthropology, California State University, Fresno

Initial letters were sent to these institutions in 2009 (follow-up call in February, 2010). Supplemental letters were sent in July 2010 (follow-up call in August, 2010). No responses were received.

5.1.3 Historic Map Analysis

Historic USGS maps were examined including 7.5 minute maps from 1918, 1920, 1923, 1961, 1962, and 1963, as well as aerials from 1961. A review of historic Sanborn Company fire insurance maps was also conducted in March 2011 to identify areas where previously unrecorded historic-era archaeological resources might be found. These maps generally focus on higher density areas, so within the current HST APE, maps were available for Merced, Madera, Fresno, and Chowchilla. Maps for Fresno, Madera, and Merced begin in the late 19th century, while the Chowchilla records begin a few decades later in the early 20th century. The map coverage was not 100%, and not all dates were available. These maps were visually compared to the California HST APE. As shown in Table 5-4, the Sanborn map review indicates that several buildings or structures were once present within the project APE. Although current survey efforts did not reveal any surface remnants of resources indicated on the Sanborn maps, this information can be used to assess the potential for historic resources to be located within the project area, and will provide a more accurate assessment of possible locations for subsurface testing in urban settings.

Table 5-4
Results of Sanborn Insurance Map Review

Town	Map Year	Sheet Numbers	General Location of APE Intersect	Type of Development Depicted	Potential Associated Property Types
Merced	Jan. 1885	1, 2	N St to M St between 17th / Main and 14th Streets	Commercial, Multiple dwellings and Animal Stables	Commercial, Domestic
Merced	May 1888	5, 8, 9, 10	Q St to J St between 17th / Main and 14th Streets	Multiple dwellings and Animal Stables, Commercial, Hotel, Adjacent to large Chinese community ("China Town"), Pythian Castle (Lodge)	Transportation, Domestic, Commercial, Lodging
Merced	Aug. 1891	8-9, 12	Q St to J St between 17th / Main and 14th Streets	Multiple dwellings, Animal Stables, Hotel, Pythian Castle, Commercial, Passenger depot	Transportation, Domestic, Lodging, Commercial
Merced	May 1898	9-10, 14-15	Q St to J St between 17th and 14th Streets	Multiple dwellings and Animal Stables, Commercial, Pythian Castle (Lodge), Hotels, Passenger depot, Park, "Female Boarding" buildings	Transportation, Domestic, Commercial, Lodging
Merced	Oct. 1907	6, 14, 16-17	Q St to J St between 17th and 14th Streets	Multiple dwellings, Commercial, Pythian Castle (Lodge), S.P.P.R. passenger depot, Numerous "Female Boarding" buildings	Transportation, Domestic, Commercial
Merced	Apr. 1922	16-19, 23-24, 27	R St to J St between 17th and 14th Streets	Multiple dwellings, Industrial, Commercial, Hotel, Railroad depot, Pythian Castle (Lodge)	Transportation, Domestic, Industrial, Commercial, Lodgings

Town	Map Year	Sheet Numbers	General Location of APE Intersect	Type of Development Depicted	Potential Associated Property Types
Merced	Apr. 1922 to May 1950	16-18,23-24, 27, 31	R St to C St between 17th and 14th Streets	Multiple dwellings, Industrial, Commercial, Auto Camp, Hotel	Transportation, Domestic, Industrial, Commercial, Lodging
Chowchilla	July 1914	None	NA	NA	NA
Chowchilla	June 1923	2	Along the State Highway between the State Highway and Front St	Railroad Infrastructure, Commercial, Industrial, Dwellings, Highway	Transportation, Commercial, Industrial, Domestic
Chowchilla	June 1923 to May 1934	2	Along the State Highway between the State Highway and Front St	Railroad Infrastructure, Commercial, Industrial, Highway	Transportation, Commercial, Industrial
Madera	May 1888	1-2, 4	3rd St to 7th St between D and F Streets (S.P.R.R. Right-of-Way)	Railroad Infrastructure, S.P.R.R. depot, Industrial, Multiple dwellings and Animal Stables, Hotel, Commercial	Transportation, Industrial, Commercial, Lodging, Domestic
Madera	Aug. 1891	3-6	2nd Street to 7th Street between D and F Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, S.P.R.R. freight and passenger depot, Multiple dwellings and Animal Stables, Presbyterian Church, Commercial, Hotel, Industrial	Transportation, Domestic, Commercial, Lodging, Industrial
Madera	May 1898	5-8	Central Ave to 7th St between D and F Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, S.P.R.R. freight and passenger depot, Multiple dwellings and Animal Stables, Commercial, Hotel, Industrial	Transportation, Domestic, Lodging, Commercial, Industrial
Madera	Mar. 1912	5, 9, 13	Central Avenue to 6th Street between E and F Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, Industrial, S.P.R.R. passenger and freight depot, Dwellings, Commercial (Billiards)	Transportation, Industrial, Domestic, Commercial
Madera	Nov. 1929	7-19	E. Central Ave to Olive Ave between North and South D St and North and South F St (S.P.R.R. Right-of-Way)	Railroad infrastructure, Industrial, Multiple dwellings, Commercial, Concrete bridge, Hotel, S.P.R.R. station passenger depot, "Mexican" dwellings	Transportation, Industrial, Domestic, Commercial, Lodging
Madera	Nov. 1929 to Jun.1950	7-19	E. Central Ave to Olive Ave between North and South D St and North and South F St (S.P.R.R. Right-of-Way)	Railroad infrastructure, Industrial, Multiple dwellings, Commercial, Concrete bridge, Hotel, S.P.R.R. station passenger depot, "Mexican" dwellings	Transportation, Industrial, Domestic, Commercial, Lodging

Town	Map Year	Sheet Numbers	General Location of APE Intersect	Type of Development Depicted	Potential Associated Property Types
Fresno	Jan. 1885	4, 5	Fresno St to Kern St, between G and H Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, food related warehouses and a lumber yard	Transportation, Industrial
Fresno	Jul. 1885	4, 5	Fresno St to Kern St, between G and H Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, food related warehouses and a lumber yard	Transportation, Industrial
Fresno	May 1888	14, 15, 16	Fresno St to Ventura St, between G and H Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, food related warehouses and lumber yard	Transportation, Industrial, Commercial, Domestic
Fresno	1898	11-18	El Dorado St (Trinity St) to San Benito St between G and H Streets (S.P.R.R. Right-of-way)	R.R. Reservation includes Railroad infrastructure, "Chinese" structures, Industrial, S.P.R.R. passenger and hotel depot, Warehouses	Transportation, Domestic, Industrial, Commercial, Lodging
Fresno	1906	21-28, 32	Voorman Ave to San Benito St between G and H Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, Multiple Dwellings, Industrial, R. R. Reservation, "Chinese" structures, S.P.R.R. Passenger depot, Wells Fargo bank (formerly hotel depot), plaza with Chamber of Commerce Exhibit and Office, Warehouses	Transportation, Industrial, Domestic, Lodging, Commercial
Fresno	1918 to 1919 (Vol. 1, 1918)	55, 57-64	Intersection of Roosevelt Ave and Divisadero St to San Benito St between G and H Streets (S.P.R.R. Right-of-Way)	Railroad infrastructure, Industrial, Commercial, Dwellings, S.P.R.R. Co.'s "Bunk Houses", S.P.R.R. Passenger depot, Wells Fargo bank (formerly hotel depot), plaza with Chamber of Commerce Exhibit and Office, Warehouses	Transportation, Industrial, Commercial, Domestic
Fresno	1918 to 1919 (Vol. 2, 1919)	202, 261	Divisadero St to Belmont Ave between Park Blvd and Pacific Ave	Railroad Infrastructure, Multiple dwellings, Commercial, Industrial	Transportation, Commercial, Domestic, Industrial
Fresno	1918 to Jan. 1948 (1918 to Jan. 1948 Vol. 1)	55, 57-64	Divisadero St to San Benito St between G and H Streets (S.P.R.R. Right-of-Way)	Railroad Infrastructure, Industrial, Commercial, Multiple dwellings, Fresno City Health Dept. Building, S.P.R.R. Passenger depot	Transportation, Commercial, Industrial, Domestic

Town	Map Year	Sheet Numbers	General Location of APE Intersect	Type of Development Depicted	Potential Associated Property Types
Fresno	1918 to Jan. 1948 (1919 to Jan. 1948 Vol. 2)	202, 229, 261, 268	Dennett Ave to Divisadero St between North H St and Pacific Ave	Railroad Infrastructure, Multiple dwellings, Cabins, Auto Camp, Industrial, Commercial	Transportation, Domestic, Lodging, Industrial, Commercial
Fresno	1918 to Mar.1950 (1918 to Jan. 1950 Vol. 1)	55, 57-64	Divisadero St to San Benito St between G and H Streets (S.P.R.R. Right-of-Way)	Railroad Infrastructure, Industrial, Commercial, Multiple dwellings, S.P.R.R. passenger depot	Transportation, Industrial, Commercial, Domestic
Fresno	1918 to Mar.1950 (1919 to Feb.1950 Vol. 2)	202, 229, 241, 261, 268	Dennet Ave to Divisadero St between North H St and Pacific Ave (S.P.R.R. Right-of-Way)	Railroad Infrastructure, Multiple dwellings, Apartments, Industrial, Commercial, Auto Camp	Transportation, Industrial, Commercial, Domestic
Fresno	1918 to Mar.1950 (1919 to Mar1950 Vol. 3)	None	NA	NA	NA

5.1.4 Native American Consultation

A program of Native American Consultation, guided by the Draft Tribal Consultation Plan (Appendix D), was initiated in May 2009. In accordance with Section 106, a Native American contact program was initiated and is currently under way for this section of the larger HST project. The Authority and FRA recognize that the HST project traverses a diverse set of communities, regions, and resources, and that archaeological sites and Native American cultural properties could be affected by the project. Therefore, a tribal consultation plan was developed and is currently being implemented; a list of tribes invited to consult and response letters are found in Appendix D. Initial tribal contacts were identified by requesting a search of the Sacred Lands File (May 5, 2009), maintained by the Native American Heritage Commission (NAHC). The NAHC provided a list of interested individuals and groups who have indicated to the NAHC that they want to be notified of undertakings in their area of interest. This list was supplemented with the contact information for tribes listed in the *Federal Register* ("Indian Entities Recognized and Eligible to Receive Services from the United States Bureau of Indian Affairs," 73 *Federal Register* 18553–18557, April 4, 2008). In early December 2009, a series of initial contact letters were sent by the Authority to those individuals and groups who had expressed interest in the project or who appeared to have an affiliation with the lands contained in the project corridor. A positive response to that initial outreach was expressed by members of the Dumna Wo-Wah Tribal Council and the Chowchilla Tribe of Yokuts (Appendix D).

On May 27, 2010, QIs met with Jim Redmoon, Cultural Resources Manager for the Dumna Wo-Wah Tribal Council (non-federally recognized tribal organization). The meeting was conducted along the alignments and began at the point where SR 99 and the UPRR/BNSF line [redacted]. Mr. Redmoon stated that he believed that a village site had [redacted]; this may coincide with the

ethnographic village of Kohuou (Krober 1925: Plate 47). [redacted] (CA-FRE-3424H); recommended not eligible for NRHP), though three isolated artifacts were recovered [redacted]. The other three "corners" were heavily disturbed by highway and railroad construction, with concrete slabs and fill material dumped on them. Mr. Redmoon stated that the only visible evidence of a site at that location was a single bedrock mortar (BRM), which was alternately covered and uncovered by river sand and silt. When QIs inventoried the area earlier in February 2010, this BRM was not visible, and it remained underwater at the time of the May visit with Mr. Redmoon. During the May 2010 meeting the possibility of preconstruction testing at the location ([redacted]) was discussed but dismissed because the riverbank consists of deep, loose sand with no practical way to test. Mr. Redmoon asked for intensive construction monitoring in the location to watch for potential archaeological deposits.

QIs and Mr. Redmoon visited [redacted], which was built 20 to 30 years ago. Mr. Redmoon has never personally seen evidence but has been told that human remains came up during most and possibly all construction there over the years. He has also reburied human remains said to come from the property that have been returned to him, mostly by construction workers. [redacted] is currently paved over; [redacted]. Mr. Redmoon recommended preconstruction testing at the location because of the burials reportedly found there previously.

Mr. Redmoon also stated that he had recovered human remains from the [redacted] but could no longer remember their exact location. Both the UPRR/SR99 and Hybrid alternatives would cross [redacted]. Future archaeological investigations will be carried out in these areas in consultation with the Dumna Wo-Wah Tribe, once property access has been granted and the footprint of project impacts has been clearly defined. Mr. Redmoon also stated that he wanted an agreed-upon Burial Treatment Plan in place before any testing at [redacted], and as stipulated in Section XIII of the PA. He further suggested that Anthony Brochini, Chairperson of Southern Sierra Miwuk Nation (non-federally recognized tribal organization), might have information regarding sites in the HST project APE in Merced County. The Southern Sierra Miwuk Nation has been contacted about the project, and Richard Hogan, Director at Large, is currently serving as the main point of contact for the tribe.

On August 16, 2010, a Native American consultation meeting was held that included representatives from the Dumna Wo-Wah Tribe, Big Sandy Rancheria (federally recognized tribe), CH2M HILL, AECOM, and the Authority. The Amah Mutsun Band (non-federally recognized tribal organization), Choinumni Tribe (non-federally recognized tribe), and FRA participated by telephone. A comprehensive overview of the project was presented, followed by descriptions of alternatives. The Section 106 process to date was outlined, including target dates for public release of regulatory documents and status of the PA. Information was presented outlining the various methods used to identify Native American sites so far, and methods for how Native Americans would provide future input were developed. It was suggested that large-scale quadrangle maps be printed with known site locations and given to Jim Redmoon, Valentin Lopez (Amah Mutsun Tribal Band), and Jerry Brown (Chowchilla Tribe of Yokuts - non-federally recognized tribe), who could then add information regarding other sites within the project footprint as well as outlining tribal areas so that the project team would know who to contact for each subregion within the project footprint. It was emphasized to the project team several times that drainage crossings were highly sensitive areas for cultural resources and that those areas should receive special attention. The suggested maps were created and sent to Mr. Redmoon, Mr. Valentin Lopez, Mr. Jerry Brown, and Mr. Robert Ledger (Dumna Wo-Wah Tribal Government) on September 30, 2010. No response to the maps had been received at the time of this writing (Appendix D).

On June 1, 2011, the Authority conducted a meeting to obtain input from Native Americans as part of the HST consultation process. In addition to Authority and consultant staff, representatives from the Cold Springs Rancheria (federally recognized tribe), Southern Sierra Miwuk Nation, Big Sandy Rancheria, and the Sierra Nevada Native American Coalition (non-federally recognized tribal organization) were in attendance. The Authority presented project updates that had occurred since the previous meeting in August 2010. Information regarding cultural resources along the alignment alternatives was also presented. Tribal representatives expressed concerns about the future monitoring during construction

and the process for repatriation should any human remains be discovered. It was agreed by the attendees that the chances of encountering human remains and cultural material during construction is very high in the Central Valley. Some Tribal representatives suggested that a fund be established that would be used to purchase land near discovery sites of human remains to be used for repatriation of burials and archaeological collections. Tribal representatives also expressed concerns regarding a wide range of other issues, including the source of aggregate material to be used during construction, overall project funding, indirect impacts associated with power generation and utility corridors, water resources and water quality, traffic, and cumulative impacts. The Tribal representatives stated that they would like greater involvement in the project development process and more interaction with all of the regional stakeholders, including the counties, municipalities, FRA, Authority, U.S. Fish and Wildlife Service (USFWS), and the U.S. Army Corps of Engineers (USACE).

On July 27, 2011, representatives from all tribal entities that were identified by the NAHC, and through coordination efforts over the past two years, were invited to a consultation meeting for all interested tribal members. The 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. Tribal members in attendance included David Alvarez (Traditional Choinumni Tribe), Avis Trunkin (North Fork Rancheria), Joseph Garfield (Tule River Tribe), Dr. Karen Wynn (Picayune Tribal Cultural Council), Bob Pennell (Table Mountain Rancheria), Nancy Ayala (Picayune Rancheria Chukchanis Indian Tribal Council), and Donna Featherstone (Picayune Tribal Cultural Commission).

The meeting addressed a number of project-related issues raised earlier at a tribal coordination meeting held in early June. It was emphasized that the Authority and FRA want to actively collaborate with the tribes to identify and address issues of concern in the planning and development of the HST projects. Two brief update presentations were given involving the Merced to Fresno Section of the HST Project and the Fresno to Bakersfield Section of the HST Project. After the presentations, questions from the tribal groups were addressed. The main topic of concern involved construction monitoring of Native American sites. The group was told that the Authority and FRA intend to develop a Memorandum of Agreement and a Treatment Plan for each HST section that will require implementation of measures to avoid, minimize, or mitigate impacts on cultural resources, including sensitive Native American and archaeological sites. It was also emphasized that none of the technical documents prepared by the Authority and FRA and released for public review and comment will include any site-specific information that could jeopardize known sacred sites or other sensitive tribal areas.

Finally, on January 10, 2012 a Native American consultation meeting was held in Fresno, to which members of the Chowchilla Tribe of Yokuts, the Yaqui/Apache, the Eshom/Wuksachi, and the Amah Mutsun Tribal Band were able to attend (Appendix D). The purpose of this meeting was to consult with Native Americans and tribal representatives and to provide a status update for the project. The project team provided details of the Preferred Alternative, a status update of archaeological investigations and an overview of future activities, such as the preparation of an Archaeological Treatment Plan.

A number of tribal concerns were raised at the meeting, principal amongst which was to establish and maintain an appropriate and effective level of communication and consultation with the tribes as the project moves forward. It was agreed that one-on-one consultation with each of the individual tribes participating in the process would be an effective means of assuring meaningful and successful implementation of Section 106 and NEPA review.

5.1.4.1 Archaeologically Sensitive Areas Identified during Consultation

Undocumented Burial Ground – Along all HST Alternatives

According to oral accounts, human remains have been uncovered during past construction activities at a location [redacted]. Specific locations for burials could not be determined, but general reports from the construction workers who spoke with Mr. Redmoon (as discussed above) indicate that human remains may be encountered within the [redacted] property during construction of the HST project.

Two Reported Villages (possible ethnographic village of Kohuou) – Along all HST Alternatives

As reported by the Cultural Resources Representative for the Dumna Wo-Wah Tribe, Mr. Redmoon, an ethnographic village [redacted]. Midden soils are reported to be found throughout this area and could represent important habitation sites possibly containing human remains. Although these archaeologically sensitive locations remain undocumented and may lie outside the HST APE, confirmation of their presence or absence within the APE will have to be confirmed by further survey.

5.2 Field Inventory Methods

The 2010 field efforts were conducted by one team of four archaeologists, while the 2011 survey consisted of three crews of four archaeologists. All four teams, led by professional archaeologists meeting Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-44739 - Appendix A to 36 CFR Part 61) investigated accessible areas within the APE (Appendix A, Figures 3a, 3b, 3c, 3d, and 4) by walking parallel transects. The survey crews were furnished with large-scale aerial maps or map books that depicted the APE and various landscape features to make route identification as simple as possible. The crews also used a Trimble Geo XHT global positioning system (GPS), with the same mapping in its database to provide additional assistance in identifying the APE in areas where fewer visual checkpoints existed, to ensure that survey was being conducted within the proper corridor.

Given differences in ground surface visibility across the APE, mainly due to factors such as vegetation cover or urban development (paving, etc.), variability in field survey methods was employed as dictated by surface conditions. Areas of dense underbrush and heavy crop cover were sampled to the degree possible, i.e. examining dirt from rodent burrows and walking between underbrush clusters rather than on parallel transects when dense vegetation would have required substantial clearing to expose transects. Paved or submerged locations were not surveyed. In areas within railroad right-of-way (which is defined as 50 feet on either side of the centerline of the tracks), the 25 feet on either side of the track centerline was examined from the side, but archaeologists did not approach any closer because UPRR regulations prohibited encroachment within 25 feet of the rail; the bulk of this 25-foot strip was generally covered by ballast and so no surface soils were visible. Construction-disturbed soils and paved roadways were frequently found beyond the 25-foot non-encroachment zone. The archaeological field team investigated accessible areas within the APE by walking parallel transects generally spaced no more than 15 meters apart, periodically zigzagging between transects; this transect interval was applied to all surveyed parcels, regardless of previous disturbances, except when surface visibility was curtailed as described above.

Appendix A, Figures 3a through 3d, includes the APE for the HST project, depicting areas where field surveys have been completed. The pedestrian survey was unable to access the other properties that lay within the APE. Prior to the survey, CH2M HILL conducted multiple mailing and telephone efforts to secure permission to enter private lands; however, in many instances, access was not granted (failure to respond to the request was interpreted as lack of access as was explicit denial). Map books depicting access status, lists of parcels for which rights of entry had been obtained (including any special conditions for access), and large-scale aerial photographic maps with parcel numbers were provided to the archaeological field teams. This information was also integrated into GPS units for use during the field survey.

5.2.1 Field Survey

The field survey was conducted in January and February 2010, May 2010, and again in February 2011. During the January and February 2010 survey, because of the time of year, fewer crops obscured the view and even deliberate plantings had died back to a certain degree; however, during the 2011 survey some parcels were planted in winter-wheat crops, which seriously inhibited ground visibility. Other parcels that were not planted still often contained a healthy growth of natural grass and weedy vegetation. In all of these instances, visibility was hampered. In general, as shown in Table 5-5, during

the 2010 surveys, ground surface visibility ranged between 65% and 85% and averaged about 75% across the project alignment. In the alignment and parcel surveys in 2011, visibility varied considerably and ranged from 0 to 100% and averaged about 30% to 50%. The best visibility was possible in parcels and where development and road edge clearing had removed much of the vegetation. Inventory efforts also occurred on the BNSF Alternative and at the HMF sites in May 2010, but these were partial because of limited access. The BNSF line and the HMF sites were in less developed areas than the UPRR line; the area was more rural, with orchards and crops. Even in fields with grassy cover or crops, surface visibility averaged 50% to 60%. Areas with the least visibility tended to be planted fields and around various drainages, where cottonwoods, willows, and heavy brush crowded the surface. Unfortunately, these also tend to be the areas with the highest potential for cultural resources.

Table 5-5
Summary of Survey Effort by Alignment Alternative
(As of January 16, 2012)

Project Alternative	Total APE Acreage	Acreage Surveyed	Percentage of Project Alternative Surveyed
UPRR/SR 99	4,161	1,096	26%
BNSF	4,950	759	15%
Hybrid	4,223	851	20%
HMF	1,779	1,239	70%
Totals	**15,113**	**3,945**	**24%**

Percentages listed in Table 5-5 include all portions of the APE where the UPRR/SR 99 and BNSF alternatives are the same. These percentages represent all of the parcels where access permission had been granted at the time of survey. Appendix A, Figures 3a through 3d and Figure 4 include the APE for the HST project, depicting areas where field surveys have been completed. Areas not surveyed were due to lack of access. Complete survey of the APE will occur when the alignment for the project is selected from the alternatives, and full access to the entire APE can be achieved.

5.2.1.1 Survey Results

The records search and survey identified 11 previously recorded sites, 3 newly recorded sites, and 5 archaeologically sensitive areas within, or immediately adjacent to, the Merced to Fresno Section APE. Three of the archaeologically sensitive areas were identified as areas of concern through Native American contacts (see Section 5.1.4, Native American Consultation). If access was permitted, the archaeological field team revisited the locations of sites previously documented within or immediately adjacent to the APE, comparing the currently visible manifestations of these sites with information previously recorded on DPR forms. That information was documented on CA DPR 523 Continuation Sheets and will be filed with the appropriate Information Center. The Continuation Sheets are included in Appendix C. Only two of the previously recorded sites currently identified as within or immediately adjacent to the APE could be revisited during the field surveys due to lack of approved access.

Previously Recorded Sites

P-24-000087 – UPRR/ SR 99 Alternative

This site was recorded in 1993 (JRP 1993). [redacted] and was subject to seasonal overflows. Levee construction in the 1950s led to reclamation of the land and the eventual establishment of an orchard at the spot. In the 1980s, the surrounding orchard

gave way to modern development, leaving the P-24-000087 area open for a soil stockpile. The original recorders indicated that the mound was a modern feature created since 1976 and was in the process at the time of recordation of being removed for use as fill elsewhere for construction purposes. Consequently, it did not appear to be a resource eligible for the NRHP (JRP 1993). While access was not granted for the parcel during the current surveys, [redacted].

P-24-001862 – [redacted] HMF – All of the Alternatives

This site, documented in 2007, consisted of out-of-context artifacts recovered from a plowed field, including a pestle, bowl mortars, and a battered cobble (Darcangelo 2007). The artifacts appear to have been removed from their original context; they do not appear to be unique examples of their type and do not meet basic significance criteria for associations or data values. However, the site has not been formally evaluated for NRHP eligibility and cannot be evaluated at this time due to a lack of information. While archaeologists conducting field surveys in 2010 could not find any artifacts within the APE at these locations, there may be an as-yet unidentified subsurface component to the site. A program of subsurface testing is needed to identify any such deposits and assess their condition and register eligibility; the site is unevaluated and considered potentially eligible until subsurface testing proves otherwise.

P-24-000602 (CA-MER-359H) - BNSF Alternative

This archaeological site was recorded in 1999 during a Caltrans survey (Stillman et al. 1999a). At the time of the survey the site included 12 features (privies, wells, trash pits, and concrete foundations), and several privies and wells from an earlier period when several houses located there were part of a brothel and store. The current house standing on the property was moved there in 1970 and is not related to the archaeological deposits. It is not clear whether all of the features can be associated with these earlier uses, but several houses had add-ons including lean-tos, chicken coops, and dog houses. The earliest mapped structures at the site date to 1938, with more buildings added by 1942. The site was abandoned between 1960 and the early 1970s (Stillman et al. 1999a). At the time of the 1999 Caltrans survey, the property owner reported to the archaeological team that 17 years previously, a long bone was excavated from a privy beneath one of the concrete slabs. The bone was taken to Leon Martinez of the Merced County Housing Authority, who told the owner that the bone was a human arm or leg bone. No written record was made of this, and no human remains were seen by the archaeologists. Caltrans evaluated the site for eligibility for the NRHP and found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:22), with SHPO concurrence (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:22). This site could not be accessed for survey during the current surveys, but it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and that the site location now lies entirely within the area of these recently constructed roadways.

P-24-000603 (CA-MER-360/H) - BNSF Alternative

[redacted]. As originally recorded, it consisted of an existing residence at [redacted] and, either, two isolated basalt flakes, found on the parcel with residence (Cardiff et al. 1999), or one basalt flake and the residence (Wilson and Van Bueren 1999). The form filed at the Information Center, however, indicates only the presence of a single basalt flake and categorizes the site as an isolate (Stillman et al. 1999b). [redacted]. During the current 2011 survey, direct access to this location could not be achieved. Caltrans evaluated the site for eligibility for the NRHP during the [redacted] Project (also referred to as the [redacted] Project), found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:22-23), and received SHPO concurrence with that finding (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it to not be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:22-23). Based,

therefore, on the results of the previous evaluations, the site is recommended not eligible for inclusion in the NRHP or CRHR.

P-24-000604 (CA-MER-361H) - BNSF Alternative

[redacted]. When the site was recorded during a survey for Caltrans in 1999, the property formed the backyard of several residences, and it was in use for gardens, chicken coops, and cattle pens (Stillman et al. 1999c). A sparse collection of artifacts was visible in open areas and included amethyst, clear, brown, and green glass; a piece of a medicine bottle; a plate fragment; a sawed bone fragment; and a piece of a clay pot. Caltrans evaluated the site for eligibility for the NRHP and found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:26), with SHPO concurrence (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:26). This site could not be accessed for survey during the current surveys, but it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and that the site location now lies entirely within the area of these recently constructed roadways.

P-24-000605 (CA-MER-362H) - BNSF Alternative

This resource consisted of the site of a former residence with a house on the property from pre-1935 to at least 1946 and perhaps longer (the building is not depicted on the 1961 USGS quadrangle map). Remains found in a 1999 survey for Caltrans included five concrete slabs or foundation forms, Mason jar fragments, a ceramic insulator, and a wire milk bottle holder as well as remnant landscaping vegetation (Stillman et al. 1999d). Caltrans evaluated the site for eligibility for the NRHP and found it ineligible for the NRHP under any of the four criteria A, B, C, or D (Wilson and Van Bueren 1999:26-27), with SHPO concurrence (Abeyta 2000) (Appendix B). Caltrans also evaluated it under CEQA guidelines and found it not to be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:26-27).This site could not be accessed for survey during the current surveys, but it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and that the site location now lies entirely within the area of these recently constructed roadways.

P-24-001676 (CA-MER-381/H) - UPRR/SR 99 Alternative and Hybrid Alternative

This site includes a prehistoric component and remnants [redacted], identified during earlier surveys, focused adjacent to [redacted]. This site could not be accessed during the current surveys. Previous investigations at this site (Bischoff and Majewski 2002; Becker 2003a; U.S. Department of Transportation et al. 2005) indicate that while extensive disturbances have occurred there, the discovery of in-situ artifacts up to 2 meters below the present-day ground surface suggests the site retains considerable data potential. Those archaeologists also noted that the prehistoric deposit appeared to [redacted]. The U.S. Department of Transportation and others (2005) recommended that site CA-MER-381/H is eligible, under Criterion D, for NRHP/CRHR listing and received SHPO concurrence with that recommendation (Mellon 2003) (Appendix B).

P-24-001686 (CA-MER-383) - UPRR/SR 99 Alternative and Hybrid Alternative

The Wilson Site is a large prehistoric habitation site with Native American burials that [redacted] could potentially contain buried

elements of the site, was surveyed. No surface evidence of the site was observed during the survey within the APE corridor. In the late 1970s, an archaeological excavation at the site recovered multiple burials; although orchard development in the area may have removed much of the surface portion of the site, intact components were found to extend to at least 1.4 meters below surface. Work done for Caltrans in 2001 included the excavation of multiple trenches and test units in and around the Wilson Site, but again, [redacted], with the overall site boundary still incompletely defined (Becker 2003b). [redacted] (SRI 2001:5; Becker 2003b: Figure 4). Because of the presence of human remains and its data potential, site CA-MER-383 is potentially eligible for listing in the NRHP under Criterion D and the CRHR under Criterion 4. The site was evaluated during the Plainsburg/Arboleda Freeway Project Environmental Assessment (U.S. Department of Transportation et al. 2005), found to be eligible under Criterion D for listing in the NRHP, and received SHPO concurrence with that finding (Mellon 2003) (Appendix B).

P-20-002064 (CA-MAD-2064H) – UPRR/SR 99 (Ave 24 Wye) Alternative

CA-MAD-2064H (P-20-002064) [redacted] and consists of the archaeological vestiges of the [redacted] Station, a rail depot on the [redacted] line used from 1872 until the late 1950s (Van Bueren and Comeyne 1993). When documented in 1993, the site covered approximately 70 acres with six planted nonnative trees and nine archaeological features: five building foundations, two demolished structures, and two moderately dense concentrations of cultural material (amethyst glass; creamware ceramics; porcelain stoneware; buttons; marbles; slag; brick fragments; and clear, cobalt, aqua, and olive-green glass shards). The site was revisited during the current surveys, and the remnants of the station appear as they did in 1993. The 1993 site record mentions a testing program to determine eligibility pursuant to NRHP Criterion D; however, it is uncertain that this program was ever completed. Therefore, the NRHP eligibility of the site is currently treated as unevaluated.

P-20-002122 (CA-MAD-2121H) – UPRR/SR 99 Alternative

P-20-002122 (CA-MAD-2121H) is a highly disturbed artifact scatter associated with a Chinese railroad labor camp [redacted]. The artifacts appear to have been displaced when improvements to the current railroad berm were undertaken. Soils were borrowed from each side of the original berm to increase the width and height of the new berm; labor camp deposits were included in the borrow material and were either incorporated into the new berm or scattered throughout the adjacent field. Based on temporal diagnostic material within the artifact scatter, the site dates to circa (ca.) the 1860s–1870s. Items recovered by Far Western in 1993 (Waechter et al. 1993) included bottle fragments of amethyst glass, Chinese porcelain bowl fragments (peach and fungus pattern), and numerous fragments of Min Gei brownware (soy vessels, tiger jars, and food containers). The NRHP eligibility of the site is currently unevaluated. The site was revisited during the current surveys, and disturbance was observed that was not noted when the site was originally recorded. It appears that a gas pipeline has been placed within the site area since the original survey resulting in the presence of small earth berms and other areas of surface disturbance. To date, no record of previous evaluation for significance of the site has been identified.

P-20-002428 (CA-MAD-2335H) – BNSF Alternative

This site, recorded in 2001 and 2002, consists of the remains of the [redacted] Station along the [redacted] Railroad, established in 1896. Site CA-MAD-2335H [redacted]. There were fairly extensive foundations documented in 2001/2002, including those for a signalman's house and a bunk house, plus associated utility lines; a cellar; and debris including ceramics, building rubble, and glass. A note on the 2002 DPR form states that the site did not meet the criteria for listing in the NRHP, and that no further work was recommended (Love and Shaker 2002). SHPO concurred that the site was not eligible (Mellon 2002).

Newly Recorded Sites

HST-H-JL-01– Ave 24 Wye

This site consists of the remains of an early 20th-century homestead that contains four concentrations of domestic debris and features, including a concrete foundation and collapsed walls, fence posts and wiring, concrete pipes, piles of disarticulated lumber, household debris, and other miscellaneous items. It [redacted], adjacent to a plowed agricultural field. No historical association for these materials has, as yet, been made, and the possibility for the presence of subsurface features such as privies and/or wells is unknown. Based on currently available information, the site is unevaluated and under the terms of the PA potentially eligible for NRHP listing.

HST-H-JL-02 – BNSF Alternative and Hybrid Alternative

The site consists of a very late 19th to mid-20th-century trash scatter, situated in a recent mechanically cleared area, composed both of areas of bare ground and areas containing moderately dense vegetation. There are large eucalyptus trees present along the southwest quadrant of the site and local grasses throughout. [redacted]. Disturbances within the site consist of construction activities associated with the repair of the BNSF bridge over the Fresno River, which included the mechanical grading or clearing of the area as well as the stockpiling of large quantities of timbers and other elements of the old bridge structure that had been removed. [redacted]. Household appliances (e.g., a chair) were also present, but whether they represent elements of the potential domestic site or later dumping is currently unknown. Historic artifacts documented within the site consist of kitchen, household, building, and consumer items. These are composed of ceramic, glass, and concrete items. Ceramic items include electrical insulators and miscellaneous ceramic fragments, including ironstone and porcelain and common building brick fragments. Also observed within the site boundaries are colorless, amber, cobalt blue, and milk glass jar and bottle fragments that are complete and/or fragmentary. The site also contains numerous concrete and asphalt fragments that are associated with structures of unknown purpose. No features were observed. The observed artifacts provide a general timeframe of very late 19th to mid-20th century; the sample is indicative of a domestic site. No historical association for these materials has, as yet, been made, and the possibility for the presence of subsurface features such as privies and/or wells is unknown. The disturbed context in which these artifacts were observed makes it difficult to assess what they represent as well as their potential significance. The variety and quantity of artifacts found on the ground surface indicate a domestic site. Intact features or additional deposits may be located beneath the large pile of bridge timbers that dominate the property. Based on currently available information, the site is unevaluated and under the terms of the PA is presumed NRHP eligible until it can be assessed.

HST-H/P-TC-01 – [redacted]/HMF - All of the Alternatives

This site is located on land [redacted] (Darcangelo 2007). While in some proximity, no definite association for these artifacts can be made to P-24-001862, and access to that site was denied for this project. It should also be noted that several pieces of prehistoric debitage were encountered in subsurface geoarchaeological investigations in an adjacent area of the [redacted] (outside the HST APE),

during archaeological studies conducted to satisfy NHPA requirements under Section 106 [redacted] (Trnka et al. 1994:5-27). Based on currently available information, the site is unevaluated and under the terms of the PA is presumed NRHP eligible until it can be assessed.

5.2.1.2 Archaeologically Sensitive Areas

[redacted] Site – BNSF Alternative/HMF Site

This parcel, located on the BNSF Alternative alignment, is a candidate for the location of an HMF. During archaeological surveys of the property, [redacted] archaeologists were informed that prehistoric artifacts had been found in the general project vicinity. However, only one artifact, an obsidian flake, could be identified during the surface survey, and the property owner would not agree to any subsurface testing, including the excavation of shovel test pits. Because of the lack of information, it is currently impossible to determine whether there is a site within the HST APE or whether it possesses values that may make it eligible for listing in the NRHP or CRHR. A program of subsurface testing is needed to identify any such deposits and assess their condition and formal eligibility. In accordance with the PA, the site is presumed NRHP eligible until it can be assessed.

[redacted] – Along UPRR/SR 99 Alternative

A single prehistoric artifact was found within the UPRR route right-of-way, [redacted]. The item, a possibly worked flake made of a fine-grained green metavolcanic material, was noted adjacent to a recent fiber-optic cable trench. Also noted along the adjacent UPRR rail line was a large quantity of crushed metavolcanic material similar to the worked flake. There is no record that an archaeological survey was conducted for the laying of that cable, and it appears possible that the trenching encountered a buried prehistoric deposit. Under the terms of the PA, isolated artifacts such as this one are not to be recorded as part of the HST Project; however, the location of the worked flake on the surface in the vicinity of the fiber-optic trench could indicate subsurface deposits in the area containing much greater quantities of artifacts. Archaeological testing in this area will be conducted once the landowner has granted permission. A program of subsurface testing is needed to identify any such deposits and assess their condition and formal eligibility. In accordance with the PA, the site is presumed NRHP eligible until it can be assessed.

Undocumented Human Burials – UPRR/SR 99 Alternative, BNSF Alternative, and Hybrid Alternative

According to oral accounts, human remains have been uncovered during past construction activities at a location [redacted]. Although specific locations for burials could not be determined, finds of human remains have been reported by construction workers who built various facilities at a property known as [redacted] over the years. According to Mr. Redmoon, some of those remains have been repatriated but, unfortunately, there is no clear record of where within the [redacted] property they were located. [redacted] currently fully paved, preventing investigation of the area. Therefore, while there is a distinct possibility that human remains will be encountered in the project APE at that location, confirmation is lacking. The area should be considered archaeologically sensitive and could be eligible for listing in the NRHP and CRHR.

Two Reported Villages (possibly the ethnographic village of Kohuou) – UPRR/SR 99 Alternative, BNSF Alternative, and Hybrid Alternative

There are two possible locations for this archaeologically sensitive area, identified by the Cultural Resources Representative for the Dumna Wo-Wah Tribe as areas [redacted] where numerous early Native American materials have been uncovered in the past. Midden soils are reported to be found throughout this area and could represent important habitation sites possibly containing human remains. Although these archaeologically sensitive areas remain undocumented and the tentative locations appear to be outside the HST APE, they may overlap the APE.

The potential villages possibly located [redacted] may represent the ethnographic village of Kohuou (Kroeber 1925:484). The only possible evidence of them, observed during 2011 surface surveys of the APE in the vicinity, was a single ground-stone artifact, a pestle/hammerstone/mano within the APE, [redacted], evidence may also lay buried under flood-deposited silt. Despite the occurrence of this single artifact, there remains no clear indication of where they are located. However, if the locations of one or both are verified during testing within the APE, they could be recommended as eligible for listing in the NRHP and CRHR based on their data potential. In accordance with the PA, these two archaeologically sensitive areas are unevaluated and considered potentially eligible.

5.3 Shovel Testing Program

5.3.1 Shovel Test and Auger Results

Between April 27, 2010, and May 7, 2010, AECOM archaeologists conducted limited subsurface archaeological investigations in areas where the project intersects natural creek, slough, and stream areas. These places are considered to exhibit higher probability for the presence of cultural resources because of their proximity to a body of water and the natural resources that may occur near water. These focused efforts included more intensive pedestrian survey (using a 5- to 10-meter transect interval) and limited subsurface exploration using shovel test probes (STPs) and auger test units (AUs). These tests were limited strictly to parcels with access permission and, as stated above, were crossed by an extant drainage; historic mapping has not yet been examined for the locations of reconfigured drainages.

STP and AU excavation methods consisted of 50-centimeter-diameter probes to depths exceeding the effective use of shovels (approximately 1 meter), and then auger-bore samples in 20-centimeter increments with hand augers until reaching the water table or the useful limit (approximately 2 meters) of the auger. Probe locations were selected based on discretionary criteria, including location within the APE and stream-adjacent locations where the dense riparian vegetation would allow. In some areas where shovels were unable to penetrate disturbed upper soils, only AUs were used for sampling. All sediments were screened through quarter-inch mesh screens, and observations of the surrounding environment, soil descriptions, and profiles of each excavation unit were recorded. Five creek crossing areas—Ash Slough, Dry Creek, Berenda Slough, Berenda Creek, and Cottonwood Creek—were partially explored where they crossed the UPRR/SR 99 Alternative. The five locations tested encompass the small area where a drainage crossing and access permission coincided. The results are summarized below.

5.3.1.1 Ash Slough

Ash Slough is located directly north of Chowchilla. This slough has been disturbed by several bridge-building efforts for the railroad and the highway, but has not been channelized or altered significantly otherwise. The slough functions as an intermittent drainage and flows seasonally. Prehistoric settlements have been noted along Ash Slough, but fall outside the APE by 200 feet to the west.

A total of 18 STPs and 5 AUs were excavated along Ash Slough (Figure 5-1). Due to shifts in the project APE during the summer of 2010 (after the fieldwork was completed), 14 of the STPs now fall outside the APE; however, the locations were close enough to the project footprint to provide additional relevant data regarding the creek crossing area. Each STP was excavated to depths between 100 and 120 centimeters below surface (cmbs), and AUs were excavated to between 175 and 200 cmbs. Each unit was terminated at auger refusal or when water was encountered. Sediments were a dark to light yellowish-brown (10YR4/4 to10YR5/4), medium to coarse-grained sand. In most units, grain size increase was associated with increase in depth and coincided with increase in moisture content. Two of the units contained an upper, more developed sandy silt loam of a dark brown color (10YR3/3); both of these were in higher elevations along the creek bank and associated with heavy concentrations of organic materials. No cultural materials were observed within any of the excavations.

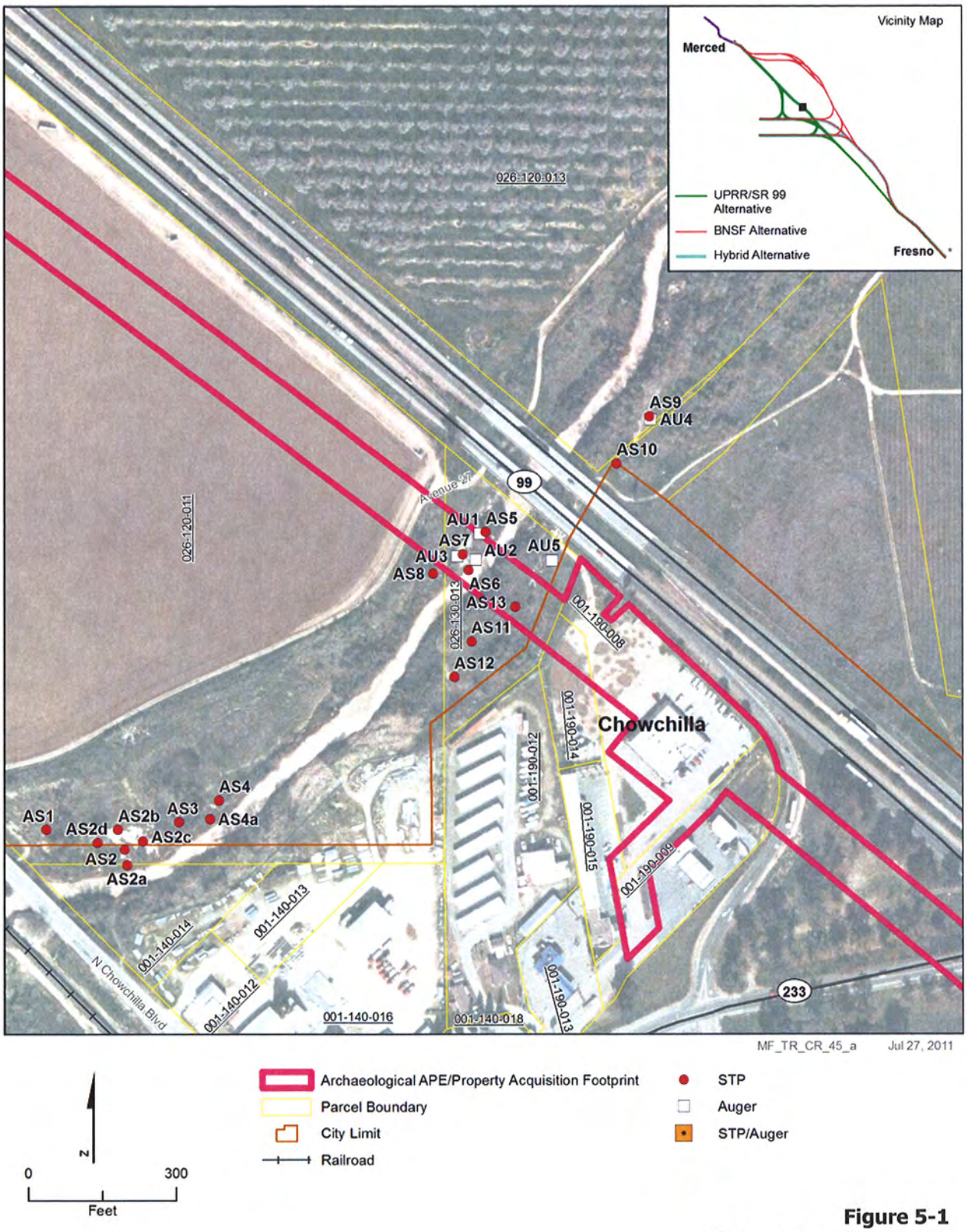


Figure 5-1
Test Locations, Ash Slough

5.3.1.2 Dry Creek

Dry Creek is located north of Madera between Berenda and Notarb. The UPRR/SR 99 Alternative crosses Dry Creek (Plate 5-1) in an area where disturbance previously occurred from construction of a UPRR trestle and an SR 99 bridge. The creek has also been channelized by construction of berms and rock walls in the area near the crossing. Because of the heavy disturbance, the upper 30 centimeters remain heavily compacted and impenetrable by shovel, making AUs the only available means of testing. The crossing is within a narrow portion of the alignment and access to the southern side of Dry Creek was not available; therefore, only two auger units were excavated (Figure 5-2). These auger units were dug to depths of 140 to 150 cmbs before encountering a concrete pipe in one unit and arriving at water in the other. Sediments consisted of an upper stratum, from 30 to 60 cmbs, with some soil development consisting of a dark brown (10YR3/3) silt loam; a lower stratum of fine to medium-grained sand was encountered below 20 to 30 cmbs to unit termination. No cultural materials were encountered.

Plate 5-1
View of Dry Creek at UPRR Crossing

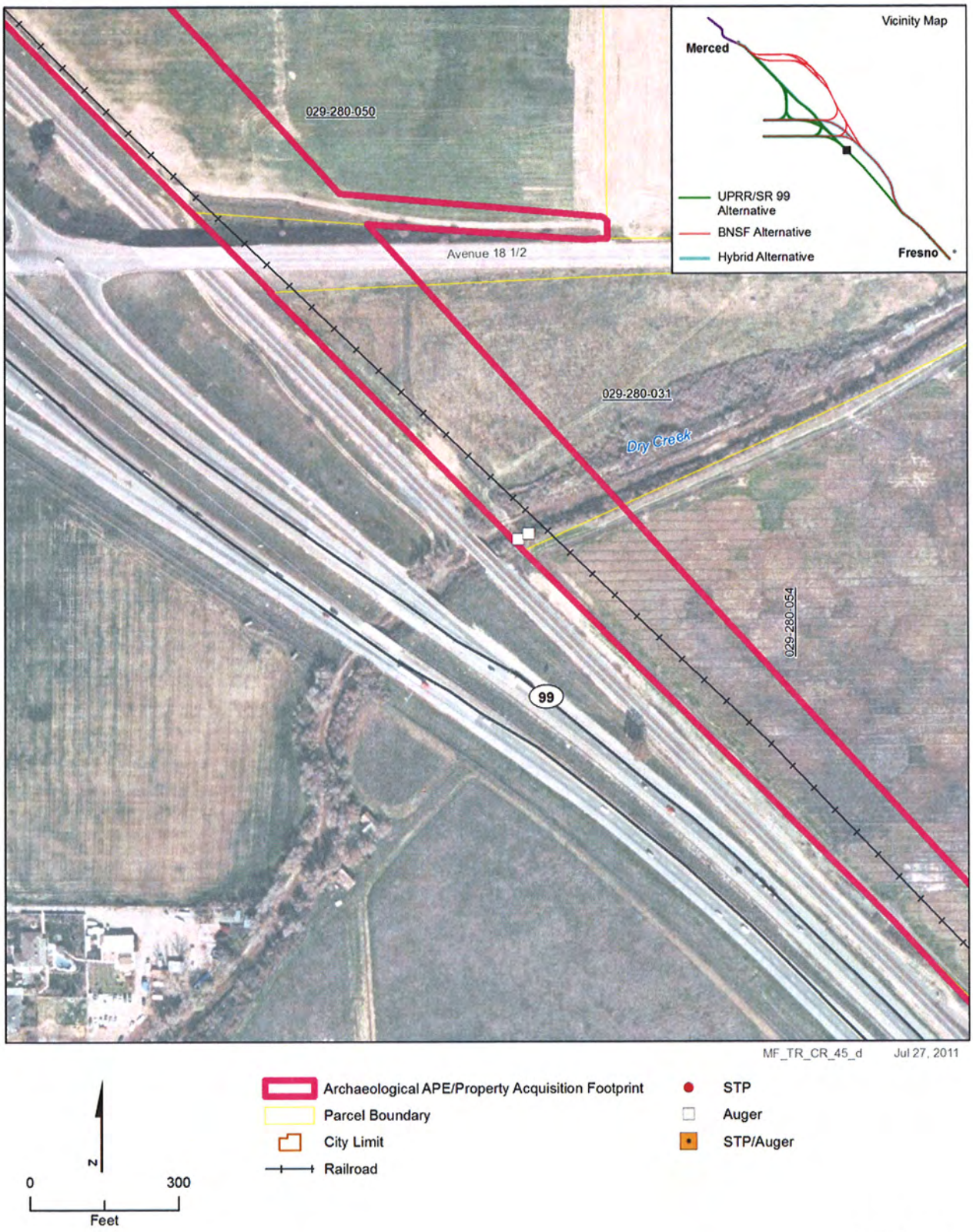


Figure 5-2
Test Locations, Dry Creek

5.3.1.3 Berenda Slough

Berenda Slough is located south of Chowchilla and north of Fairmead. This slough has been augmented at many points along its length to expand agricultural irrigation and expanded to a reservoir just east of Fairmead. Where the APE crosses Berenda Slough, evidence of some disturbance exists, but the slough has not been channelized or otherwise altered from its original course. Six STPs and two AUs were used to explore the area of the crossing (Figure 5-3). These units produced identical findings; each contained a medium to coarse-grained sand. Units were excavated to depths between 100 and 175 cmbs. No cultural materials were encountered.

5.3.1.4 Berenda Creek

Berenda Creek is the intermittent seasonal drainage (Plate 5-2) that supports Berenda Slough and Reservoir; it is located south of Chowchilla and north of Fairmead. The crossing area for Berenda Creek occurs at a point where major channelization of the creek has occurred and a UPRR trestle has created significant impacts. It was only possible to excavate two STPs because of the heavily compacted sediments (Figure 5-4). Modern debris (glass and miscellaneous metal fragments) was noted to depths of 80 cmbs, and soils appeared as a mottled, yellowish-brown (10YR4/3) silt loam. The sediments appear to have been redeposited during construction and represent significant subsurface disturbance in this area. No cultural materials were encountered.

Plate 5-2
Berenda Creek at UPRR/SR 99 Alternative Crossing

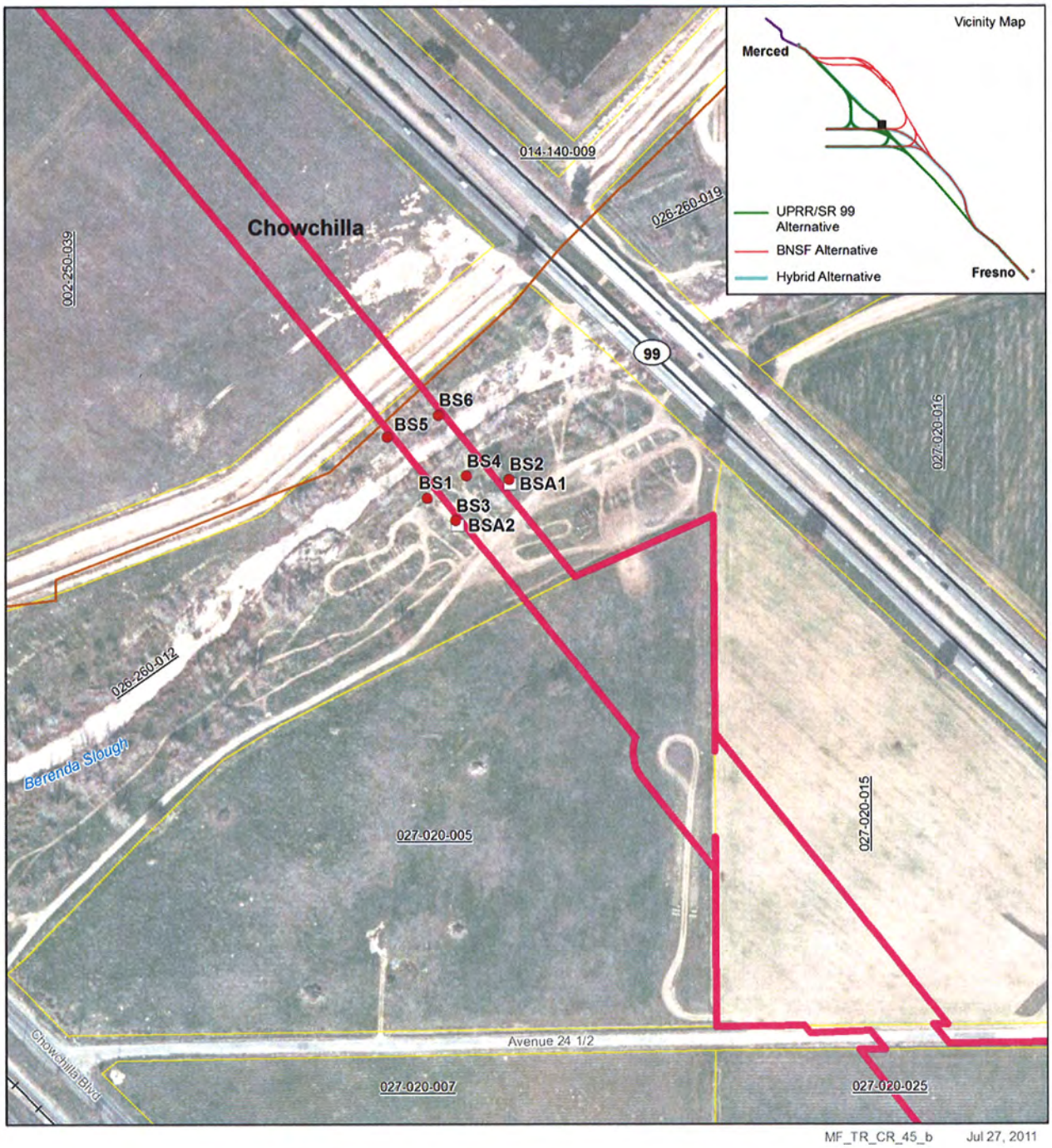


Figure 5-3
Test Locations, Berenda Slough

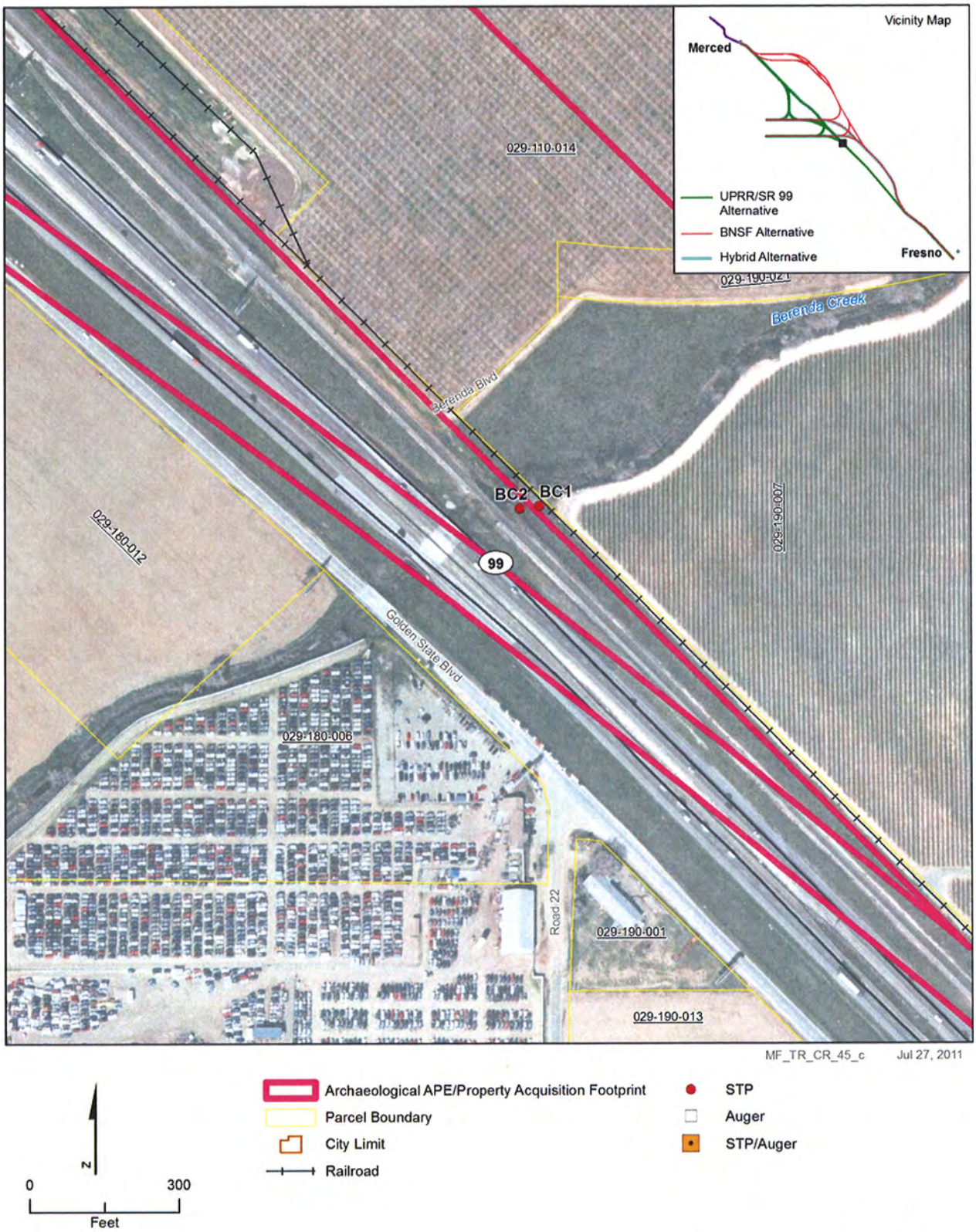


Figure 5-4
Test Locations, Berenda Creek

5.3.1.5 Cottonwood Creek

Cottonwood Creek is located south of Madera near Borden (Plate 5-3). The UPRR/SR 99 Alternative crosses this creek in an area where the train trestle for the UPRR and two bridges (one for SR 99 and one for a county road) currently cross the creek. Access was limited to one of the parcels near these intersections. Unfortunately, the parcel that was accessible may represent the area of greatest disturbance within the crossing. The parcels on the south and east sides of the crossing contain remnant landforms from the creek's original course and may have potential for buried deposits. However, the area available for investigation during the current work only contained evidence of transient/homeless camps and showed that significant impacts have occurred to the original creek channel to the north and west. Because of the narrow footprint of available access, only one AU was excavated (Figure 5-5). This unit was excavated in light to dark yellowish-brown (10YR5/4 – 10YR4/6) silty sand to a depth of 160 cmbs, where water was encountered. No cultural materials were recovered.

Plate 5-3
Cottonwood Creek at UPRR/SR 99 Alternative Crossing

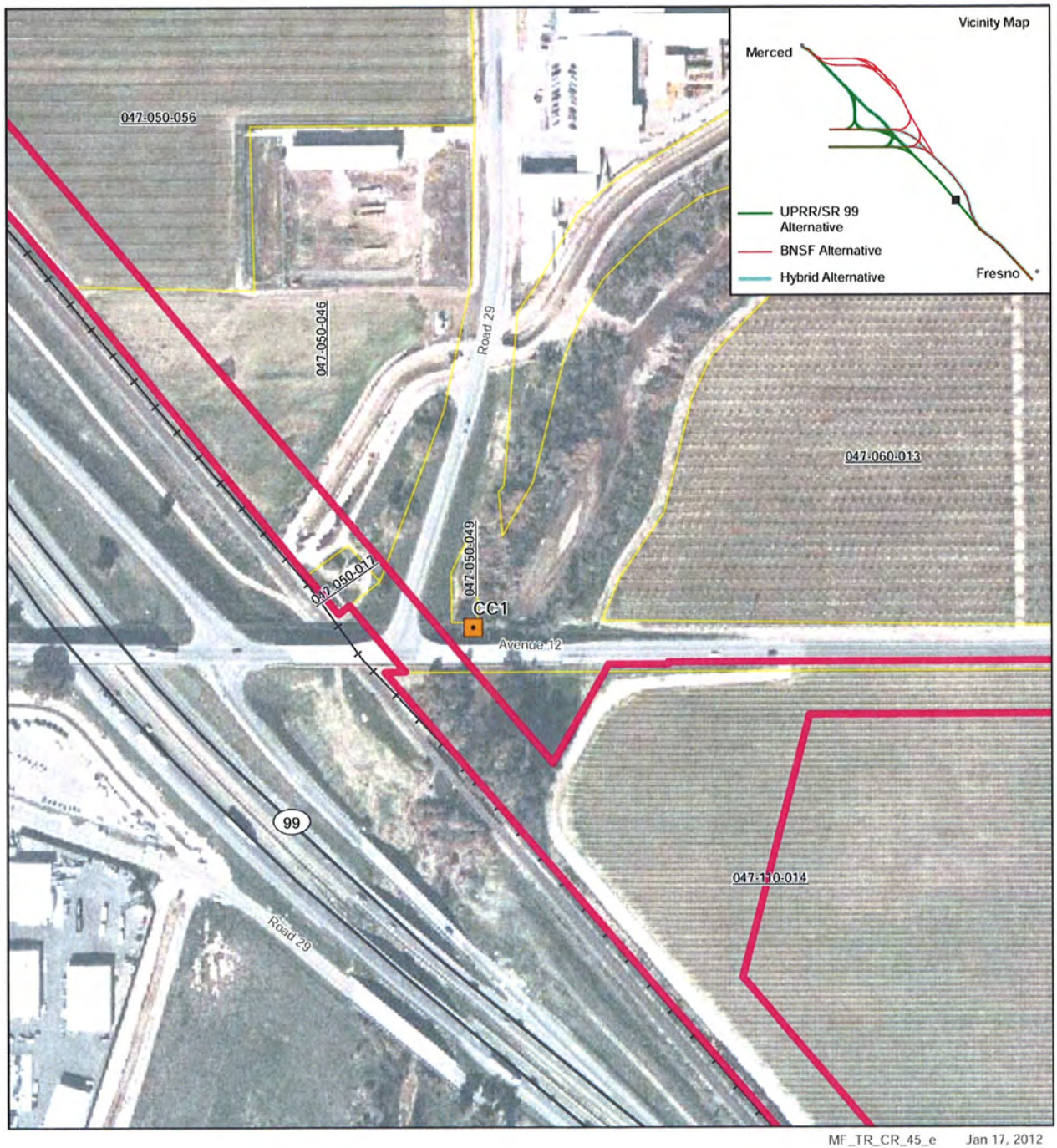


Figure 5-5
Test Locations, Cottonwood Creek

6.0 Natural, Geomorphic and Cultural Context

This chapter consists of a brief description of the ecological, geomorphic, and cultural setting. This information is used in a geoarchaeological framework to assess the potential for buried archaeological resources within the HST archaeological APE. This discussion is followed by a review of the prehistoric and historic contexts of the northern San Joaquin Valley.

6.1 Natural Setting

The California HST Merced to Fresno project area lies within the northern portion of California's San Joaquin Valley in the San Joaquin subbasin. Bounded by the Sacramento-San Joaquin River Delta to the north, the Sierra Nevada to the east, the Tulare subbasin to the south, and various California Coastal ranges to the west, the San Joaquin subbasin is drained by the San Joaquin River and its tributaries travelling northwest to San Francisco Bay through the Sacramento-San Joaquin Delta. The southern portion of the valley, the Tulare subbasin, is an endorheic basin, which, in the past, was covered by large shallow, semipermanent lakes.

The Merced to Fresno Section of the HST project is situated in the climatic band classified as the Lower Sonoran Zone (Storer and Usinger 1970). The climatic pattern is characterized as Mediterranean, with cool, wet winters and hot, dry summers. A latitudinal gradient in the amount of precipitation occurs when moving from north to south, resulting in an increasingly arid environment prevalent in the southern portions of the Central Valley (Rosenthal et al. 2007:147–163). The local climate is characterized as hot semiarid (BSh) in the Köppen-Geiger Climate Classification system with hot summers and mild winters (Peel et al. 2007). The average annual low temperature is 51 °F although temperatures drop below freezing (32 °F) an average of 21.2 days annually. The average annual high temperature is 75.3 °F; however, temperatures reach greater than 90 °F on over 100 days annually. Total annual rainfall measures approximately 11.23 inches with the majority falling between November and March (Western Regional Climate Center). Tule fogs are common during winter months (National Oceanic and Atmospheric Administration).

The San Joaquin subbasin is drained by the San Joaquin River, which arises from several alpine lake sources in the Sierra Nevada including Martha Lake (11,004 feet above sea level [ASL]) and Thousand Island Lake (9,833 feet ASL). Descending to the west, the river reaches the floor of the San Joaquin Valley where it turns northward at Mendota Pool. As it travels north, it merges with its eight major tributaries: the Kings, Fresno, Chowchilla, Merced, Tuolumne, Stanislaus, Calaveras, and Mokelumne Rivers, which combined drain approximately 32,000 square miles.

6.1.1 Biological Context

In their natural state, the drainage crossings would have offered variations in the biotic zones. Prehistorically, the dominant natural vegetative communities in this area were California steppe, prairie grasslands, and tule marshes, with some areas of riparian woodland (Kuchler 1977). Areas of saltbush and riparian woodland were in the southern and northern portions of the San Joaquin Valley, respectively. Valley oak (*Quercus lobata*), Freemont cottonwood (*Populus fremontii*), western sycamore (*Platanus racemosa*), and willows (*Salix* spp.) once grew on the verge of streams and rivers (WWF 2010). Tule marshes were represented by stands of tules (*Scirpus lacustris*), cattails, sedges, rushes, and clumps of willows. Vegetation tended to be sparse in the prairie grasslands, limited to grasses and flowering herbs. Faunal species that frequented the prehistoric prairie grasslands and tule marshes included mule and black-tailed deer (*Odocoileus* spp.), tule elk (*Cervus elaphus nannodes*), pronghorn antelope (*Antilocapra americana*), long-tailed weasel (*Mustela frenata*), river otter (*Lontra canadensis*), raccoon (*Procyon lotor*), and beaver (*Castor canadensis*). Migratory waterfowl such as Canada geese (*Branta canadensis*), swans (*Olor* spp.), Ross' geese (*Chen rossii*), Aleutian cackling geese (*Branta hutchinsii leucopareia*), and snow geese (*Chen caerulescens*) passed through during the winter, joining great blue

and black-crowned herons (*Ardea herodias, Nycticorax nycticorax*), ibis (*Plegadis guarauna*), Sandhill cranes (*Grus canadensis*), cormorants (*Phalacrocorax* spp.), mallards (*Anas platyrhynchos*), green-winged teal (*Anas carolinensis*), and bald eagles (*Haliaetus leucocephalus*). Badgers (*Taxidea taxus*), skunks (*Mephitis mephitis*), jackrabbits (*Lepus californicus*), and cottontail rabbits (*Sylvilagus audubonii*) inhabited higher ground. In the waterways, Chinook salmon (*Oncorhynchus tshawytscha*), steelhead trout (*Salmo gairdneri*), Pacific lamprey (*Lampetra tridentate*), and white sturgeon (*Acipenser transmontanus*) seasonally joined other fish species indigenous to the area such as the Tule perch (*Hysterocarpus traskii traskii*) and the Sacramento blackfish (*Orthodon microlepidotus).* Predators such as mountain lions (*Puma concolor*), grizzly bears (*Ursus arctos horribilis*), wolves (*Canis lupus*), coyotes (*Canis latrans*), kit foxes (*Vulpes macrotis)*, and bobcats (*Lynx rufus*) also roamed the area (Moratto 1984; WWF 2010).

6.1.2 Geomorphological Context

The HST project area is situated in the San Joaquin Valley, a large north-south-running basin in the central part of California. Generally, the valley bottom is composed of active alluvial fans along the mountain ranges, alkali basins, and river floodplains consisting of well sorted flood-deposited soils; naturally formed levees in these floodplains offered natural locations for prehistoric occupation (Rosenthal et al. 2007:147–163). Geologically, the San Joaquin Valley has undergone periods of uplift and subsidence over millions of years. The valley was filled with an interior ocean during the Jurassic and Cretaceous periods, up until the late Pliocene (ca. 5 million years ago). As a result, the valley partially filled with sediment while inundated, then continued to fill with alluvial fan soils washed down from the Sierra Nevada and the Coast Ranges during the Pleistocene and Holocene. The HST project APE is dissected by a series of rivers and creeks originating in the western Sierra Nevada, incised through the Pleistocene and Holocene alluvial fans emerging from the base of the mountains and eventually draining into the San Joaquin River (Meyer et al. 2010). Pleistocene soils in the alluvial fans are composed of the Riverbank and Modesto formations, and SR 99 generally crosses near the western ends of these (Meyer et al. 2010: Figures 18 and 29), except where younger flood deposits line drainage crossings. These floodplain soils vary in width, depth, age, and composition, depending on the size of the drainage, but date to the Latest Pleistocene and Holocene periods, when human occupation of the New World was increasing (Figure 6-1).

It has been estimated that the thick deposits of Holocene alluvium (up to 10 meters) that accumulated along the lower stretches of the Sacramento River and San Joaquin River drainage systems during the last 5,000–6,000 years buried sites from the earlier Paleo-Indian and Lower Archaic periods (Moratto 1984:214). Recent geoarchaeological studies support this conclusion (Rosenthal and Meyer 2004a, 2004b; White 2003). At the end of the Pleistocene (approximately 9050 calibrated [CAL] B.C.) and the early Middle Holocene (approximately 5550 CAL B.C.), periods of climate change and associated alluvial deposition occurred throughout central California lowlands, including the San Joaquin Valley (Rosenthal et al. 2007:151). Such episodes buried many of the earliest known archaeological sites in central California. Further, a recent project along the banks of the San Joaquin River near the city of Fresno discovered archaeological sites buried beneath up to 1 meter of alluvium (Flint 2001).

6.1.2.1 Project Area Soils

While 40 Natural Resource Conservation Service (NRCS) soil series represented by over 100 mapped soil types (Appendix E: Table E-1) can be found within the Merced to Fresno HST project corridor, several common characteristics can be identified. The vast majority of surface soils within the HST project corridor consist of gently sloped (≤3%), moderately deep to very deep, well drained loams and sandy loams derived from granitic alluvium. Alluvial clays, silt clays, silt clay loams, loamy sands, sandy loams, and gravelly soils are also present, but with much reduced frequency and extent. Additionally, some surface soils derived from sedimentary residuum are also present although infrequent.

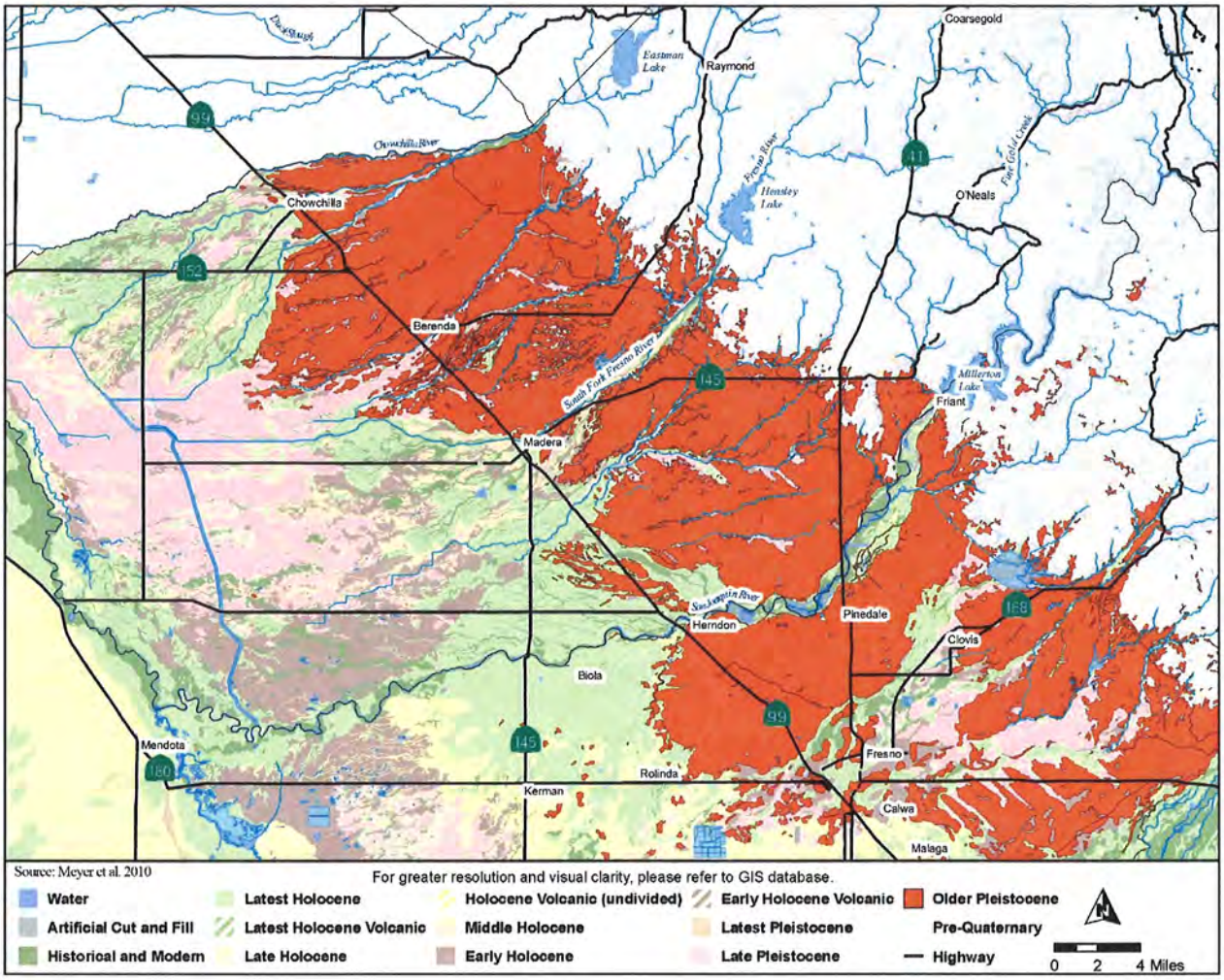


Figure 6-1
Age of Formations in the Joaquin Valley and Foothills – Caltrans Districts 6 and 9 (Source: Meyer et al. 2010: Figure 26)

6.1.3 Geomorphologic Assessment

With regard to prehistoric sites dating from Middle Archaic times onward, given the modern climatic conditions established in the San Joaquin Valley since the Middle Holocene, site selection behavior is anticipated to be contingent on the seasonal availability of surface water and the natural plant and animal resources it attracts and supports. Valley inhabitants relied on a variety of seasonally available natural resources of which acorns and tule were prominent. A single valley oak produced 300 to 500 pounds of acorns each year (Baumhoff 1963:49[2]:155–236), and tule roots likely were ground into meal to supplement the abundant faunal resources (Wallace 1978a:462–470). In addition, tule supplied reeds for housing, clothing, rafts, and baskets.

While groups living in the resource rich area of the Sacramento-San Joaquin Delta and the wetter Sacramento Valley could establish relatively large semipermanent villages, ethnographic data and the archaeological record suggest that those in the drier San Joaquin Valley were highly mobile, practicing a form of seasonal transhumance, travelling between valley floor areas in the winter and mountain resource areas in the summer to take advantage of a range of seasonally available plant and animal resources. Winter encampments located on the valley floor and adjacent foothills were positioned along ecotones to take advantage of seasonally abundant and diverse aquatic, wetland, grassland, and riparian

woodland resources like waterfowl, wild seeds, nuts and acorns, migratory fish, and tule and are likely to be located in proximity to sloughs, streams, vernal pools, or major rivers on locally elevated areas with well-drained soils that may have existed as islands during the valley's seasonal flooding. Winter camps are likely to be found on alluvial fans and stream terraces as well as hilly areas and locally elevated areas within the floodplains of major rivers. During the summer, valley inhabitants would have migrated from the hot dry valley floor to the cooler wetter upper-foothill and mountain valley areas harvesting acorns, sugar pine nuts (*Pinus lambertiana*) and other wild plants and hunting the area's abundant game resources (Barrett 1908:335–337).

[redacted]

6.1.3.1 Geoarchaeological Sensitivity

Rosenthal and Meyer (2004b), and Meyer and others (2010), have recently conducted geomorphic and geoarchaeological analyses that encompass the project area. The purpose of these studies, conducted for Caltrans District 10 (Rosenthal and Meyer 2004b), and District 6/9 (Meyer et al. 2010), was to identify the potential for buried prehistoric cultural deposits within the area. In the more recent of the two studies that encompass the portion of the project in Madera and Fresno counties, Meyer and others (2010) reconstructed, in detail, utilizing both absolute and relative dating techniques, the depositional history of the area to identify the geologic soil units most likely to contain prehistoric cultural deposits. Identified were soil deposits specifically associated with particular time periods including Late Pleistocene (50,000 to 42,000 CAL BP), Late Pleistocene (42,000 to 28,000 CAL BP), Late Pleistocene (25,000 to 15,000 CAL BP), Latest Pleistocene (15,000 to 11,500 CAL BP), Early Holocene (11,500 to 7,000 CAL BP), Middle Holocene (7,000 to 4,000 CAL BP), Late Holocene (4,000 2,000 CAL BP), Latest Holocene (2,000 150 CAL BP), Historic Era 150–0 [A.D. 1950]), and Modern (post A.D. 1950). Because the period of human occupation of the area is confined to the last, approximately, 13,000 years, soils from the Latest Pleistocene through the Holocene are the deposits of interest and sensitivity (Figure 6-2). Chronological soil associations, together with a determination of the original depositional circumstance (e.g. lacustrine, stream bank, or marsh deposits), can be used to assess the potential for areas or locations to contain prehistoric cultural deposits. In addition, knowledge of the depositional history of an area can make it possible to assess of the potential for a particular soil to contain cultural deposits, as well as to predict the possible depth at which the soil may be anticipated to occur. Taken together these types of geomorphologic information provide data on the potential for buried intact archaeological deposits. Based on the results of their geoarchaeological analysis, Meyer and others (2010) have included other quantifiable environmental factors (e.g., distance to water, slope, aspect, etc.) to assign a positive or negative correlation (Meyer et al. 2010). A weighted relational database was created and used to prepare a geoarchaeological sensitivity map that covers the Madera and Fresno counties portion of the Merced to Fresno Section (Meyer et al. 2010: Figure 17). A similar sensitivity map was prepared by Rosenthal and Meyer (2004b) for the Merced County portion of the project. Together, these analyses show that much of the Merced to Fresno Section lies within Pleistocene deposits older than 15,000 CAL BP. Along major drainages and in areas along the margins of these older deposits, the conditions are markedly different, being characterized by later Holocene deposits. It is in these areas of Holocene deposits that buried archaeological deposits are most likely to occur. Further analysis of the particular soils present in the Holocene deposits in the HST APE, based on future geoarchaeological field visits to these areas, can provide more specific assessments of potential for buried archaeological deposits to be present.

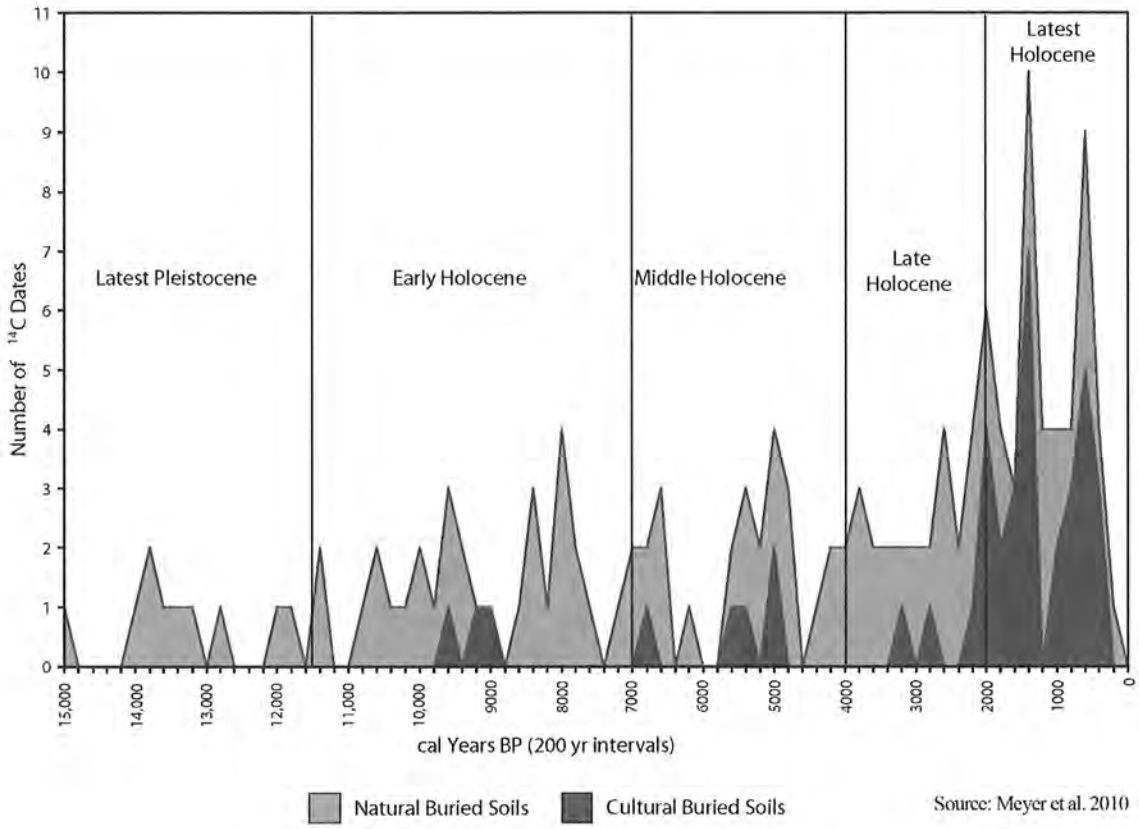


Figure 6-2
Potential for Buried Cultural Soils through Time

6.2 Cultural Setting

6.2.1 Prehistoric Context

Because they are generally development-driven, relatively few archaeological investigations have occurred within the San Joaquin Valley where relatively little such development has occurred until recent decades. Also, the presence during the late Pleistocene and Holocene of a series of large lakes in the southern part of the valley that were a focus for prehistoric human activity has resulted in a greater number of archaeological investigations in the southern valley area. Consequently, less is known about the archaeology in the northern valley area than many other regions in the Central Valley. However, the results of work conducted primarily in the last 50 years have increased understanding of the region's prehistory. Structured archaeological investigations within the northern San Joaquin Valley largely commenced in the 1960s (Olsen and Payen 1968, 1969; Riddell and Olsen 1969; Treganza 1960). Studies conducted along the eastern Diablo Mountain Range resulted in the identification of a cultural sequence similar to, but distinct from, that identified for the San Joaquin River Delta region approximately 50 miles northwest of the APE. The confluence of the Sacramento and San Joaquin rivers form this delta just east of where the rivers enter Suisun Bay, an upper arm of San Francisco Bay. Excavations conducted for the construction of reservoir projects in the region revealed a series of four cultural complexes, focused on exploiting foothill and valley resources. These data indicate that prehistoric people occupied the valley for a period minimally extending from ca. 3000 B.C. to A.D. 1850.

Throughout central California, the prehistoric period is divided into three broad temporal periods that encompass similar cultural characteristics. The Paleo-Indian period extends from ca. 9000 to 6000 B.C.

The Archaic period extends from 6000 B.C. to A.D. 500 and is divided into the Lower (6000 – 3000 B.C.), Middle (3000 – 1000 B.C.), and Upper (1000 B.C. – A.D. 500) periods (Fredrickson 1974:1[1]:49). The Emergent or Late Prehistoric period encompasses the period between A.D. 500 and sustained historic contact, which in some areas was as late as A.D. 1850 (Fredrickson 1973, 1974:1[1]:41–53, 1994:93–103). The drying of pluvial lakes adjacent to the Sierras, at the transition from the Paleo-Indian period to the Lower Archaic period, is one example of the variations in climate and environment that generally coincide with these broad chronological divisions throughout the state.

Rosenthal and others (2007) have recently synthesized the archeological data for the Central Valley and have updated the temporal sequence for the area (2007:147–163).

6.2.1.1 Paleo-Indian 11,550–8550 CAL B.C. (13,550–10,550 BP)

During this period, wetter climatic conditions predominated and the retreat of the Sierran glaciers produced substantial amounts of runoff into the drainages flowing into the valley.). At the end of the Pleistocene (approximately 9050 CAL B.C.), considerable deposition in the alluvial fans and floodplains occurred throughout the central California lowlands, including the San Joaquin Valley (Rosenthal et al. 2007:151). In the northern San Joaquin Valley and adjacent Delta region, the prehistoric period is estimated to have extended from at least 12,000 years ago until historic contact, although few recorded archaeological sites in the region predate 5000 years ago. Characteristic fluted projectile points attributed to the Paleo-Indian period have been discovered in the Central Valley in relatively few scattered surface locations. Most such finds have been in the southern San Joaquin Valley around the Tulare Lake Basin. Within the northern San Joaquin Valley, fluted points have been found at only two sites, Tracy Lake in San Joaquin County and the Wolfsen mound site (CA-MER-215) in Merced County (Dillon 2002:110–128; Heizer 1938:12[5]:180–182; Peak and Weber 1978).

6.2.1.2 Lower Archaic 8550–5550 CAL B.C. (10,550–7550 BP)

During the Lower Archaic, the wet conditions during the Paleo-Indian period continued. As indicated for the Paleo-Indian period, in the northern San Joaquin Valley, few recorded archaeological sites in the region predate 5000 years ago. The thick deposits of Holocene alluvium (up to 10 meters) that accumulated along the lower stretches of the Sacramento River and San Joaquin River drainage systems during the last 5000–6000 years, buried sites from the earlier Paleo-Indian and Lower Archaic periods (Moratto 1984:214). Consequently, like the Paleo-Indian period, most evidence for human activity during the Lower Archaic is represented by isolated finds with most occurring around the lake basins in the southern part of the valley. Such evidence includes stemmed projectile points and flaked crescents. According to Rosenthal and others, in proximity to the project area, only one Lower Archaic artifact has been found and this was in the Sacramento Valley north of the project area (2007:151). While numerous Lower Archaic surface finds have been made around the lake basins to the south, the only archaeological deposit dated to this period was identified in a deeply buried soil along the ancient shoreline of Buena Vista Lake at CA-KER-116, which produced three flaked crescents, and radiocarbon dates on freshwater mussel shell of between 7175 and 6450 CAL B.C. (Rosenthal et al. 2007:151).

6.2.1.3 Middle Archaic 5550–550 CAL B.C. (7,550–2550 BP)

The Middle Archaic is marked by a substantial change in climate with drier conditions present throughout central California. The lakes in the southern part of the Central Valley shrank substantially or dried up entirely during this period, and alluvial landforms stabilized with little deposition occurring. It is during this period that human occupation can first be substantially documented in the archaeological record in the vicinity of the project area of the valley. Also, according to Rosenthal and others (2007:152–153), beginning during the Middle Archaic, two distinct settlement-subsistence adaptations can be documented for the area; one centering on the valley floor and the other on the adjacent foothills. Interestingly, sites attributable to the early Middle Archaic (ca. 5550–2050 CAL B.C.), are sparse on the valley floor, but relatively abundant in the foothills. This occurrence is most likely due to the deep burial of the sites on the valley floor during subsequent periods of alluvial deposition, whereas sites situated in the upper elevations and slopes of the foothills would be less likely to accumulate substantial sedimentary deposits.

Only four dated site deposits and a few dated isolates are attributable to this period on the floor of the valley with most of these occurring in buried contexts. One of these sites, located in the Sacramento Valley, was discovered, by augering, at a depth of more than 3 meters (Rosenthal et al. 2007:153). In contrast to these few occurrences, a number of sites dating between 4050 and 2050 CAL B.C. have been documented in the adjacent foothill areas with many also occurring in buried contexts, but generally at less substantial depths. These foothill sites are characterized by expedient flaked cobble tools used for chopping, pounding, and scraping, as well as cobbles used as grinding implements (Rosenthal et al. 2007:153).

A number of sites and site components associated with the late Middle Archaic (post 2550 B.C.) are documented in the northern San Joaquin Valley and Sacramento Valley and Delta. According to Rosenthal and others, "The late Middle Archaic record reveals a distinct adaptive pattern reflecting the emergence of logistically organized subsistence practices and increasing residential stability along river corridors of the Sacrament and San Joaquin Valleys" (2007:153). This adaptive association with water courses, which appears to have started during the middle part of the period, was clearly established by the end of the period. Site assemblages from this period contain nonutilitarian artifacts and evidence of trade, and faunal remains indicate year-round site occupation. These late Middle Archaic assemblages are also associated with one of the earliest defined cultural patterns in central California, the Windmiller Pattern (Fredrickson 1974; Moratto 1984). This pattern was originally defined by consistency of burial orientation and by elaborate grave offerings. While, originally, most were associated with the Sacramento Delta area, recent finds indicate a distribution throughout the San Joaquin Valley (Rosenthal et al. 2007). The late Middle Archaic is also characterized as demonstrating the first substantial evidence for fishing (bone gorges and composite hooks, and spears), basketry (basketry awls, baked clay basketry impressions), simple pottery, and finely made plummet stones of indefinite function.

Based on investigations at sites on the western margins of the San Joaquin Valley, Olsen and Payen (1969) developed a series of four complexes, the Positas, Pacheco, Gonzaga, and Panoche complexes, all occurring subsequent to the Paleo-Indian and Lower Archaic periods. The Positas complex can be attributed to the Middle Archaic, possibly dating to as early as 5300 years ago and as late as 4600 years ago. Characteristic artifacts of the Positas Complex include small shaped mortars, short cylindrical pestles, milling stones, cobble manos, perforated flat cobbles, and spire-lopped *Olivella* shell beads. At site CA-MER-94, the artifact assemblage also includes a small bone bead and two projectile points (one leaf-shaped and one stemmed). Based on artifact forms, this complex may be related to the Windmiller Pattern of the Delta and Sacramento Valley (Moratto 1984).

6.2.1.4 Upper Archaic – 550 CAL B.C to CAL A.D. 1100 (2,550–900 BP)

The inception of the Upper Archaic coincides with beginning of Late Holocene environmental conditions consisting of a cooler and wetter, but more stable climate. The onset of these conditions occurred abruptly as indicated by the apparently rapid reinundation of lakes in the region that were desiccated during the Middle Archaic. Also occurring as a result of these conditions was the resumption of substantial sediment deposition in the valley, resulting in the burial of the stable and weathered landforms created by the dry conditions during the Middle Archaic. The archaeological record is more substantial for the Upper Archaic than for the previous periods. Elaboration and diversity in artifact assemblages continued from the late Middle Archaic. According to Rosenthal and others (2007:156) these assemblage characteristics reflected more pronounced cultural diversity and a "geographically complex mosaic of distinct sociopolitical entities marked by contrasting burial postures, artifact styles, and other elements of material culture." This increase in complexity was particularly pronounced in the eastern Sacramento Delta area where the Windmiller Pattern was apparently replaced by the Berkeley Pattern with clear connections to groups in the San Francisco Bay and adjacent coastal areas. In the northern San Joaquin Valley, the Windmiller Pattern continued as far south as Merced County, through the Upper Archaic. The archaeological record for the period indicates that an expanded resource base now included resources that could be harvested and processed in bulk such as acorns, salmon, shellfish, rabbits, and deer. A substantial reliance on the acorn as a food staple is also reflected by the considerable presence in the archaeological record of mortars and pestles and a rich content of archaeobotanical materials. The considerable presence of obsidian in the archaeological record indicates a substantial trade in this

material. Interestingly, the obsidian recovered at sites in the San Joaquin Valley derived mostly from sources on the east side of the Sierra, such as Bodie Hills, Casa Diablo, and Coso, while sites in the Sacramento Valley reflect trade mostly with sources in the North Coast Ranges such Borax Lake and the northern Napa Valley (Rosenthal et al. 2007).

Rosenthal and others (2007:156) postulate that in the San Joaquin Valley, during the Upper Archaic, the lower foothill woodlands may have represented a boundary area where valley people periodically colonized riparian and other well-watered foothill locations along the base of the Sierra, such as at sites CA-MAD-117 and CA-MAD-159 along the Chowchilla River, where Moratto has defined a Chowchilla Phase (800 B.C.–A.D. 550 [1984:323]), and at CA-MAD-171 along the Fresno River (Moratto 1972, 1984; Fenenga 1973). While in the western areas of the San Joaquin Valley, sites dating to the Upper Archaic have been investigated, little archaeological evidence exists for the Upper Archaic in the southern San Joaquin Valley. Based on investigations at sites in the western San Joaquin Valley, Olsen and Payen (1969) defined the Pacheco Complex, which can be dated to both the Middle and Upper Archaic periods (ca. 2600 B.C.–A.D. 300) by the presence of shell beads and specific shell bead typology. The beads include rectangular mussel, *square Haliotis*, and thick rectangular *Olivella* shell. At CA-MER-94, the Pacheco Complex artifact assemblage also comprised large side-notched and stemless projectile points, bone awls, stone scrapers, and an abundance of ground stone artifacts (slab milling stones, manos, and large and small bowl mortars). Mortuary practices include flexed burials with infrequent grave goods. Circular depressions, up to 12 feet in diameter, have been interpreted as floor surfaces. The combination of milling implements indicates that acorns formed an important part of the diet (Olsen 1970). The shell and bone artifacts are comparable to those found in the Delta during the Middle Archaic period.

6.2.1.5 Emergent Period – CAL A.D. 1000 to Historic (1000–ca 200 BP)

Although several flood and drought episodes have been discerned during the period, the relatively stable climatic conditions established at the outset of the Upper Archaic can be interpreted to have continued into and through the Emergent period. Rosenthal and others observe, however, that it is not clear whether these drought and flood episodes are unusual events or are "a product of the comparatively profound resolution of more recent paleoenvironmental evidence" (2007:157). While the archaeological record for the Emergent period is the most substantial of any of the periods, this record is uneven in terms of its distribution. The Emergent period is associated with the Augustine Pattern of the lower Sacramento Valley/Delta. In the San Joaquin Valley, sporadic research has resulted in few components or phases being identified for the period (Rosenthal et al. 2007:157). In the western San Joaquin Valley, Olsen and Payen (1969), based on the excavated material at CA-MER-3, CA-MER-14, and CA-MER-94, among other sites, have defined two complexes that are both probably associated with the period, the Gonzaga Complex (ca. A.D. 300–1000) and the Panoche Complex (ca. A.D. 1500–1850). Artifacts and features characteristic of the Gonzaga Complex include shaped pestles and bowl mortars, bone awls, squared and tapered-stem projectile points with squared and tapered stems, and grass saws. The lithic assemblage also includes scrapers and core tools; obsidian was flaked to form serrated points. Among the ornaments typical of this complex are distinctive *Haliotis* shell forms and thin rectangular, split-punched, and oval *Olivella* beads (Moratto 1984). Unlike the preceding Pacheco Complex, burials are either extended or flexed. Overall, the cultural traits of the Gonzaga Complex are similar to those found in the Delta during the early Emergent period (Late Prehistoric period). The Panoche Complex features large circular structures; flexed burials and both primary and secondary cremations; a few milling stones; varied mortars and pestles; bone awls; saws; whistles and tubes; small side-notched arrow points; clamshell disk beads; *Haliotis* epidermis beads; and Ollivela lipped, side-ground, and rough disk beads (Moratto 1984:192-193). In the adjacent foothill areas of the eastern San Joaquin Valley, Moratto has defined two phases coinciding with the Emergent period, the Raymond Phase (ca. A.D 300–A.D. 1500) and the Madera Phase ca. A.D.1500–A.D. 1850). The Raymond Phase appears to indicate a period of instability and change with old villages appearing to exhibit cycles of occupation and abandonment after ca. A.D. 500. Violence was common and primary interment of the dead was in flexed positions, although some extended burials noted during the early part of the phase. Compared to Chowchilla Phase burials, Raymond Phase burials were lacking in offerings. The Madera Phase appears to represent a period of prosperity associated with the ancestral Southern Sierra Miwuk. Characteristic of this phase are steatite

disk beads, lightweight arrow points, bedrock mortars and cobble pestles, several types of *Olivella* beads, and occasional pieces of exotic Brown Ware pottery. A steatite industry was also evidenced with the manufacture of beads, bowls, cooking vessels, pipes, arrow-shaft straighteners, and ornaments (Moratto 1972:1984).

6.2.2 Ethnographic Context

The Merced to Fresno Section of the HST Project APE is located primarily within the area traditionally occupied by the Northern Valley Yokuts, a Penutian-speaking central California group (Kroeber 1925; Wallace 1978a:462–470), with marginal overlap with the territory of the Southern Sierra Miwuk (Mi-wuk) to the north and east. The core of Northern Valley Yokuts territory was the San Joaquin River and their lands surrounding the river extended eastward from the crest of the Coast Ranges (Diablo Range) into the Sierra Nevada foothills and southward from Bear Creek (midway between the Mokelumne and Calaveras rivers) to the upper San Joaquin River and today's City of Fresno. Among neighboring groups were the Foothill Yokuts to the southeast, Southern Valley Yokuts to the south, Costanoan (Ohlone) to the west, Salinan to the southwest, Plains and Southern Sierra Miwuk to the north, and Sierran Miwuk on the east (Dick-Bissonette 1994:4). While Kroeber (1925) indicates that the Southern Sierra Miwuk generally held the drainage of the Merced River and adjacent smaller streams and may have divided their territory from the Northern Valley Yokuts at the Fresno River, Wallace ascribes Northern Valley Yokut territory as extending along both sides of the San Joaquin River Valley from approximately Bear Creek to the north to the present-day location of the City of Fresno to the south (Wallace 1978a:462).

Because of their rapid decimation as a result of disease, missionization, and Euro-American settlement, the Northern Valley Yokuts are generally not well documented in the ethnographic record (Wallace 1978a:470). Ethnographers have compiled information on the Yokuts' lifeways from various sources, primarily military and missionary reports and diaries written during the Spanish and Mexican periods (Kroeber 1925:474–543; Latta 1977; Wallace 1978a:462–470).

The Northern Valley Yokuts were organized into at least 11 small political units or tribes (Wallace 1978a). Each tribe had a population of approximately 300 people, most of whom lived within one principal settlement that usually had the same name as the political unit. Typically, the territory of each tribe was situated on major tributaries of the San Joaquin River (Chowchilla, Fresno, Merced, and Stanislaus rivers) or on a portion of the western or southern side of the San Joaquin River. Based on analogy to the Southern Valley Yokuts, the Northern Valley Yokuts were probably divided into totemic moieties, with exogamous clans (Kroeber 1925:493–494).

The Northern Valley Yokuts generally established villages on natural rises or levees along major watercourses (Wallace 1978a:466). Villages consisted of both large communal residences and single-family dwellings, generally round or oval in shape and constructed with tule mats over pole frames. Settlement was concentrated on the eastern side of the San Joaquin River along the permanent waterways flowing from the Sierra Nevada (Wallace 1978a:463). Along the semipermanent watercourses along the Diablo Range foothills to the west of the river, the population was comparatively sparse, and a recent summary suggests that the settlements along the western foothills of the Coast Ranges were inhabited seasonally to collect acorns in the oak woodlands not common on the valley floor (Pettigrew et al. 1994:3-34 through 3-35). Within the villages, structures included sweathouses, ceremonial chambers, and oval single-family dwellings made of tule (Wallace 1978a:465). Early Spanish expeditions described Yokut villages as "well stocked with food and populous" (Wallace 1978a:463), indicating they may have represented substantial settlements. Ethnographic villages near the Merced to Fresno Section of the project area included *Copicha* (at Chowchilla), *Halau* (at Berenda) and *Kohuou* (near Herndon) (Wallace 1978a:470).

Because of their proximity to the San Joaquin River and its major tributaries, fishing was a particularly important part of the Northern Valley Yokuts' subsistence and economic practices (Wallace 1978a:464). During the fall and spring spawning periods, salmon was a dietary mainstay, and other large fish—sturgeon, river perch, western suckers, and Sacramento pike—were available year-round.

Waterfowl, such as ducks and geese, were likely an additional staple and would have been particularly abundant during the spring and fall migrations. In the northern San Joaquin Valley, where abundant natural resources varied seasonally, the Northern Valley Yokuts also hunted and collected plant foods.

Large animals in the region included antelope, deer, elk, and black bears. Acorns from the groves of valley oaks were a staple food and they were collected each fall and stored in granaries.

In addition to acorns, Northern Valley Yokuts collected and consumed a diversity of berries, grass seeds, and tule roots. To gather, collect, and process food resources, a wide variety of tools, implements, and enclosures were employed by the Northern Valley Yokuts (Kroeber 1925:527; Latta 1977; Wallace 1978a:464–465). The bow and arrow, nets, slings, traps, and blinds were likely among the variety of items employed for hunting land mammals and birds. Fishing implements would have included harpoons, hooks, and nets, as well as tule rafts. Tools used to collect plant resources included sharpened digging sticks and woven items, such as burden baskets, carrying nets, and seed beaters. Stone mortars and pestles, and possibly wooden mortars, bedrock and portable mortars, stone knives, stone scrapers, and bone tools, were among the variety of tools used to process foodstuffs. Items obtained by trade with neighboring groups included obsidian bows and arrows, baskets, mussels and abalone, and shell beads and ornaments (Wallace 1978a:465). A variety of trails west to the coast and river routes facilitated trade and regular visits to other tribes.

The nature of the Northern Valley Yokuts' religious beliefs and practices is not known (Kroeber 1925:502). Because they were situated within the area of the south-central California Jimson Weed Cult, the Northern Valley Yokuts likely participated in this practice. The power of shamans would have been used to heal and control the environment. Mortuary practices probably included either cremation or burial in a flexed position, followed by an annual mourning ceremony.

Sierra Miwuk settlement and subsistence systems were based on technological approaches to the exploitation of the diverse natural resources present in the lower and middle elevations of their traditionally occupied territory. In general, Miwuk technology was typical of the region, and few material elements of their daily lives stand out as unique to the tribe. As did many other peoples in the area, the Miwuk utilized an approach that mixed hunting and gathering strategies with main settlements near staple food sources such as acorn-bearing oak groves and smaller sites located on areas of the landscape near where seasonal resources were available (Levy 1978).

Material culture among the Sierra Miwuk differed little from other tribes throughout the region and probably varied from their neighbors mostly as a result of differential resource availability. All groups in the north-central Sierra Nevada used brush, grasses, and tule reeds to build their structures.

Prehistorically, flaked and ground stone implements composed the technological foundation until large-scale European incursions into the area in the mid-19th century, when steel tools became highly valued and preferred. Basketry, in prehistoric and historic times, was a notable Miwuk skill, and the coiled and warp-and-weft products were standard household equipment (Levy 1978).

The most important political and social unit was the tribelet, typically ranging in size between 100 and 300 individuals (Levy 1978). Tribelets maintained control over specific territories, and the settlements within these areas exploited the available natural resources during the course of the year. Each tribelet territory contained an assembly house in the chief's settlement, and this structure was considered the chief's personal property. This house was used for important religious and social events sometimes involving sacred ceremonies and "profane dances." Sacred ceremonies used elaborate ceremonial costumes typically consisting of robes and headdresses made of feathers. The mishandling of such paraphernalia was thought to lead to sickness in the dancers and the audience. Profane (nonreligious) dances were primarily intended as entertainment and did not pose potential risks to participants and spectators since none of the elaborate and powerful regalia was used in their performance.

Although the San Joaquin Valley was only sparsely settled before the advent of the American period in 1848, by the late 1700s influences from the Spanish period coastal missions and presidios were felt in the

interior lands (Wallace 1978a:468–469). By 1805, Native Americans living in the project vicinity were transported to the Spanish missions at San Antonio, San Jose, San Juan Bautista, Santa Clara, and Soledad. As tribal residents were removed, the remaining population suffered from the introduction of new diseases. Military raids into the valley also resulted in local deaths. The malaria epidemic of 1833, in which entire communities and whole tribes were decimated, heralded further disaster. During the early American period, gold-seekers and farmers pushed remaining Native Americans out of the verdant bottomlands, resulting in starvation and the loss of traditional lifeways.

Based on the local environment and population density throughout California, the pre-contact population of Northern Valley Yokuts has been estimated at between 25,000 and 31,000 (Wallace 1978a:463). In 1852, when called to sign one of a series of statewide treaties, representatives of only three Northern Valley Yokuts tribes remained. They agreed to live on a reservation in their traditional territory, but the treaty was never ratified. At present, there are approximately 2,000 Yokuts living on three rancherias—Picayune in Madera County at Coarsegold, Santa Rosa in Kings County, and Table Mountain in Fresno County near Friant—and on the Tule River Reservation, which was established in 1873 in Tulare County near Porterville (White 2009). Some Foothill Yokuts also live with Central Sierran Miwuk on the Tuolumne Rancheria in Tuolumne County. Contemporary Yokuts tribes include the Choinumni, the Chukchansi of Coarsegold, the Tachi (or Tache), and the Wukchumni.

6.2.3 Historic Context

Post-contact history for the state of California generally can be divided into three periods: the Spanish period (1769–1822), Mexican period (1822–1848), and American period (1848–present) (Schuyler 1978). Although there were brief visits by Spanish, Russian, and British explorers from 1529 to 1769 within the territory claimed by Spain, the Spanish period in California began in earnest in 1769 with a settlement at San Diego and the first (Mission San Diego de Alcalá) of 21 missions established between 1769 and 1823.

During the Spanish period, expeditions explored portions of the Central Valley beginning in the 1770s. In 1772, Pedro Fages led a small group of soldiers through the Tejon Pass into southernmost San Joaquin Valley, and four years later Francisco Garcés visited the same region (Wallace 1978b:459). In the 1772 expedition, Fages also explored the land east of San Francisco Bay, as did Juan Bautista De Anza in 1776, both remarking on the vast interior plains composing the Central Valley, including the San Joaquin Valley, which is the portion of the Central Valley lying south of Sacramento-San Joaquin River Delta, located in Stockton, California (Gunsky 1989:2–3). In 1806, the Spanish expedition led by Lieutenant Gabriel Moraga, entered the San Joaquin Valley via Pacheo Pass while seeking sites for new missions and also searching for runaway Indian neophytes from the coastal missions. In 1808 Moraga led another expedition from the Bay area as far south as the Merced River. Moraga named the Kings River (*El Río de los Santos Reyes*) and the stream that flows into Lake Buena Vista (*San Joaquin*); an appellation was later applied to the San Joaquin River (Elliott 1882:167; Hoover et al. 1990:85). The final Spanish expedition into the California interior was led by Luis Arguello in 1817.

Two major north-south trails were established in California during the Spanish period. *El Camino Real* connected the 21 missions that paralleled the coastline between San Diego and Sonoma. Today's Interstate 5 between San Diego and Los Angeles and Highway 101 between Los Angeles and Petaluma generally follow "The King's Highway." In the interior, *El Camino Viejo* was the oldest north-south trail that traversed the entire length of the San Joaquin Valley; much of the trail lay east of the Coast Range (Hoover et al. 2002:85). "The Los Angeles Trail" connected today's Los Angeles and East Oakland and was also later known as the Stockton–Los Angeles Road. The same route was a popular cattle and sheep trail from 1849 to the 1880s.

The Mexican period begins with independence from Spain and is marked by an extensive era of land grants, most of which were in the interior of the state, and by exploration by American fur trappers west of the Sierra Nevada. In the northern San Joaquin Valley, land grants were issued in today's Fresno, Merced, San Joaquin, and Stanislaus counties. Jedediah Smith was the first trapper to enter California. His small party trapped and explored along the Sierra Nevada Range in 1826, and entered the Central Valley in 1827. His party trapped and camped along the San Joaquin River and his travels included

friendly encounters with the Southern Valley Yokuts near the Kings River (Clough and Secrest 1984:27). Although the San Joaquin Valley was only sparsely settled during the Spanish and Mexican periods, the Native American population was decimated by introduced diseases, particularly the malaria epidemic of 1833 (Cook 1978:98). Figure 6-3 depicts a portion of Mexico's western territory, including California, at the end of the Mexican period in 1847.

The signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican–American War, is the start of the American period when California and several other western states became a territory of the United States (Gunsky 1989; Schuyler 1978). The discovery of gold in 1848 at Sutter's Mill near Sacramento and the resulting Gold Rush era influenced the history of the state and the nation. Largely as a result of the Gold Rush, California became the 31st state in 1850. Thousands of settlers and immigrants continued to pour into the state, particularly after the completion of the transcontinental railroad in 1869. Many headed for the gold fields, but enterprising individuals and businesses met the increasing demand of the miners for commodities and food, boosting the agriculture, ranching, dairy, manufacturing, fishing, lumber, and transportation industries.

In the 1870s, the Central Pacific Railroad constructed its Southern Pacific line through the San Joaquin Valley to reach southern California, revolutionizing the transportation network, passenger travel, and the ability of farmers and ranchers to sell their goods to distant markets. Chinese laborers made a noted contribution to the construction of the rail line and settled in communities referred to as Chinatowns, including one in today's City of Fresno (Hoover et al. 1990:171). During this period in the late 1800s, the San Joaquin Valley became the center of California's wheat belt. While ranching remained an important industry, with the expansion of large-scale irrigation in the early 1900s came the production of a variety of fruits and vegetables, vineyards, alfalfa, and cotton, among other crops (Jelinek 1979:47–60). Figure 6-4 shows the Southern Pacific Railroad at its completion 1876.

The establishment of a state highway system in the early 1900s was the next major transportation development. Two north-south highways were planned through the Central Valley. One corresponds to today's SR 99 in the interior; the second to U.S. Highways 1 and 101 along the western slope of the Coast Range. The routes were planned to pass through as many population centers as possible, and particularly the latter half of the 20th century witnessed the growth of existing and new residential, commercial, and industrial complexes along these routes and the modern freeway system. SR 99 was completed as a four-lane expressway between Sacramento and Los Angeles in the 1950s, and Interstate 5 was completed in the 1970s.

6.2.3.1 Merced County

One of the first explorers to the California interior, Gabriel Moraga, set out from San Juan Bautista in 1806 with 25 men in search of a suitable location for an inland mission. Their route took them to a point along today's Merced River. After difficult travel through wetlands, they found and named the river. Moraga explored the area again in 1808 and 1810 (Hoover et al. 1990:198). No mission was ever established within the interior, however, and the mission fathers considered the Moraga expeditions a failure.

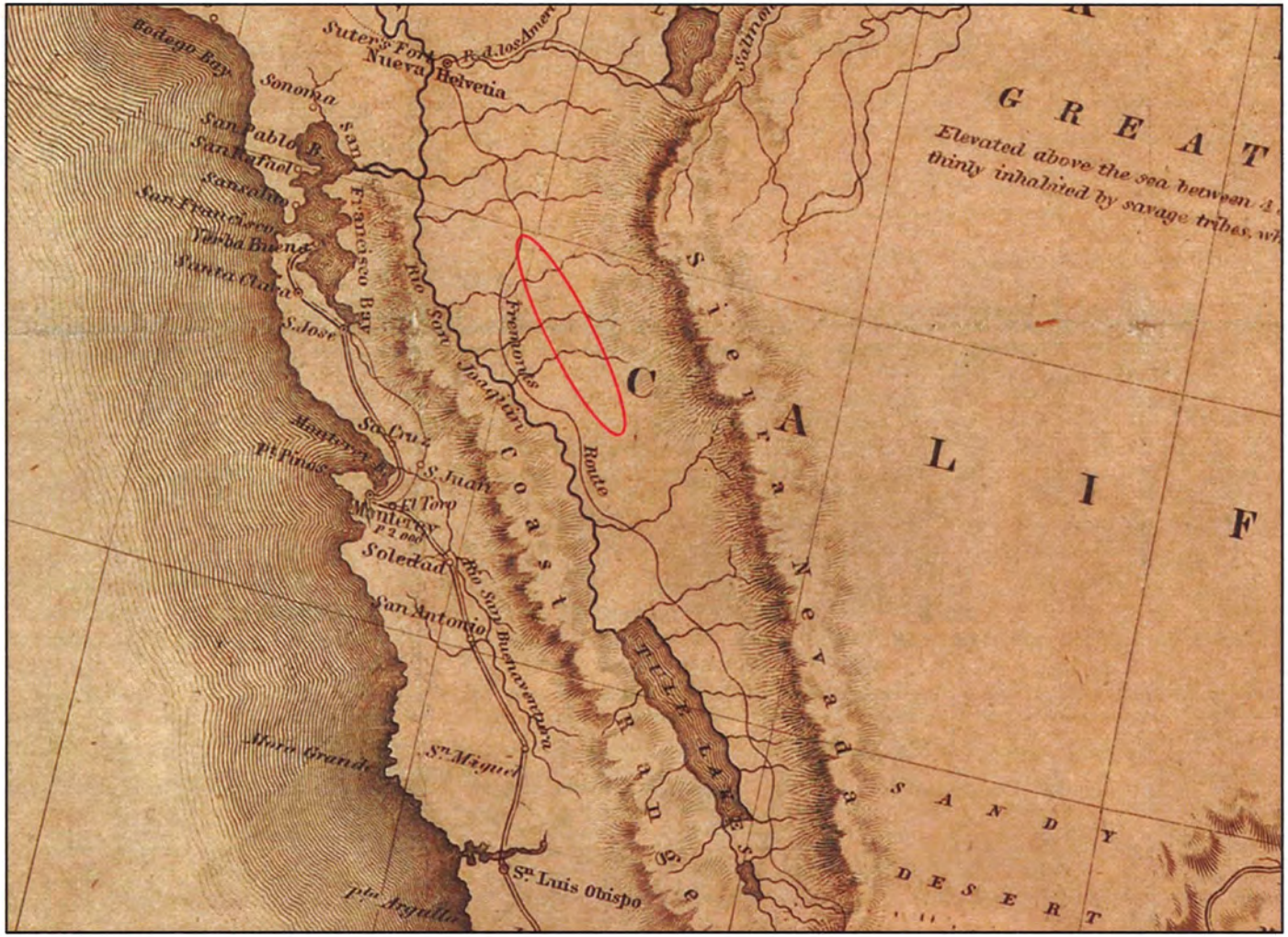


Figure 6-3
Detail from Mapa de los Estados Unidos de *Méjico,* Disturnell, 1847
Approximate project area in red.

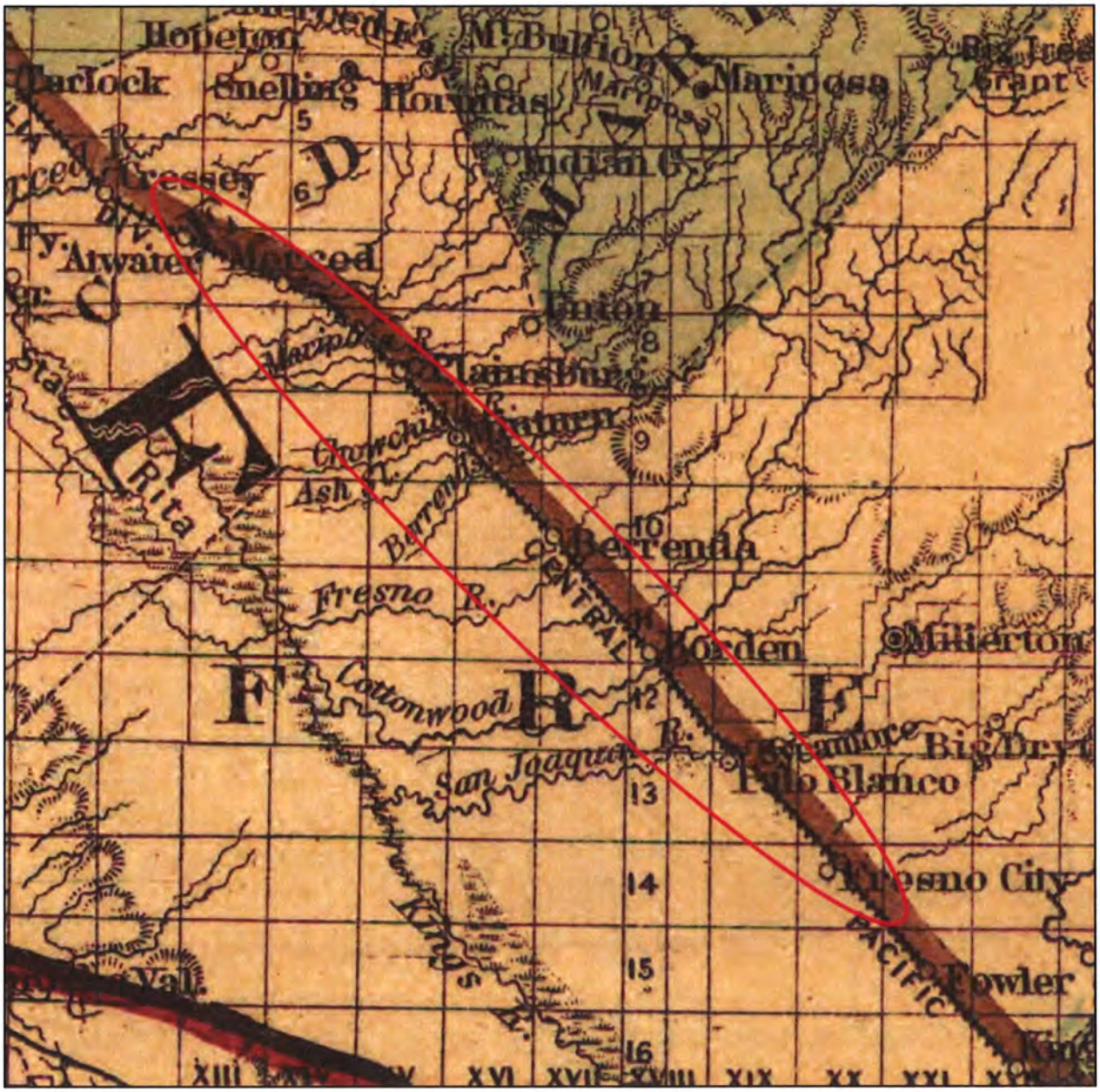


Figure 6-4
Southern Pacific Railroad in California, Colton, 1876
Approximate project area in red

To accommodate the large numbers of miners heading to the Sierra Nevada during the Gold Rush, a toll road was constructed over Pacheco Pass and into Merced County in the 1850s (Hoover et al. 1990:199). Between 1858 and 1861, this route was traversed by the Butterfield overland stage line; rest stations were established along the route at 15-mile intervals. Between Merced and Chowchilla, a post office was established in 1881 along the rail line at today's unincorporated community of Athlone. Service at the Athlone post office was temporarily suspended in 1909, but resumed in 1914 and continued until it was officially closed in 1937 (Durham 1998:741).

During a period of growth in the mid- to late-1880s, settlement along the railroad and the region's waterways increased, and settlers raised livestock and grew a variety of crops. Small towns blossomed along the rivers, but the majority did not survive into later times because of floods, drought, or competition by the railroad (Hoover et al. 1990:203). While many of the towns that flourished for a time along the area's rivers ultimately failed, other communities arose along the railroad, usually nucleated around a siding, construction depot, or station facility. The county's two largest population centers—Atwater and Merced—both developed and grew as a direct result of the railroad's presence and the transportation services this modality offered. A discussion of these two cities can be found below.

Established in 1855 with the annexation of the southwestern portion of Mariposa County, Merced County derives its name from that given to Merced Lake, named for "Our Lady of Mercy" (*Nuestra Señora de la Merced*) by the Spanish expedition of 1775 led by Juan Bautista de Anza (Gudde 1998:234). The same name was given to the Merced River by members of the Spanish expedition led by Gabriel Moraga in 1806 (Hoover et al. 1990:198; Gudde 1998:234). The burgeoning City of Merced was named the county seat in 1872.

Although the bottom lands in the county are fairly well watered, particularly around the Merced and San Joaquin rivers, a series of canals were constructed beginning in the late 1860s to control flooding and provide irrigation water for agriculture (Elliott 1882:170–171). Construction on the first extensive canal in the state, the San Joaquin and Kings River Canal, began in 1871. The 67-mile canal was completed in 1878. Figure 6-5 shows the irrigation system that then existed in Merced County in 1885.

The eastern portion of Merced County experienced an expansion of a profitable livestock industry. By the 1920s, the county had over 80,000 stock cattle and over 40,000 dairy cattle. Sheep and hogs were also raised in the fertile county grasslands (Outcalt 1925). Today, the county's leading commodity is milk from dairy cows. Poultry (chicken, turkey, and eggs), cattle, and crops are also key economic products. Leading crops include almonds, sweet potatoes, tomatoes, alfalfa hay, and cotton (Merced County Agricultural Commissioner 2008).

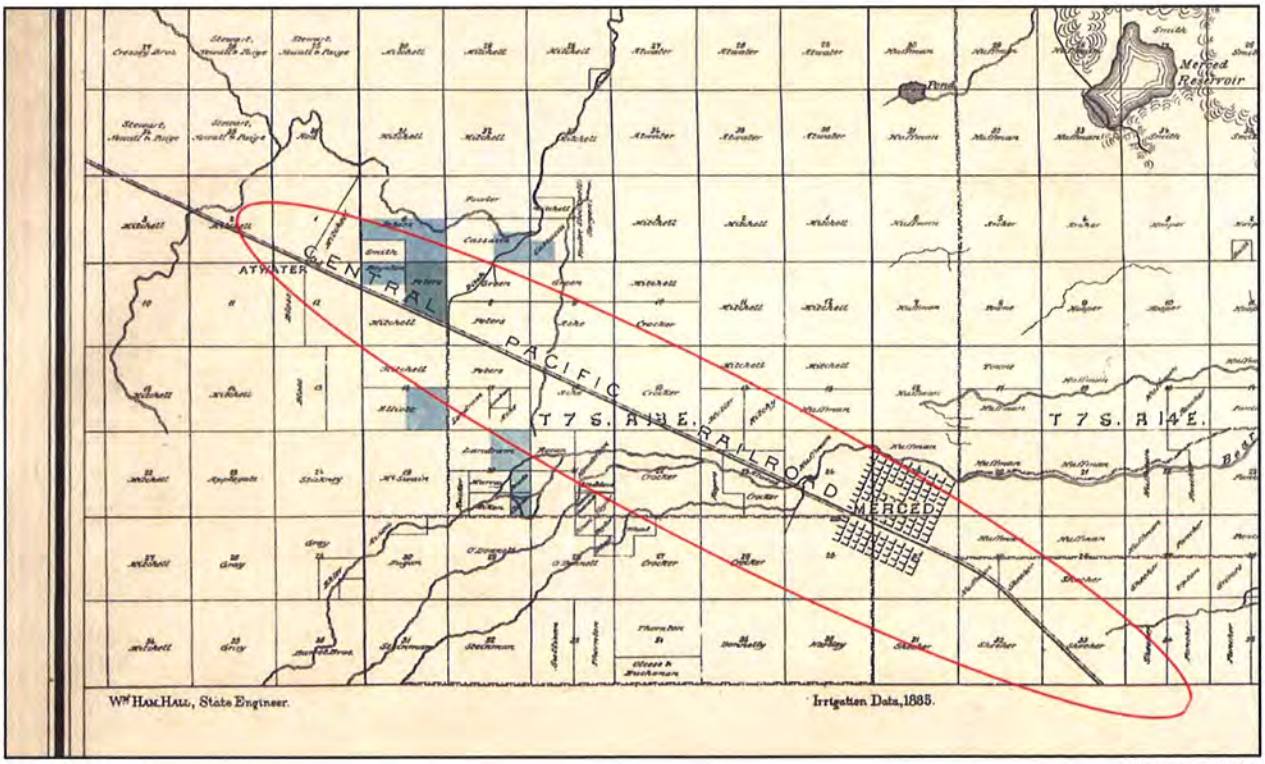


Figure 6-5
Merced Irrigation Map, Hall, 1885
Approximate project area in red.

6.2.3.2 City of Atwater

The City of Atwater is located in the central part of the San Joaquin Valley. Situated southwesterly of the former Castle Air Force Base and 6 miles west-northwest of the City of Merced, much of Atwater's core lies between the Santa Fe Trail (County Road 37) and SR 99 in Merced County.

The history of today's City of Atwater is rooted in the development of farmland in the northern San Joaquin Valley. Marshall D. Atwater began growing wheat on land in the area as early as 1869 and later rented 6,000 acres of farmland located between the Southern Pacific line and Winton (Atwater Chamber of Commerce 2007). In 1872, Atwater requested the railroad build a siding to handle his grain shipments. This stop later became known as the Atwater Switch.

Attracted by the fertile farmland for growing fruits and other crops, plus the opening of a school at Atwater in 1878, settlement in the area slowly increased (Atwater Chamber of Commerce 2007). In 1884, George S. Bloss Sr. moved to Atwater with his family from Connecticut. The farmer built a two-story home by the railroad tracks in 1892, and another home on Cedar Avenue in 1913, referred to today as the Bloss home. Atwater's burgeoning agricultural industry prospered in the early 1910s and with a related growth in population. While specific population figures for Atwater do not exist prior to municipal incorporation, census counts are available for each decade beginning in 1930, with the exception of 1960 (Table 6-1).

Table 6-1
Population Statistics,
City of Atwater 1930 – 2000

Year	Population
1930	917
1940	1,235
1950	2,779
1970	11,640
1980	17,530
1990	21,682
2000	23,113

Sources: www.ancestry.com (n.d.); City of Atwater Department of Commerce (1950); Pacific Municipal Consultants (2000); www.us-cities.org (n.d.); Federal Emergency Management Agency (2010).

Atwater is also known for its adjacency to Castle Air Force Base. The U.S. Army established the base in 1941 and it housed the Army Air Corps Basic Flying School Winton (Atwater Chamber of Commerce 2007). In 1946, the base fell under the control of the Strategic Air Command, and it remained active until it was closed in 1995 at the end of the Cold War. Today, vintage aircraft may be viewed at the Castle Air Museum at the former military facility.

6.2.3.3 City of Merced

The City of Merced nucleates around the intersection of SR 99 and U.S. Route 140 in the center of the eastern portion of Merced County.

The entry of the Central Pacific Railroad into the San Joaquin Valley in 1870 prompted creation of a town site and the start of construction of the future City of Merced, which was incorporated in 1889. Merced's growth and prosperity were largely a consequence of its location alongside the railroad, and entryway to the mines of the southern Mother Lode area during the Gold Rush years of the 1850s and 1860s (Hoover et al. 1990:203). An early tourism trade to Yosemite also brought impetus for growth in Merced. From the moment California received Yosemite from the federal government in 1864, the state planned the area as a park specifically geared to tourists. The completion of the transcontinental railroad in 1869 allowed eastern tourists to visit and extol the unique beauty of Yosemite. Since Yosemite initially had no direct connection by rail, visitors would travel across the valley in stagecoaches and then horseback to reach the park. This practice continued into at least the 1870s (Hyde 1993:69-72). Merced carries the moniker, "Gateway to Yosemite," and as early as 1872, the El Capitan Hotel in town served as the starting point for the stagecoaches carrying tourists to Yosemite.

By special election, the county seat moved to the City of Merced in 1872. That year the city boasted of two major hotels (El Capitan and Cosmopolitan), a variety of mercantile establishments, restaurants, livery stables, saloons, and grocers, as well as a post office, jail, school, and bank (Elliott 1882:112–115). The Tuolumne Hotel opened the following year.

The Merced County Courthouse, a three-story edifice constructed in 1875, is one of the oldest historical buildings in the state (Hoover et al. 1990:203). It is listed in the NRHP and is now the Merced County Courthouse Museum.

Located in the fertile northern San Joaquin Valley, the city continues to grow and prosper. It has always been an important shipping and exchange place, and the agriculture industry remains an important part of the area's commerce. The city is served by two railroads, the Union Pacific and Burlington Northern, and by three busy highways (SR 59, 99, and 140). In 2005, the tenth campus of the University of California was completed in the city.

6.2.3.4 Le Grand

Le Grand serves as an exemplar among the smaller unincorporated communities that developed in Merced County as a direct result of the railroad. Originally known as "Idlewild" at its earliest period, the community of Le Grand grew to serve the farming district that still surrounds it. The town developed on land owned by Mrs. Luella Dickinson. When her husband, William Le Grand Dickinson, donated land to the San Francisco and San Joaquin Valley Railroad (now the BNSF) for a station, the railroad named the new stop "Le Grand." The Dickinsons made their primary residence in Stockton, California. With the completion of the rail line, the Le Grand Station opened for traffic, and the town quickly adopted the name. In September 1896, developers filed the first official "Town of Le Grand" subdivision map at the Merced County Courthouse. This plan platted the original 97 lots in town. Within a year, an additional 22 lots opened for development. Further development occurred in the early 20th century and the town grew, causing many businesses to relocate from Plainsburg to Le Grand. During 1908, most of the farmland surrounding Le Grand underwent subdivision into 5-, 10-, and 20-acre parcels and many of these parcels remain intact today. The number of building lots in town continued to grow through 1913, when Le Grand adopted the appearance it still retains today (Merced County Planning Department 1983:II-1; Gudde 2010:208).

6.2.3.5 Madera County

Spanish expeditions did not enter Madera County, possibly because of the maze of sloughs, sandy washes, and lack of water (Hoover et al. 1990:168). Trappers and explorers, such as Jedediah Smith, left the first historical accounts of visits to Madera County by nonindigenous peoples. Smith led a small group of hunters and trappers from Salt Lake City to the San Joaquin Valley in 1827, and again in 1828. In 1844, John Frémont traversed Madera County and recorded the difficulty of crossing the many sloughs in the area. Miners in the 1850s and 1860s often came through the area from Gilroy, over Pacheco Pass on the Stockton–Los Angeles Road, and journeyed on to the Sierra Nevada mines (Hoover et al. 1990:168–169).

One of the area's pioneers was Major James D. Savage. Savage is credited with "discovering" the Yosemite Valley in 1851 (Madera County 2007). He turned from battling the local Native Americans in his early years to befriending them. Savage named the Yosemite Valley for the local tribe, the "Ah-wah-nee-chee," who had family ties to the Mono Lake Paiutes on the eastern side of the Sierras. Savage was also known for employing Chinese laborers to work the San Joaquin River panning for gold. As another part of their contribution to the history of the county, Chinese laborers built many miles of rock walls in the area between Raymond and Mariposa, many of which are still standing.

Early mining in the Southern Mother Lode, which extended generally from the northwest to southeast throughout Merced County, was conducted by means of surface extraction of heavy minerals from sandy soils, known as placer mining (Hoover et al. 1990:169–170; Madera County 2007). This form of mining was practiced along the Fresno River and in places such as Coarsegold Gulch, Grub Gulch, and Gold Creek. The placer mines of Grub Gulch were very productive throughout the 1880s, accounting for the majority of gold extracted from the region.

The California State Legislature established Madera County in 1893 and named it after its principal town of Madera (Hoover et al. 1990:168). The lawmakers extracted the new county's landmass from the portion of Fresno County north and west of the San Joaquin River. Madera County lies in the geographical center of the state. The completion in 1870 of the Southern Pacific line through the county and a demand from the eastern United States for lumber from Sierra Nevada forests combined to spur the growth of the town of Madera. To facilitate the transportation of cut trees to the railroad, a 63-mile water flume was constructed at a cost of a half million dollars (Hoover et al. 1990:170). With the completion of the flume in 1874, the town of Madera was settled and nucleated around the lower end of the flume. The town name is the Spanish word for wood (*madera*).

The Central Pacific established a series of rail stops and sidings along its route within Madera County in the late 1800s. From north to south, these include today's incorporated communities of Minturn, Berenda, and Borden, among others. Local wheat farmers, Jonas and Thomas Minturn, constructed a railroad siding just northwest of Chowchilla when the railroad reached the area in 1872. The Minturn post office opened a decade later in 1884 and operated until 1922 (Durham 1998:804). Located on the north bank of Berenda Creek on the rail line between Chowchilla and Madera, a four-story hotel and a store were built in 1872 and a post office established at Berenda in 1873 (Durham 1998:745; Elliott 1882:199). The name was changed to Berenda in 1919, and the post office closed in 1935. With the coming of the railroad in 1872, the community of Borden was named in favor of a local community leader instead of the name of Arcola, which was preferred by the original settlers who moved from Alabama in 1868 and established the earliest farm community (known as the Alabama Settlement) in this part of the San Joaquin Valley (Durham 1998:749; Hoover et al. 1990:171). By 1874 the lively town of Borden boasted two stores, two hotels, restaurants, stables, and a barber and physician (Elliott 1882:199). Eight years later, however, it had the appearance of a deserted mining camp. The Borden post office opened in 1873 and was officially closed in 1906. A post office was established in Fairmead, another small community along the rail line in 1913, but closed in 1940 (Durham 1998:771).

6.2.3.6 City of Chowchilla

The City of Chowchilla lies between the Ash Slough and the Berenda Slough and extends southwesterly from the intersection of SR 99 and SR 233, with most of the city's core flanking either side of Robertson Boulevard (SR 233). The Chowchilla post office opened in 1912, and the town incorporated in 1923 (Durham 1998:758). The name Chowchilla apparently derives from the name of the local tribe of Northern Valley Yokuts, who John Frémont mentioned during his forays into what is now Madera County.

The growth of the area and the city is attributed to Orlando A. Robertson, a land developer who invested some four million dollars in the purchase, during May 1912, of the Chowchilla Ranch from the California Pastoral & Agricultural Company Ltd. (City of Chowchilla 2005). Robertson divided the acreage into tracts to sell to prospective farmers but also reserved a portion as a town site. Town infrastructure included a water system, streetlights, and roads, including 12-mile Robertson Boulevard. By the time of the grand opening of this California colony in October 1912, the colony boasted 300 miles of country roads. Rooted

in the concepts undergirding the American antebellum religious and utopian community movement, the colony movement for settling land in California began during the late 1850s and flourished during the final 30 years of the 19th century and into the early 20th century. The basis for virtually all colony land developments was a cooperative for constructing irrigation water canals and distribution systems. Individuals and even small groups could not undertake such activities, but the pooling of money and labor allowed all colony members to benefit. The numerous colonies that dotted the San Joaquin Valley provided the foundation for the flourishing agricultural production of today (Clark 2001:52-55). By 1887, five colonies existed in the vicinity of Fresno: Washington Colony, Central Colony, Church or Temperance Colony, Scandinavian Colony, and Nevada Colony. The developers divided each of these colonies into 20-acre lots and provided irrigation to produce crops of grapes, fruits, and vegetables (Enos 1887:188). In 1913, developer Robertson added 12 miles of track that connected to the Southern Pacific line as an additional guarantee of Chowchilla Colony's success. Known as the Chowchilla Pacific Railroad, the now-abandoned tracks of this short line hosted train service for 40 years.

In 1917, Robertson purchased an adjacent 40,000 acres and, in concert with Chicago packer Louis Swift, started the successful Western Meat Ranch (City of Chowchilla 2005). Although management has changed, it continues as a cattle and farming operation. In 1919, Robertson bought and then sold tracts in the 26,000-acre Old Bliss Ranch. Although Robertson's investments were profitable for development at Chowchilla, he lost much of his wealth as other land speculations crashed during the Depression era in the 1930s.

The series of palm trees that were planted in 1913 along Robertson Boulevard continue to signify this historic route. The width of the boulevard was planned as ample turnaround for a team of horses (City of Chowchilla 2005). The boulevard, also part of SR 233, is listed as a California Point of Historical Interest. Not all California Points of Historical Interest are listed on the CRHR or the NRHP. Another early landmark, the Hotel Chowchilla at the corner of Third and Robertson, was once one of the finest hotels in the state prior to several fires. The building later housed Woodbury's variety store and is now occupied by Rose Furniture.

6.2.3.7 Fairmead

Fairmead Colony dates to 1912 when the Cooperative Land Trust Company of Palo Alto platted this land as a farming community. Fairmead mimicked the other colonies that proliferated throughout the San Joaquin Valley. In the initial developmental years, farmers within the Fairmead Colony produced bountiful crops of grains, alfalfa, vegetables, fruits, berries, and flowers. A year later, the Fairmead Post Office opened for service. Within three years of its founding, Fairmead comprised a growing collection of homes, churches, schools, boulevards, parks, and mercantile establishments, along with the attendant infrastructure. The Fairmead Inn, a newspaper, a lumberyard, and a blacksmith shop rounded out the business community during the second decade of the 20th century. Fairmead peaked about 1920, but then the colony entered a gradually and extended state of decline. When the State Highway Department relocated SR 99 in 1930 away from Fairmead, it only exacerbated the colony's economic woes and accelerated the closure of businesses and the loss of citizens to the growing population centers of Chowchilla and Madera. The dramatic decline in Fairmead's population caused the United States Post Office Department to close the Fairmead postal facility in 1940. Little change or substantive improvements occurred in Fairmead since the 1940s and what remains of the old colony continues in a state of declination (Madera County Planning Department 2011:8; Durham 1998:771).

6.2.3.8 City of Madera

The City of Madera nucleates around the intersection of SR 99 and SR 145 at a point about equidistant between Chowchilla and Fresno. Figure 6-6 illustrates how the city appeared in 1891.

On the banks of the Fresno River, today's City of Madera incorporated in 1907 and is the Madera County seat. The Southern Pacific Railroad came through the San Joaquin Valley and the area that would become Madera in 1872, providing the main transportation route into the valley (Solomon 1999:24). Originating as the town at the end of a 63-mile lumber flume, which the California Lumber Company

completed in 1874, Madera rapidly grew and prospered. In 1876, the California Lumber Company laid out the town grid (Hoover et al. 1990:170–171). Some of the first buildings erected in the city included a hotel, general store, and post office. The Madera County Courthouse, constructed in 1900 of granite blocks, still stands today and is now the museum of the Madera County Historical Society.

In addition to its historic and current connection with the lumber industry, the City of Madera is actively involved in the agricultural industry. Agricultural products such as fruit and nut crops, alfalfa and wheat, and a variety of vegetables are shipped all over the world from Madera (Madera Agricultural Commissioner 2008).

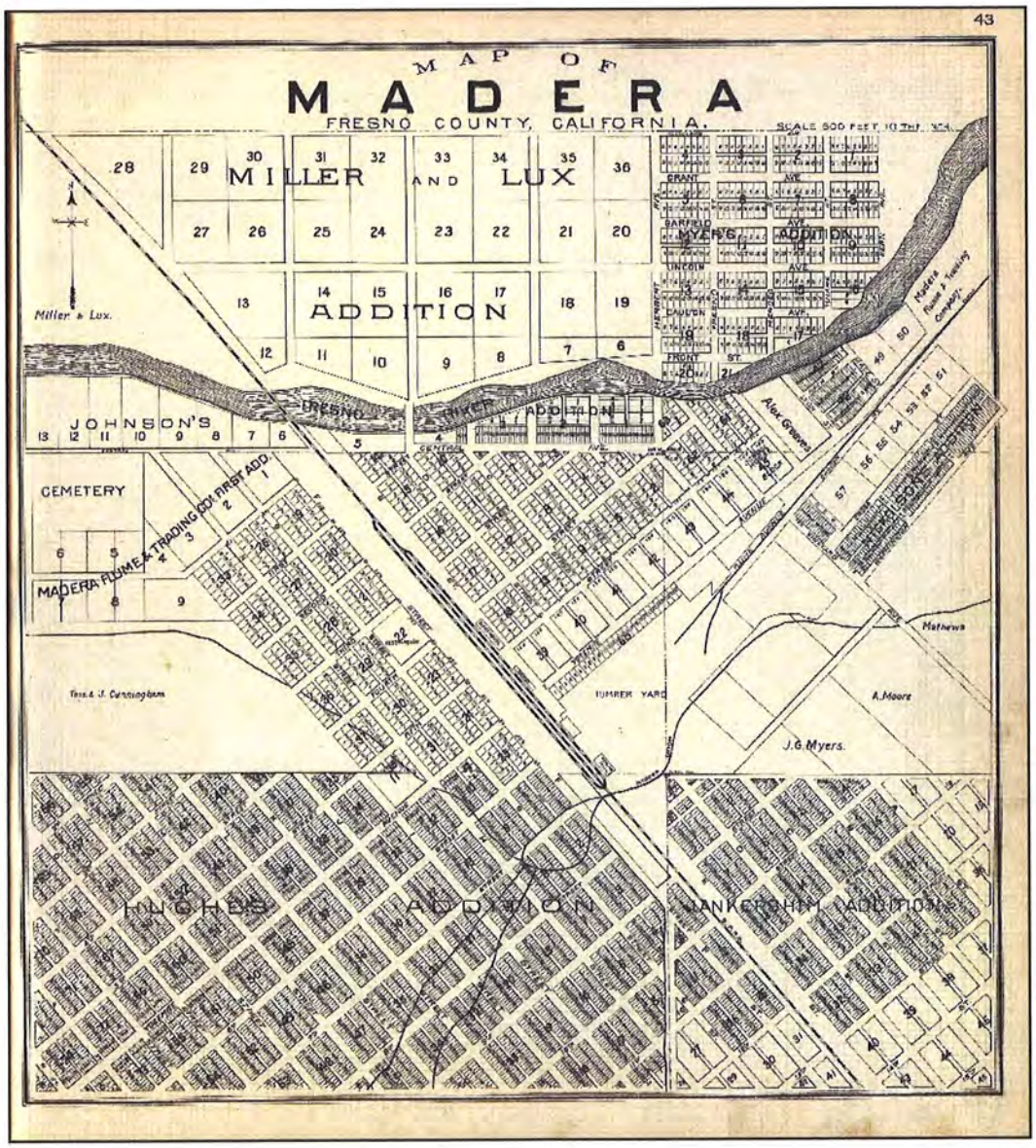


Figure 6-6
Map of Madera, Thompson, 1891

6.2.3.9 Fresno County

The Spanish bestowed the name *fresno,* or ash, upon the area where the City of Fresno now stands due to the many Oregon ash trees growing in the area along a creek (Gudde 1998:138). The first Europeans to traverse the area were with Captain Pedro Fages in 1772, followed by Moraga's 1806 expedition (Hoover et al. 1990:85; Johnson et al. 1993:29). During the early Spanish and Mexican periods, most of the exploration conducted in the San Joaquin Valley was directed to either finding sites for new missions or retrieving the native neophytes who had run away from the coastal missions. In the later part of the Mexican period during the 1840s, Kit Carson and John C. Frémont explored the area.

The main branch of the *El Camino Viejo*, the oldest north-south trail that traversed the entire length of the San Joaquin Valley, passed through the western portion of Fresno County through the present towns of Reedley, Sanger, and Friant (Hoover et al. 1990:86). Used to drive cattle and wild horses to Los Angeles, the trail (later the Stockton–Los Angeles Road) followed the base of the Coast Range to *Arroyo de Panoche Grande* near Mendota and the project area (Clough and Secrest 1984:39).

The construction of the Southern Pacific line into the San Joaquin Valley in the 1870s led to the expansion of the livestock and farming industries in Fresno County, as well as the establishment of communities distributed along the tracks. Today's City of Fresno was initially a railroad stop called Fresno Station. A post office was established in 1872 (Durham 1998:1038). Between downtown Fresno and the San Joaquin River, the unincorporated community of Herndon was established in 1872 as Sycamore (Durham 1998:1046). A post office opened at the Herndon rail stop in 1887 and temporarily closed in 1893, with service resuming in 1907.

Fresno County's agricultural potential was recognized when the otherwise arid land was transformed by irrigation efforts, initiated as early as 1871 with the incorporation of the Fresno Canal & Irrigation Company (Elliott 1882:102–103; Clough and Secrest 1984:115–117). One of the pioneers of irrigation in the county was Moses Church, who developed some of the area's first canals and was one of the partners of the Fresno Canal & Irrigation Company. His canals became known as "Church Ditches." Irrigation fostered an era of extensive wheat farming throughout the San Joaquin Valley. By 1887, water from the canal systems irrigated over 600,000 acres within the county (Clough and Secrest 1984:187). Figure 6-7 shows how Fresno County appeared in 1891.

Today, Fresno County is known as one of the most productive agricultural regions in the state. According to the county's annual agricultural crop and livestock report for 2008, agricultural production in Fresno County was another record setting year "exceeding the five billion dollar-mark for the second time!" (Fresno Department of Agriculture 2009). This amount represents nearly a 6% increase from the 2007 production value—the first that exceeded five billion dollars—with increases in 2008 in field, seed, fruit and nut crops; livestock and poultry; and industrial crops.

6.2.3.10 City of Fresno

People began to settle the area that is now the City of Fresno when the town of Millerton flooded in 1867 (Hoover et al. 1990:87–88). The Central Pacific Railroad established a station stop for their Southern Pacific line and named it Fresno Station. A post office opened at Fresno in 1872, and in 1874 the county seat moved from Millerton to Fresno (Durham 1998:1038; Hoover et al. 1990:85, 89). The city incorporated in 1897 and it is now the largest city in the San Joaquin Valley.

In the center of the San Joaquin Valley, the City of Fresno is one of the largest agricultural industry trade centers (Hoover et al. 1990:89). The city is also known for the development of gravity irrigation. The people who came to the area to work in the agricultural fields and related industries were not always content with the conditions that awaited them in San Joaquin Valley's rich farmlands. From October 1910 until March 1911, the Industrial Workers of the World (IWW or "wobblies") led California's first free-speech demonstration in the City of Fresno in their attempt to organize unskilled agricultural laborers (Clough and Secrest 1984:194–195).

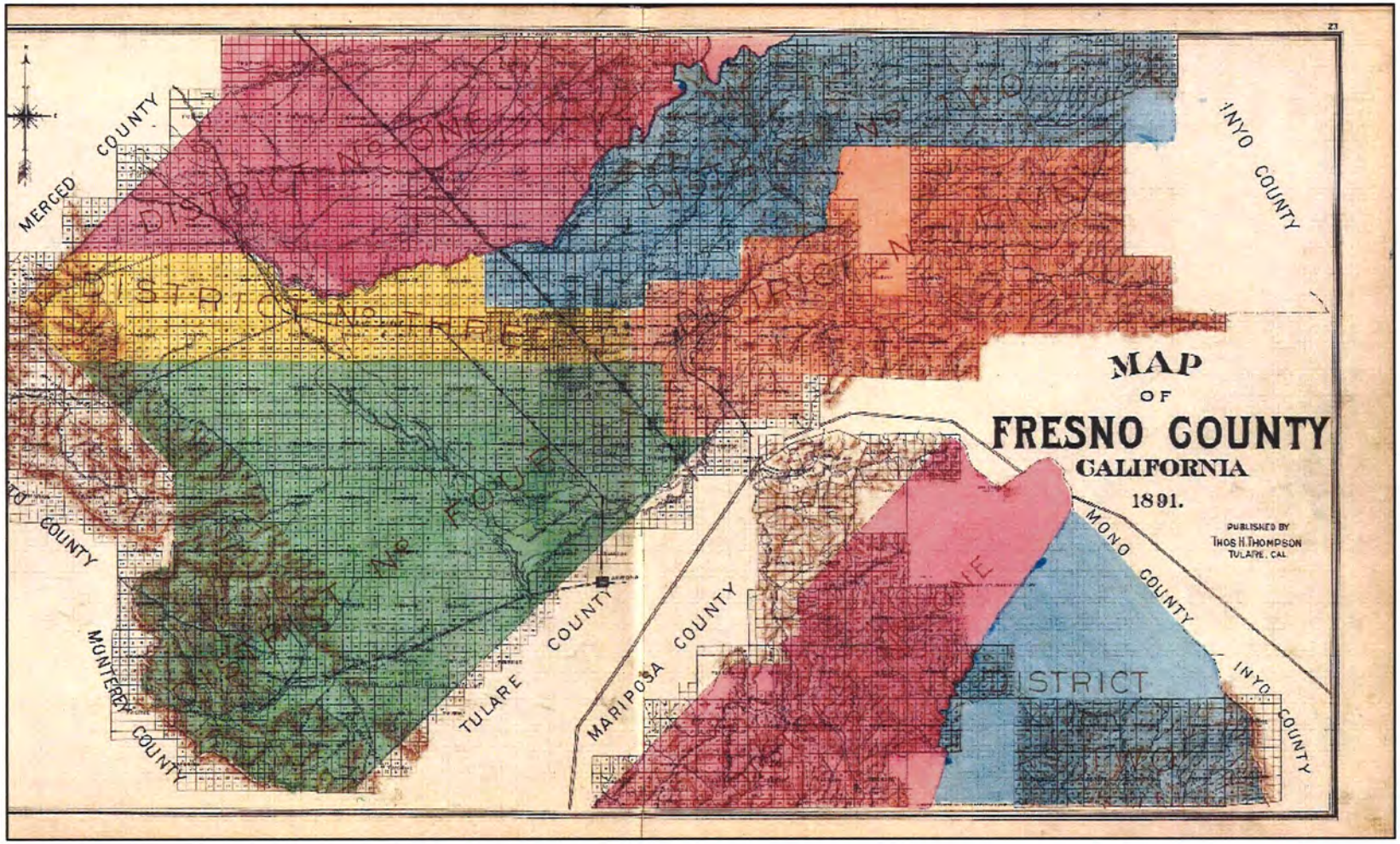


Figure 6-7
Fresno County, Thompson, 1891

The City of Fresno is the home of California's first junior college. Fresno Junior College opened its doors in 1910, and the first enrollment of 28 students was taught by three teachers (Hoover et al. 1990:90).

In 1958, the name of the school was changed to Fresno City College. The city also boasts the California State University at Fresno. The college began in 1911 as the State Normal School and became a teaching college in 1921. In 1949, it began offering advanced degrees and currently has an enrollment of 20,000 students (California State University at Fresno 2008).

Fresno is home to a variety of ethnic groups, beginning in 1885 with the settlement of the Chinese rail laborers who were instrumental in the construction of the Southern Pacific line. The Chinese rail laborers settled on the west side of the city and, by the late 1880s, were joined in the Chinatown District by other ethnic groups (Clough and Secrest 1984:36–37, 77). In the early 1890s, Fresno's was the second largest Chinatown in the state, the population exceeded only by that in San Francisco. In the mid-1900s, urban renewal and the construction of SR 99 through West Fresno destroyed much of Chinatown and the old tenderloin district. Recently, however, the city engaged in downtown revitalization efforts and creating a Specific Plan to regulate development and preserve its past, including the Chinatown Historic District (City of Fresno 2010). Bordered by SR 99 on the west, the tracks of the UPRR on the east, Fresno Street on the north, and Ventura Street on the south, the district includes the Downtown Fresno Station, which would be used by the HST project. Figure 6-8 provides a bird's eye view of Fresno in 1901.

Following the establishment of Fresno's Chinatown by Chinese railroad workers, other ethnic groups began to settle in Fresno's Chinatown District during the 20th century. The new arrivals included a large Armenian population, who upon finding a climate and soils similar to those in Armenia, became adept at producing nuts and fruits, including figs, melons, pistachio nuts, and raisins (Hoover et al. 1990:91). During the first years of World War II, Fresno had two assembly centers for temporary detention of Japanese Americans—one at the fairgrounds and another in Pinedale, just north of the city, both of which are California Historical Landmarks. The detention centers were meant to hold people of Japanese ancestry until permanent centers could be established. Many of the Japanese from the Fresno area went to more permanent relocation centers at Manzanar and Tule Lake.

The City of Fresno has the unusual distinction of establishing the first modern landfill in the United States. The Fresno Municipal Sanitary Landfill was the site of many innovations in sanitary landfill operations, such as trenching, compacting, and covering the landfill with soil on a daily basis. The municipal landfill began operating in 1937 but closed in 1987. The site of the landfill is now listed as a National Historic Landmark and is located approximately 3 miles west of the HST at the southwest corner of West Jensen Avenue and South West Avenue. Similar to other California cities, a network of streetcars operated in the urban center starting in 1889, progressing from horse-drawn to steam, cable, and electric (Clough and Secrest 1986:247–251). The urban streetcar network ended in 1939.

Today, the economy of the City of Fresno remains tied to the agricultural sector; the service industry also makes a substantial contribution to the area's income. At the geographic center of the valley, Fresno is considered to be the hub for commerce, industry, education, health care, and government in the northern San Joaquin Valley.

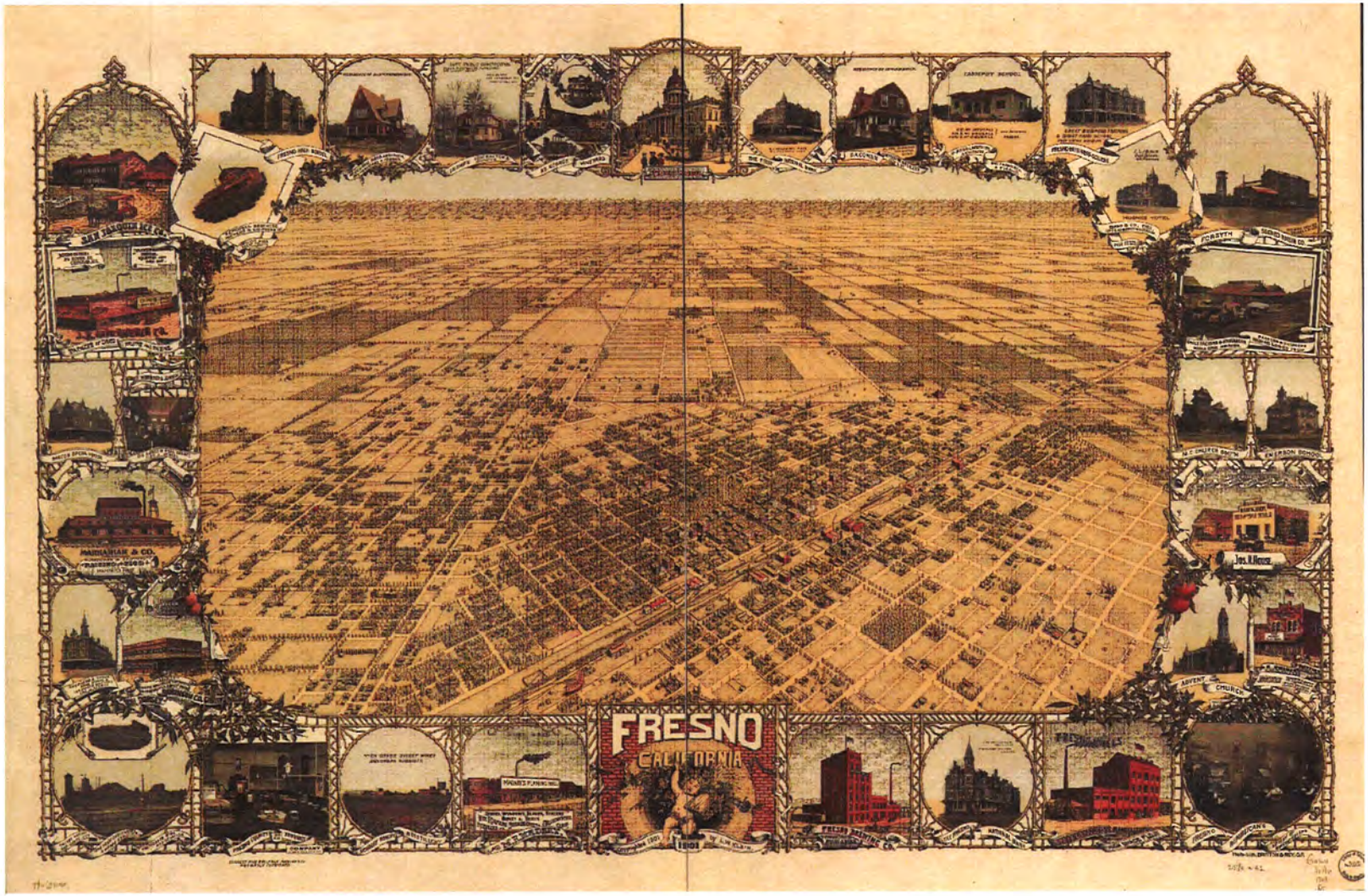


Figure 6-8
City of Fresno, Klein, 1901

7.0 Findings

Due to access restrictions, only 24% (3,945 acres) of the APE has been subject to pedestrian field survey. Within the areas for which access was granted, 19 archaeological resources (11 previously recorded sites, 3 newly recorded sites, and 5 archaeologically sensitive areas) have been identified within the Merced to Fresno Section of the HST project and have the potential to be affected.

To date, no traditional cultural properties (TCPs) have been identified in the APE for archaeology. However, that finding may be amended after further consultation with Native American tribes and others, as the undertaking moves forward.

7.1 Eligibility Assessments

Two of the 19 archaeological resources, CA-MER-381/H and CA-MER-383, have been previously determined eligible for NRHP listing with SHPO concurrence (U.S. Department of Transportation et al. 2005). Both of these resources are situated immediately adjacent to the project APE. Currently, there is insufficient information to determine their NRHP eligibility within the APE. These two sites are discussed in detail in the Historic Property Survey Report (HPSR) as per the PA VI.B.3.i.

Six of the 19 resources, P-24-000087, CA-MER-359H, CA-MER-360/H, CA-MER-361H, CA-MER-362H, and CA-MAD-2335H, are recommended not eligible for NRHP or CRHR listing after evaluation using the following evaluation factors:

1. They lack integrity and/or;
2. They lack clear associations with events or people significant in California or national history, and/or;
3. They lack the distinctive characteristics of a type, period, or method of construction, and/or;
4. They do not represent the work of a master or possess high artistic values, or
5. They would not yield information important in prehistory or history.

P-24-000087 was recorded in 1993 (JRP). [redacted]. Levee construction in the 1950s led to reclamation of the land and the eventual establishment of an orchard at the spot. In the 1980s, the surrounding orchard gave way to modern development, leaving the P-24-000087 area open for a soil stockpile. The original recorders indicated that the mound was a modern feature created since 1976 and was in the process of being removed for use as fill elsewhere for construction purposes. Consequently, it did not appear to be a resource eligible for the NRHP (JRP 1993). While access was not granted for the parcel during the current surveys, [redacted]. Based, therefore, on the results of the previous evaluations and on its current lack of integrity, the site is recommended not eligible for inclusion in the NRHP or CRHR.

CA-MER-359H was recorded in 1999 during a Caltrans survey (Stillman et al. 1999a). [redacted]. At the time of the 1999 survey the site included 12 features (privies, wells, trash pits, and concrete foundations), and several privies and wells from an earlier period when several houses located there were part of a brothel and store. The current house standing on the property was moved there in 1970 and is not related to the archaeological deposits. It is not clear whether all of the features can be associated with these earlier uses, but several houses had add-ons including lean-tos, chicken coops, and dog houses. The earliest mapped structures at the site date to 1938, with more buildings added by 1942. The site was abandoned between 1960 and the early 1970s (Stillman et al. 1999a). During the 1999 Caltrans survey, the property owner reported to the archaeological team that 17 years previously, a long bone was excavated from a privy beneath one of the concrete slabs. The bone was taken to Leon Martinez of the Merced County Housing Authority, who told the owner that the bone was a human arm or leg bone. No written record was made of this, and no human remains were seen by the archaeologists. During the current 2011 survey, direct access to this location could not be achieved. Caltrans evaluated

the site for eligibility for the NRHP during the [redacted] Project (also referred to as the [redacted] Project), found it ineligible for the NRHP under any of the four Criteria A, B, C, or D (Wilson and Van Bueren 1999:22), and received SHPO concurrence with that finding (Abeyta 2000). Caltrans also evaluated it under CEQA guidelines and found it to not be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:22). During the current surveys, while direct access could not be made, it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and that the site location now lies entirely within the area of these recently constructed roadways. Based, therefore, on the results of the previous evaluations, and on its current lack of integrity, the site is recommended not eligible for inclusion in the NRHP or CRHR.

CA-MER-360/H is located [redacted]. As originally recorded, it consisted of an existing residence at 3330 Harvard Lane and, either, two isolated basalt flakes, found on the parcel with the residence (Cardiff et al. 1999), or one basalt flake and the residence (Wilson and Van Bueren 1999). The form filed at the Information Center, however, indicates only the presence of a single basalt flake and categorizes the site as an isolate (Stillman et al. 1999b). The original recorded position of the parcel lies partially within the BNSF APE. During the current 2011 survey, direct access to this location could not be achieved. Caltrans evaluated the site for eligibility for the NRHP during the [redacted]), found it ineligible for the NRHP under any of the four Criteria A, B, C, or D (Wilson and Van Bueren 1999:22-23), and received SHPO concurrence with that finding (Abeyta 2000). Caltrans also evaluated it under CEQA guidelines and found it to not be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:22-23). Based, therefore, on the results of the previous evaluations, the site is recommended not eligible for inclusion in the NRHP or CRHR.

CA-MER-361H consisted of the former site of a [redacted]. When the site was recorded during a survey for Caltrans in 1999 (Stillman et al. 1999c), the property formed the backyard of several residences, and it was in use for gardens, chicken coops, and cattle pens. A sparse collection of artifacts was visible in open areas and included amethyst, clear, brown, and green glass; a piece of a medicine bottle; a plate fragment; a sawed bone fragment; and a piece of a clay pot. Caltrans evaluated the site for eligibility for the NRHP during the [redacted]), found it ineligible for the NRHP under any of the four Criteria A, B, C, or D (Wilson and Van Bueren 1999:26), and received SHPO concurrence with that finding (Abeyta 2000). Caltrans also evaluated it under CEQA guidelines and found it to not be a historical resource for purposes of CEQA compliance (Wilson and Van Bueren 1999:26). During the current 2011 survey, while direct access could not be achieved, it was observed that approximately the southern half of the site area, including the entire area that formerly contained the structural remains, has now been graded for the construction of new roadways associated with the expansion of SR 99, and that this portion of the site now lies entirely within the area of these recently constructed roadways. Based, therefore, on the results of the previous evaluations and on its current lack of integrity, the site is recommended not eligible for inclusion in the NRHP or CRHR.

CA-MER-362H is located [redacted]. It consisted of the site of a former residence with a house on the property from pre-1935 to at least 1946 and perhaps longer (the building is not depicted on the 1961 USGS quadrangle map). Remains found in a 1999 survey for Caltrans (Stillman et al. 1999d) that recorded the site included five concrete slabs or foundation forms, Mason jar fragments, a ceramic insulator, and a wire milk bottle holder as well as remnant landscaping vegetation. Caltrans evaluated the site for eligibility for the NRHP during the [redacted]), found it ineligible for the NRHP under any of the four Criteria A, B, C, or D (Wilson and Van Bueren 1999:26-27), and received SHPO concurrence with that finding (Abeyta 2000). Caltrans also evaluated it under CEQA guidelines and found it to not be a historical resource for

purposes of CEQA compliance (Wilson and Van Bueren 1999:26-27). During the current 2011 survey, while direct access could not be made, it was observed that the entire area of this site has now been graded for the construction of new roadways associated with the expansion of SR 99, and the site location now lies entirely within the area of these newly constructed roadways. Based, therefore, on the results of the previous evaluations and on its current lack of integrity, the site is recommended not eligible for inclusion in the NRHP or CRHR.

CA-MAD-2335H is located [redacted]. It consists of the remains of the [redacted] Station along the [redacted], established in 1896. There were fairly extensive foundations documented in 2001/2002, including those for a signalman's house and a bunk house, plus associated utility lines; a cellar; and debris including ceramics, building rubble, and glass (Gassner et al. 2001; Love and Shaker 2002). The 2002 DPR form and a subsequent ASR (Love and Tang 2002) states that the site did not meet the criteria for listing in the NRHP, and that no further work was recommended. There was no reference in the SHPO files, however, of concurrence with this recommendation. This site area could not be accessed during the current HST surveys. Based on the results reported by Love and Tang (2002), the site appears to offer little potential data value and it is recommended, therefore, not eligible for inclusion in the NRHP or CRHR.

The 13 resources listed in Table 7-1 (five previously recorded sites, three newly identified sites, and five archaeologically sensitive areas) are unevaluated (CA-MER-381/H and CA-MER-383 unevaluated within the APE) and potentially eligible for listing on the NRHP or CRHR. Site descriptions and discussions of eligibility are provided in Section 5.2. Currently, there is insufficient information on these 13 sites to determine their NRHP eligibility within the APE. Under the terms of the PA (2010:VI.C.1), they are "presumed NRHP eligible" until sufficient information is available to make a formal determination.

In addition to the resources identified within the APE, areas within the APE of the HST Merced to Fresno Section of the project corridor can also be geoarchaeologically sensitive [redacted]

Table 7-1 summarizes the 13 eligible and potentially eligible archaeological resources and sensitive areas within or immediately adjacent to the project APE. Also indicated in the table are the project elements that could be affected by these resources.

Table 7-1
Eligible or Potentially Eligible Archaeological Resources and Sensitive Areas within or adjacent to the APE*

Resource	Description	Eligibility for NRHP	Reference	Alternatives			
				UPRR/ SR 99	BNSF	Hybrid	HMF
P-24-001862	Prehistoric artifact scatter	Unevaluated; Potentially eligible	Byrd et al. 2007	X	X	X	[redacted]
P-24-001676 (CA-MER-381/H*)	Prehistoric artifact scatter/ [redacted]	Eligible; unevaluated within the APE	Becker 2003a; Bischoff, and Majewski 2002	X		X	
P-24-001686 (CA-MER-383*)	Prehistoric artifact habitation site with burials	Eligible; unevaluated within the APE	Johnston 2001; Becker 2003b	X		X	
P-20-002064, CA-MAD-2064H	[redacted] Station	Unevaluated; Potentially eligible	Van Bueren and Comeyne 1993	X and (Ave 24 Wye)			
P-20-002122 (CA-MAD-2121H)	Artifact scatter assoc. with Chinese railroad camp	Unevaluated: Potentially eligible	Waechter et al. 1993	X			
HST-H-JL-01	Historic homestead with foundations, artifact scatter	Unevaluated: Potentially eligible	Current project survey	X (Ave 24 Wye)	X (Ave 24 Wye)	X (Ave 24 Wye)	
HST-H-JL-02	Historic artifact scatter	Unevaluated: Potentially eligible	Current project survey		X	X	
HST-H/P-TC-01	Historic foundations, trash deposit/Prehistoric artifact scatter	Unevaluated: Potentially eligible	Current project survey	X	X	X	[redacted]
Reported burial ground	Prehistoric burial [redacted]	Unevaluated: Potentially eligible	Current project survey	X	X	X	
Reported village #1*	Prehistoric village	Unevaluated; Potentially eligible	Current project survey	X	X	X	

Resource	Description	Eligibility for NRHP	Reference	Alternatives			
				UPRR/ SR 99	BNSF	Hybrid	HMF
Reported village #2*	Prehistoric village	Unevaluated; Potentially eligible	Current project survey	X	X	X	
Prehistoric artifact finds ([redacted])	Prehistoric artifact scatter	Unevaluated; Potentially eligible	Current project survey				[redacted]
[redacted] area, Madera	Prehistoric artifact find	Unevaluated; Potentially eligible	Current project survey	X			

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

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

7.2 Summary and Recommendations

For the preparation of this ASR, archaeologists acting on behalf of the Authority conducted a pedestrian survey of all acreage within the APE for which legal entry was granted (Figures 3 and 4 in Appendix A). It is anticipated that field inventory will be completed for previously-unsurveyed areas of the APE for the Preferred Alternative only. This work will be completed following adoption of the Preferred Alternative and when legal access has been gained. Based on background research conducted, interaction with Native American contacts, and the survey conducted, 19 archaeological resources (11 previously recorded sites, 3 newly recorded sites, and 5 archaeologically sensitive areas (3 of which were identified through Native American contacts) are reported within the Merced to Fresno Section, that have the potential to be affected by the HST project. Two of the 19 resources have been previously determined eligible for NRHP listing with SHPO concurrence (U.S. Department of Transportation et al. 2005). Both of these resources are situated immediately adjacent to the project APE, so there is currently insufficient information to determine their NRHP eligibility within the APE.

One of the 19 resources, P-24-000087 is recommended not eligible for NRHP listing and no further assessment is advised. Five of the 19 resources (CA-MER-359H, CA-MER-360/H, CA-MER-361H, CA-MER-362H, and CA-MAD-2335H) have been previously determined not eligible for NRHP listing by the SHPO (Appendix B), and no further assessment is required.

Eleven of the 19 resources (3 previously recorded, 3 newly identified, and 5 archaeologically sensitive areas) are unevaluated and potentially eligible for listing in the NRHP and/or CRHR. Currently, there is insufficient information on these 11 sites to determine their NRHP eligibility within the APE. Under the terms of the PA (2010:VI.C.1), they are "presumed NRHP eligible" until sufficient information is at hand to make a formal determination. To date, no TCPs have been recorded in the APE for archaeology. However, that finding may be amended after further consultation with Native American tribes and others as the undertaking moves forward. In addition to resources identified with the APE, areas within the APE in the Merced to Fresno Section of the HST Project corridor are geoarchaeologically sensitive due to the potential for buried prehistoric occupation deposits within the package of Holocene soils associated with natural stream channels. Such locations may also be sensitive for historic resources as these locations were frequently locations of historic settlements that may have been buried by flooding in historic times. Detailed investigation of the hydrologic history of the Merced to Fresno Section of the HST will be a necessary component of the geoarchaeological studies still to be conducted, in order to determine what drainages have the potential to contain deeply buried archaeological deposits. Until the geoarchaeological

assessment is conducted, it is assumed that all river, creek and slough crossings are archaeologically sensitive.

In urban settings, primarily within the urban settings of Chowchilla, Merced, Madera, and Fresno, examination of Sanborn maps has identified a number of areas that have sensitivity for historic-era cultural resources in the Merced to Fresno Section of the HST Project corridor. These locations were generally associated with historic settlement of the northern San Joaquin Valley during the 19th century and early to mid-20th century. Some of the early settlement in cities such as Merced, Chowchilla, Madera, and Fresno was due to their location along the early rail lines. The cities were able to prosper, to some degree, as a result of the railroad bringing settlers into the area.

As is evident in these results, relatively few prehistoric sites are represented in the sample of known sites in the APE for archaeology. This is likely as a result of a combination of environmental factors as well as the fact that a still substantial portion of the project area has not yet been surveyed (due to a lack of approved access) and likely contains additional resources. As expressed in the geoarchaeological discussions, there is a common corollary in archaeology between the availability of water and the presence of substantial prehistoric sites as the presence of water sources provides a more diverse resource base for subsistence. Steady availability of more resources allows a larger population to occupy a location and encourages reuse of a location over time. Conversely, an environment that supports fewer natural resources, such as the seasonally arid grasslands of the Central Valley, are less likely to host larger and more easily detectible settlements. The bulk of the Merced to Fresno Section of the HST Project crosses this drier environment but is periodically intersected by waterways of varying size. Because of the association of water with prehistoric occupation sites, the archaeological field team took particular note of any location where natural drainages crossed the APE; they looked for evidence of prehistoric sites, historic or modern-era disturbances, areas of scour versus deposition, and any other factors that might indicate a potential for prehistoric resources buried by flood deposits. Unfortunately, the environment in these locations is also conducive to thick growths of vegetation, often severely inhibiting ground visibility during survey. Where access was granted, limited presence/absence testing was also conducted in locations deemed to have potential for buried cultural deposits. No cultural resources were identified at any of these locations. When access is approved for more properties within the APE for the Preferred Alternative, additional field studies will be undertaken to document and evaluate surface and buried cultural deposits.

In regard to resource evaluation, the archaeological investigations described in this report, have identified 13 eligible, or potentially eligible, archaeological resources within, or immediately adjacent to, the California HST APE, between Merced and Fresno, that could potentially be adversely affected by the project. Additional work in the form of presence/absence testing and/or eligibility testing/evaluation programs will need to be implemented for those resources within the APE of the Preferred Alternative to make a formal determination of eligibility to NRHP and/or the CRHR of these resources. For the two resources that have previously been determined as eligible, presence/absence testing investigations need to be conducted to determine if they extend into the APE, and if so, what is the nature (condition and content) of these resources within the APE, and whether eligibility testing/evaluation is warranted to determine the eligibility of the portions of the resources within the APE. At the other nine resources, presence/absence testing investigations are necessary to ascertain the condition, and horizontal and vertical (depth) extent, and whether eligibility testing/evaluation is warranted to determine eligibility to NRHP and/or the CRHR. At sites where the presence/absence testing investigations indicate the presence of intact deposits and/or features, an eligibility testing/evaluation program will need to be implemented to make a formal determination of eligibility, and thus determine if the project would result in significant effects to the resources under Section 106 and/or the CEQA. Landowner permission is currently being sought to conduct site testing, but testing investigations at these 13 resources have not been initiated as of this writing.

After the selection of a preferred alternative, and when the associated impacts are more clearly defined, the possibility of historic archaeological sites being present in the APE will be defined based on both Sanborn maps and a completed Phase I survey of the area. Appropriate testing methodologies for those

resource types (residential, commercial, industrial, or transportation-related) can then be devised and implemented.

In addition to presence/absence testing and/or eligibility testing of recorded resources with visible surface manifestations, additional field work is necessary to determine the potential for the HST Project to affect archaeological resources not identified on the surface. Due to the potential geoarchaeological sensitivity of a portions of the HST Project APE (as discussed previously in this document), and the consequent potential for affecting buried archaeological resources not identified during the field reconnaissance, a geoarchaeological research program should be implemented. This program should consist of archival research and field visits, followed by a phase of possibly targeted subsurface explorations (backhoe trenching, coring, etc.). The focus of the geoarchaeological excavations phase would likely be on those portions of the vertical APE determined during the research phase to have high geoarchaeological sensitivity and significant project-related subsurface impacts (e.g., footings borrow areas). When the geo-archival research has identified sensitive areas to be explored, landowner permission will be sought to conduct geoarchaeological testing, but such investigations have not been initiated as of this writing.

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9.0 Preparer Qualifications

The survey efforts were supervised by archaeologists who meet the professional qualification standards in Archaeology and Historic Preservation, Secretary of Interior's Standards and Guidelines (Federal Register, Volume 48, No. 190, September 29, 1983). The execution of this study required the contribution of numerous individuals, including archaeologists, historians, architectural historians, graphics and GIS personnel, and editors.

The senior staff that directed this effort, prepared and/or supported the preparation of this ASR for the Merced to Fresno Section include:

Person	Position
Steve Heipel, B.A., Anthropology	2010 Principal in Charge

Mr. Heipel is a principal with 27 years of professional experience as a project manager, environmental planner, and cultural resources specialist working in California, Nevada, and other western states. He has a broad range of project experience and specializes in managing cultural resources technical investigations and development projects in compliance with federal, state, and local laws, regulations, and policies pertaining to cultural resources and other environmental planning requirements. Mr. Heipel has managed numerous environmental documents under CEQA and NEPA, including facility redevelopment and relocation, and also has extensive experience conducting cultural resources inventories and impact assessments, National Register evaluations, Native American contact programs, and construction monitoring.

Rebecca M. Apple, M.A., Anthropology, Emphasis Archaeology, RPA	2011 Principal Investigator (QI), Senior Author

Ms. Apple has over 25 years of experience in cultural resource management and serves as senior archaeologist for AECOM. Her experience includes managing cultural resources compliance efforts for large complex projects. She is knowledgeable in the procedures and guidelines associated with implementation of NHPA and CEQA. She has managed numerous cultural resource projects, including prehistoric, historic, and ethnographic studies. She has directed inventories, evaluations, data recovery efforts, and monitoring programs. She has also prepared management plans and conducted feasibility studies. Her work frequently includes consultation with municipal, state, and federal agencies, as well as Native American representatives and the public.

John Lawrence, MA	2011 Principal Investigator, Senior Archaeologist, Report Contributor

Mr. Lawrence has over 25 years experience in archaeology and 15 years of significant experience in cultural resources management throughout the eastern United States. In his capacity as principal investigator, he has frequently acted as the senior cultural resources liaison between the consulting firm; local, state, and federal project owners; and state and federal review agencies. During the past 15 years, Mr. Lawrence has successfully completed a wide variety of projects, many of which have included the evaluation of both above-ground and below-ground cultural resources. He has conducted Section 106 of the NHPA historic preservation planning studies for a wide variety of resources, from historic urban properties and historic farmsteads to prehistoric archaeological resources.

Mr. Lawrence has performed numerous surveys, including transportation resources (historic roads, canals, railroads, and bridges), industrial properties (gristmills, oil mills, manufacturing plants), agricultural properties (farmsteads, tenant farmer houses), and prehistoric archaeological sites. He has also authored numerous Section 106 documents, including Phase I, II and III (Data Recovery) Reports; Predictive Model Reports; and Construction Monitoring Reports and has assisted in the preparation of Memoranda of Agreement/Understanding as well as Programmatic Agreements. He is experienced in the

Section 106 and NEPA public involvement processes, working with the public, organizations, and state and federal agencies.

Theodore G. Cooley, M.A., Anthropology, Emphasis Archaeology, RPA — 2011 Field Director, Archaeologist, Report Contributor

Mr. Cooley is a field director with 40 years of professional experience as a cultural resources specialist working in California, Nevada, and other western states. He has directed test and data recovery investigations, monitoring programs, and archaeological site surveys of large and small tracts, and has prepared reports for various cultural resource management projects. He is well versed in NHPA, NEPA, and CEQA regulations and processes. Mr. Cooley also has extensive experience with Native American consultation and monitoring for archaeological field projects involving human remains and reburial-related compliance issues.

Stephanie Jow, M.A., Anthropology — 2011 Assistant Field Director, Archaeologist, Report Contributor

Ms. Jow is an assistant field director with five years of professional experience as a cultural resources specialist working in California and Nevada. Her archaeological experience includes archaeological testing, data recovery, survey, laboratory analysis, and report production for private, city, county, state, and federal clients. She works closely with Southern California Native American groups, and is familiar with the procedures and guidelines associated with implementation of NEPA, and CEQA.

Christy Dolan, M.A. Anthropology, Emphasis Historic Archaeology, RPA — 2011 Report Contributor

Ms. Dolan Christy Dolan has 18 years of experience in the study of historic period archaeological and architectural resources. Her archaeological experience includes document research; surveys; and excavations of 18th, 19th, and 20th century sites throughout the West and in Missouri, Virginia, Washington, D.C., and New England. She has authored documents for historic studies, surveys, inventories, evaluations, and preservation plans. Her work with several cultural resource management firms has broadened her knowledge of procedures for NEPA, NHPA, and CEQA and has allowed her to work with a variety of federal agencies.

Charlane Gross, MA, Soc. Science, B.A., Anthropology, RPA — 2010, Senior Archaeologist, Report Contributor

With 18 years field experience on a wide variety of projects, Ms. Gross is well versed in both historic and prehistoric research, surveys, test excavations, and data recovery. Ms. Gross has considerable experience with cultural resource management report writing, Native American consultation, and directing archaeological field crews for survey, testing, and data recovery. Ms. Gross provides research, identification, excavation, and treatment for Superfund and other hazardous materials sites.

Having authored numerous reports, site evaluations, and historic property assessments, Ms. Gross understands project needs from the field through the reporting phases. Ms. Gross has evaluated sites for eligibility on the National Register of Historic Places and California Register of Historical Resources.

Barry Scott, MS, Anthropology, RPA — 2010 Senior Archaeologist

Mr. Scott is a project director and project manager who performs various phases of environmental project management for CEQA, NEPA, and Section 106 of the National Historic Preservation Act (NHPA) compliance projects. Besides management of multidisciplinary projects, Mr. Scott also manages large, complex cultural resource investigations, oversees research, conducts evaluations; archaeological reconnaissance, excavation, and monitoring; and implementation of state and federal regulations related to cultural resources.

Mr. Scott has 25 years of experience in the archaeology of California and is a Registered Professional Archaeologist with extensive experience conducting cultural resource inventories and evaluations and overseeing historic and historic architecture investigations. He has conducted or has been principal investigator for numerous cultural resource investigations throughout the western United States for both the private sector and local, state, and federal agencies.

Resumes

Steve Heipel

Principal/Senior Project Manager

Education

B.S., Anthropology, Michigan State University, 1978
CEQA Procedures and Case Law Update, Association of Environmental Professionals (2002)
Section 106 New Implementing Regulations, Advisory Council on Historic Preservation (2000)

Affiliations

Society for California Archaeology
Society for American Archaeology
Association of Environmental Professionals
Society of American Military Engineers

Publications + Technical Papers

"Perspectives on a Mining Landscape Near Weaverville." Coauthor of a paper presented at the Society for California Archaeology Annual Meetings, San Diego, California (1998).

"Archaeological Indications of California's Historic Chute Logging Industry." Coauthor of a paper presented at the Society for California Archaeology Annual Meetings, Sacramento, California (1991).

"A Preliminary Assessment of Land Use Differences Between the Atsuge and Apwaruge Divisions of the Ethnographic Atsugewi." Paper presented at the Society for California Archaeology Annual Meetings, Redding, California (1987).

Professional History

2009–Present
Design + Planning at AECOM
Principal

1994–2009
EDAW
Principal

1994–2001
KEA Environmental
Principal

1989-1994
PAR Environmental
Archaeologist, Environmental Project Manager

1979-1989
USDA Forest Service, Lassen National Forest
Archaeologist, Environmental Project Manager

Steve Heipel is a principal with 30 years of professional experience as a cultural resources specialist, environmental planner, and project manager/director working in California, Nevada, and other western states. He has a broad range of project experience and specializes in managing cultural resources technical investigations and development projects in compliance with federal, state, and local laws, regulations, and policies pertaining to cultural resources. Mr. Heipel has extensive experience conducting and supervising cultural resources inventories, evaluations, and impact assessments in compliance with Section 106 of the National Historic Preservation Act and state law. Mr. Heipel has prepared several historic property management plans in compliance with Section 106, including those needed for long-term management of cultural resources subject to long-term hydroelectric licenses issued by Federal Energy Regulatory Commission (FERC). Mr. Heipel also engages in Native American contact programs, and has managed numerous environmental documents under California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA).

Project Experience

San Joaquin County Department of Public Works, On-Call Environmental Services, San Joaquin County, California. Principal-in-charge for environmental services for a variety of public works projects in an on-call capacity. Mr. Heipel serves as principal contact, overseeing the task orders, ensuring adequate staffing, and providing quality assurance. AECOM has completed services for over 30 projects under this agreement to date.

Sacramento Regional Transit District, Amtrak/Folsom Light Rail Corridor, Sacramento County, California. Project manager for on-call technical studies, supplemental environmental documentation under CEQA and NEPA, and mitigation monitoring tasks. The project was constructed by the Sacramento Regional Transit District, with the Federal Transit Administration serving as the lead federal agency. A final EIR/EIS was approved by these agencies and construction of the main line is complete. AECOM performed biological mitigation monitoring during construction for potential impacts on nesting birds and native trees, and provided oversight on potential project-related impacts on archaeological resources. AECOM conducted technical studies and prepared several supplemental CEQA/NEPA documents to address proposed project changes.

Sacramento Regional Transit District and Entranco, South Sacramento Light Rail Corridor, Sacramento, California. Project manager for on-call environmental support services for the first phase (6.3 miles) of the light rail extension to Meadowview. Activities included permitting assistance, construction monitoring, worker environmental awareness training, and submittal of quarterly mitigation monitoring reports.

Solano County, McCormack Road Bridge Replacement, Solano County, California. Senior archaeologist who managed CEQA/NEPA compliance documents and cultural

and biological technical investigations for replacement of an existing bridge. Tasks included preparation of categorical exemption/categorical exclusion documents, a natural environment study, historic property survey report, and archaeological survey report based on records searches, Native American and agency consultation, and field reconnaissance. Technical documents were prepared to meet Caltrans District 4 and Federal Highway Administration requirements.

California Department of General Services, Relocation of Agricultural Inspection Station on I-80 at Truckee, Nevada County, California. Project manager for the construction of a new agricultural border inspection station at Truckee with seven vehicle lanes and three truck lanes on Interstate 80 east of Truckee. Mr. Heipel prepared an initial study/mitigated negative declaration, managed technical studies and permitting services, and conducted archaeological research, site study, and cultural resources reports. The work was conducted in coordination with Caltrans and the Federal Highway Administration.

Solano County Transportation Department, Pleasants Valley Road Rehabilitation Project, Solano County, California. Project manager for cultural resources technical studies including background research, Native American and agency consultation, and archaeological field survey for a road widening and bridge replacement project. Mr. Heipel directed preparation of an archaeological survey report, historic architectural survey report, and historic properties survey report for compliance with Section 106 of the National Historic Preservation Act.

Mark Thomas & Co., Inc., Interstate 80/Enterprise Boulevard, Yolo County, California. Project manager and archaeologist for a highway interchange improvement project and sound wall on Interstate 80 at the Enterprise Boulevard interchange in the city of West Sacramento in Yolo County. Mr. Heipel coordinated cultural resources, air, noise, water, socioeconomics, and biological investigations and oversaw preparation of the initial study/negative declaration in compliance with CEQA and NEPA for Caltrans District 3 and the Federal Highway Administration.

Hughes Environmental Consultants/Solano County, Pleasants Valley Road/Foothill Boulevard Project, Solano County, California. Archaeologist for a road improvement project that involved replacing four bridges over Encinosa Creek in western Solano County, California. Mr. Heipel conducted and reported on the required archaeological investigations, and directed the historic architectural studies needed to comply with the guidelines of Caltrans District 4 and the Federal Highway Administration. Work was conducted in support of environmental planning decisions.

Environmental Science Associates, Inc./Town of Truckee, Truckee Traffic Circle/Railroad Undercrossing Project, Nevada County, California. Senior archaeologist who completed archival research, a records search, archaeological field surveys, and a cultural resources inventory report for a transportation improvement project in the historic town of Truckee. The project involved construction of a traffic roundabout at the end of the eastbound Interstate 80/Donner Pass Road off-ramp, and a roadway connection under the Southern Pacific Railroad. The historic railroad alignment is a portion of the First Transcontinental Railroad, and is eligible for listing on the National Register of Historic Places.

Centennial Civil Engineering, Inc., Rio Vista Bridge Replacement, Sacramento and Solano Counties, California. Senior archaeologist and environmental coordinator for a bridge replacement on State Route 12 over the Sacramento River near Rio Vista in Solano and Sacramento Counties. Mr. Heipel coordinated with subconsultants and prepared a preliminary environmental evaluation report for inclusion in the project study report. He worked in conjunction with project engineers, the City of Rio Vista, Caltrans District 10, the Federal Highway Administration, and other cooperating federal and state agencies.

Hughes Environmental Consultants/Solano County, Morrison Lane Bridge Replacement Project, Solano County, California. Archaeologist for replacement of a bridge over Suisun Creek in western Solano County, California. Mr. Heipel conducted and reported on the required archaeological investigations, and directed the historic architectural studies needed to comply with the guidelines of Caltrans District 4 and the Federal Highway Administration. Work was conducted in support of environmental planning decisions.

David Evans Associates, Inc., San Joaquin Regional Transportation Plan, San Joaquin County, California. Project manager who provided cultural and biological resource information to the San Joaquin Council of Governments' Regional Transportation Plan. Mr. Heipel reviewed relevant planning documents and resource databases and prepared text for incorporation into environmental planning document.

Sacramento County, Hazel Avenue Interchange Improvement, Sacramento County, California. Archaeologist for a transportation improvement project at the Hazel Avenue/Highway 50 interchange in Sacramento County. Mr. Heipel conducted and reported on archaeological studies in compliance with CEQA, NEPA, and Section 106 of the National Historic Preservation Act. Documents were prepared to the standards of Caltrans District 3 and the Federal Highway Administration.

Pacific Gas & Electric Company, Topock Compressor Station Remediation Project, San Bernardino County, California. Project manager for a remediation project at PG&E's natural gas compressor station in eastern San Bernardino County near the Colorado River. Wastewater discharges resulted in a chromium-contaminated plume of groundwater that has been flowing toward the river. Detection of the contaminants near the river triggered implementation of interim measures by PG&E (with oversight by the California Department of Toxic Substances Control) to control plume migration. AECOM helped develop final remediation alternatives and is preparing an EIR evaluating the alternatives at an equal level of detail. The US Bureau of Land Management manages adjacent lands that may be used for remediation facilities. Key issues include cultural resources (because of proximity to the "Topock Maze," a sacred site), hazardous materials, hydrology and water quality, soils, and human health and ecological risk.

AECOM Design + Planning

Resume

Rebecca Apple, RPA
Principal/Practice Leader, Cultural Resources Group/ Senior Archaeologist

Education
MA, Anthropology, San Diego State University
BA, Anthropology, San Diego State University

Professional Registrations
Register of Professional Archaeologists

Accreditation
Certified Archaeology Consultant, County of San Diego

Professional Affiliations
Member, Society for American Archaeology
Member, Society for California Archaeology

Awards + Honors
Phi Kappa Phi
Phi Beta Kappa
University Scholar

Publications + Technical Papers
Introduction to Recent Archaeological Investigations at the Salton Sea Test Base, Imperial County California. Proceedings of the Society for California Archaeology, Volume 12. Fresno, California (1999).

Recent Archaeological Investigations in the North Las Vegas Valley (with J.H. Cleland and M.S. Kelly). In Crossing the Borders: Quaternary Studies in Eastern California and Southwestern Nevada. San Bernardino County Museum Association Special Publication (1991).

Presentations

Setting the Scene: Interpretive Planning and Implementation in Old Town Historic State Park. Paper presented at the 42nd Annual Meeting for Society for California Archaeology, Burbank, California (2008).

Mapping and Managing Pathways to the Past. Paper presented at the 22nd Annual ESRI International User Conference, San Diego, California (2002).

Introduction to Recent Archaeological Investigations at Salton Sea Test Base, Imperial County, California. Paper presented at the 32nd Annual Meeting for Society for California Archaeology, San Diego (1998).

A Late Mojave Period Site Near Silver Lake, California (with A. York). Presented at the 26th Annual Meeting of the Society for California Archaeology, Pasadena (1992).

Preliminary Project Results of the San Diego County Studies for the Southwest Powerlink Transmission Project. Presented at the 17th Annual Meeting of the Society for California Archaeology, San Diego (1983).

Rebecca Apple has over 25 years of experience in cultural resource management and serves as senior archaeologist for AECOM. Her experience includes managing cultural resources compliance efforts for large complex projects. She is knowledgeable in the procedures and guidelines associated with implementation of NHPA and CEQA. She has managed numerous cultural resource projects, including prehistoric, historic, and ethnographic studies. She has directed inventories, evaluations, data recovery efforts, and monitoring programs. She has also prepared management plans and conducted feasibility studies. Her work frequently includes consultation with municipal, state, and federal agencies, as well as Native American representatives and the public. As part of interdisciplinary teams, she has managed cultural resources investigations and authored cultural resource sections for ISs, EAs, EIRs, and EISs. Her experience includes cultural resource investigations for power plants, pipelines, transmission lines, highways, landfills, water resource facilities, military installations, and commercial and residential development.

Project Experience

VHB and Clark County Department of Aviation Southern Nevada Supplemental Airport EIS, Clark County, NV
Co-Principal Investigator responsible for cultural resource inventory of over 17,000 acres for a BLM and transfer. Class III survey also included Radar and Navaid facilities and retention basins. Class I studies for multiple alternatives. Project involved consultation with BLM, USFS, FAA, SHPO, Native American groups, and 106 other interested parties.

Caltrans and SANDAG SR-76 East, San Diego County, CA
Principal Investigator responsible for the cultural resource inventory and evaluation program for the SR-76 East widening project. Oversaw the survey of three alternative

Rebecca Apple, RPA

Resume

routes for archaeological and architectural resources, along with Extend Phase I excavations, ASR, HRER, and HPSR.

City of San Diego SR-56, San Diego County, CA
Resource Manager responsible for the cultural resource evaluation program for the SR-56 EIR. Evaluated 16 sites along two alternative freeway alignments.

County of San Diego SA 680/SF 728 Roadway Project Environmental Studies/EIR, San Diego County, CA
As Project Archaeologist, directed the test excavation and NRHP evaluation of four sites on the proposed project alignment. These investigations addressed the potential association of the sites with the Harris Site Complex.

Caltrans La Costa Avenue/I-5 Interchange, San Diego County, CA
As Project Archaeologist, directed an archaeological survey of proposed interchange improvements in the City of Carlsbad. The project requires close coordination with City and Caltrans staff.

Riverside County Transportation Commission SR-79, Riverside County, CA
Resource Manager responsible for cultural resource investigations for widening and realigning two highway segments. Prepared cultural resource sections for ISs and coordinated archaeological survey reports, historic architectural survey reports, and historic study report.

City of Victorville La Mesa/Nisqually Road Overpass, San Bernardino County, CA
As Project Archaeologist, supervised survey and prepared positive archaeological survey report and historic property survey report.

Elsmere Corporation Canyon Landfill, Los Angeles County, CA
As Project Archaeologist, directed cultural resource assessment for the EIR/EIS.

County of San Diego Southwest San Diego Landfill Siting Study, San Diego County, CA
Resource Manager responsible for cultural resource assessments of potential landfill sites throughout the southwestern quadrant of San Diego County. Ranked the relative sensitivity of each potential site.

State of California Department of Parks and Recreation Heber Dunes Off-Highway Vehicle Park, Imperial County, CA
State Parks recently acquired Heber Dunes and is in the process of preparing a General Plan and EIR for the Park. As part of these efforts approximately 350 acres were inventoried for cultural resources. Cultural Resources Principal in Charge.

State of California Department of Parks and Recreation and Riverside County Economic Development Authority Laborde Canyon Off-Highway Vehicle Park, Riverside County, CA
The areas of the SVRA that would be open to some level of OHV use would cover approximately 1,480 acres within the 2,640-acre Laborde Canyon site. We were contracted to conduct environmental studies for the Laborde Canyon site, including a cultural resource records search and an intensive cultural resources pedestrian survey of the proposed OHV park. Two prehistoric sites and the Lockheed Facility (Beaumont Site No. 2) were recorded within the study area during the survey. A preliminary assessment of the complex at Beaumont Site No. 2 was made to determine eligibility for the California Register of Historical Resources. Ms. Apple served as the Cultural Resources Project Manager.

State of California Department of Parks and Recreation Data Recovery for Goat Canyon Retention Basin Border Field State Park, San Diego County, CA
As Cultural Resources Project Manager, conducted data recovery under stringent time constraints based on wildlife issues and construction schedule. Excavation of 50 units at CA-SDI-16,047 Locus B indicated that the site was a buried temporary camp whose occupants exploited littoral, near-shore, and terrestrial subsistence resources. Data recovery investigations successfully collected data important in local and regional prehistory. The identification of a single component locus dating to the Archaic-Late transition is an important contribution.

Del Mar Land Management Company Fairbanks Country Villas, San Diego, CA
As Project Manager, prepared testing plan and implemented testing program for proposed residential development.

County of San Diego Inmate Reception Center, San Diego County, CA
Project Manager responsible for testing and data recovery of half a city block in downtown San Diego.

John Walker Lawrence, RPA

Senior Archaeologist

Education

MA/1989/Anthropology, University of Pennsylvania
BA/1980/Anthropology, University of Texas

Registrations

Register of Professional Archaeologists
Qualified under National Park Service criteria as Principal Investigator
40-HR. HAZWOPPER Supervisor Certified

Professional Associations

Member, Society for American Archaeology (SAA)

Member, Society for Historical Archaeology (SHA)

Member, Archaeological Society of New Jersey (ASNJ)

Member, Society for Pennsylvania Archaeology (SPA)

Awards

2005, Fourth Annual Federal Highway Administration, Pennsylvania Division, Transportation and Historic Preservation Excellence Awards for *Creative Mitigation for the Athens Bridge Replacement Project* in the category of Archaeology, Large Project.

Experience

Years with AECOM: 3
Years with other firms: 15

Mr. Lawrence has over 25 years experience in archaeology and 15 years of significant experience in cultural resources management throughout the eastern United States. In his capacity as Principal Investigator, he has frequently acted as the senior cultural resources liaison between the consulting firm, local, state, and federal project owners, and state and federal review agencies. During the past 15 years, Mr. Lawrence has successfully completed a wide variety of projects, many of which have included the evaluation of both above-ground and below-ground cultural resources. He has conducted Section 106 of the National Historic Preservation Act historic preservation planning studies for a wide variety of resources, from historic urban properties and historic farmsteads to prehistoric archaeological resources.

Mr. Lawrence has performed numerous surveys, including transportation resources (historic roads, canals, railroads, and bridges), industrial properties (gristmills, oilmills, manufacturing plants), agricultural properties (farmsteads, tenant farmer houses) and prehistoric archaeological sites. He has also authored numerous Section 106 documents, including Phase I, II and III (Data Recovery) Reports, Predictive Model Reports, Construction Monitoring Reports and has assisted in the preparation of Memoranda of Agreement/Understanding as well as Programmatic Agreements. He is experienced in the Section 106 and NEPA public involvement processes, working with the public, organizations, state and federal agencies.

Open End Task Order Agreement with Public Service Enterprise Group (PSEG), New Jersey: Principal Investigator. Provide cultural resource consulting services for proposed new transmission lines of varying sizes. Have conducted six studies to date, conducting background research, field verification, reporting, and State Historic Preservation Office (SHPO) coordination.

Phase IA Cultural Resources Survey, Wilderness Fiber Optic Project, Pennsylvania. Pennsylvania Historical and Museum Commission (PHMC). Principal Investigator. The project involved assessing the archaeological and historic architectural sensitivity of a proposed 220-mile long fiber optic line crossing 12 counties in the Commonwealth of Pennsylvania. Report currently in review by the PHMC.

Phase I, Phase II, and Phase III Data Recovery, I-95/Scudder Falls Bridge Improvement Project, Delaware River Joint Toll Bridge Commission (DRJTBC), Bucks County, Pennsylvania and Mercer County, New Jersey. Principal Investigator. Project involves improvements to the Scudder Falls Bridge carrying I-95 over the Delaware River, as well as improvements to the I-95 approaches and interchanges on both sides of the river. As Principal Investigator, leading Phase II, and Phase III Archaeological surveys.

Phase I Cultural Resources Survey to Improve McQueen Smith Road and South Memorial Drive (SR-31) Project No. STOP-A-7812 (600) Prattville, Autauga County, Alabama. Alabama DOT. Principal Investigator. The cultural resources survey documented 3, early 20th-century African tenant farmer house sites for which Phase II investigations are recommended if they cannot be avoided. Report currently in review at the Alabama State Historic Preservation Office (SHPO).

HSFEHQ-08-J-0021 - Hurricane Ike Public Assistance Disaster Operation, Beaumont, Texas. FEMA. Cultural Resources Specialist. Duties included the assessment of cultural resources sensitivity of PPDR properties, conducting archaeological surveys of those properties as required under the MOA, preparing and submitting reports with recommendations for those properties for review and concurrence by the Texas Historical Commission.

Phase I Cultural Resources Survey to Improve SR-20 from the Existing Tennessee River Bridges to I-65 Project No. DE-AL91 (900) Decatur, Limestone County, Alabama. Alabama DOT. Principal Investigator. Responsible for directing the survey of this 2.7-mile corridor. Three prehistoric sites and two historic properties were identified during the course of the survey; the archaeological resources were comprehensively disturbed by agriculture and the historic structure evaluated to be Not Eligible for NR listing. Report currently in review at the Alabama State Historic Preservation Office (SHPO).

Phase I/II Archaeological Survey, Brooke Station Expansion Project, Brooke, Stafford County, Virginia. Virginia Railway Express. Principal Investigator. Responsible for directing Phase I and II Archaeological Survey for proposed station parking lot expansion. Combined prehistoric and historic site components were identified during the Phase I survey; Phase II survey results indicate that the sites are not eligible for inclusion in the National Register of Historic Places. Report reviewed and approved by the Virginia Department of Historic Resources (VDHR).

Phase I Archaeological Survey, Leeland Station Expansion Project, Leeland Station, Stafford County, Virginia. Virginia Railway Express. Principal Investigator. Responsible for directing Phase I Archaeological Survey for proposed station parking lot expansion. No archaeological deposits were found and no further work recommended. Report reviewed and approved by VDHR.

Cultural Resources Survey, New Jersey Turnpike Interchange 6 to 9 Wetland Mitigation Project, South Brunswick Township, Middlesex County, New Jersey. New Jersey Turnpike Authority. Principal Investigator. Duties included assessing the archaeological sensitivity of the affected areas and conducting subsurface testing in those areas with the potential to contain archaeological deposits. Prepared Phase I Archaeological Survey Report that was reviewed and approved by NJSHPO.

AECOM Design + Planning

Resume

Theodore Cooley, RPA
Archaeologist

Education
MA, Anthropology, California State University, Los Angeles, 1982
BA, Anthropology, California State College, Long Beach, 1970

Professional Registration
Registered Professional Archaeologist (RPA)

Professional Affiliations
Member, Society for American Archaeology
Member, Society for California Archaeology
Member, Register of Professional Archaeologists

Certifications
County of San Diego Certified Consultant List for Archaeological Resources
City of San Diego, Certified Principal Investigator for Monitoring Projects
County of Riverside Certified Cultural Resources Consultant Principal Investigator
County of Orange Certified Cultural Resources Consultant Principal Investigator
Approved lists in San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties

Training
40-Hour HAZWOPER Training

Mr. Cooley has 40 years of experience in archaeological resource management. He has directed test and data recovery investigations, monitoring programs, and archaeological site surveys of large and small tracts, and has prepared reports for various cultural resource management projects. He is well-versed in NHPA, NEPA, and CEQA regulations and processes. Mr. Cooley also has extensive experience with Native American consultation and monitoring for archaeological field projects involving human remains and reburial-related compliance issues.

Project Experience

Parsons Brinkerhoff State Route 94 Operational Improvements Inventory and Evaluation, San Diego County, CA
Supervisory Archaeologist of cultural resources field survey efforts, and documentation and evaluation related to proposed operational improvements along an 18-mile stretch of State Route 94 in San Diego County. Development of Caltrans-format documentation for archaeological and built environment resources. Work performed prior to joining this firm.

NAVFAC Southwest, Compliance Documentation Support Services for Marine Corps Base, Camp Pendleton, Environmental Security Section, San Diego County, CA.
Provided support services, on Base, in the preparation of documentation and correspondence for agency submittal for federal NEPA and Section 106 compliance requirements, principally to the State Historic Preservation Office (SHPO) and Advisory Council for Historic Preservation (ACHP), for several large Base construction projects.

Theodore Cooley, RPA

Resume

NAVFAC Southwest, San Nicolas Island Archaeological Evaluations, Ventura County, CA.
Field Archaeologist for archaeological evaluation of prehistoric sites CA-SNI-316, CA-SNI-361 and CA-SNI-550 on San Nicolas Island in the Channel Islands of the California Bight. This project involved the significance testing and evaluation of these Middle and Late Holocene sites and the anlaysis and synthesis of results with existing island-wide archaeological data.

Olivenhain Municipal Water District Raw Water Pipeline Phase I Cultural Resources Survey and Inventory Project, San Diego County, CA
Project Archaeologist and Principal Investigator for Phase I Cultural Resources Survey and Inventory of two alternative pipeline alignment corridors, totaling approximately nine miles in length east of Encinitas, CA. Author of the technical report of results from the survey and inventory program.

County of of San Diego Department of Parks and Recreation Sage Hill Preserve, San Diego County, CA
Supervisory Archaeologist for Phase I pedestrian survey and cultural resource inventory of the Sage Hill Open Space Preserve in unincorporated west central San Diego County. The project involved the identification and documentation of prehistoric and historic resources, built environment features, and existing infrastructure to assist the Department of Parks and Recreation in resource management. Inventory reports included extensive archival research and historical narrative, an inventory of identified sites, and management guidelines for potentially significant cultural resources developed in consultation with Native Americans where appropriate. As Supervisory Archaeologist, directed the field survey for prehistoric and historic archaeological resources within the proposed 234-acre natural park Preserve located in the coastal foothills east of Encinitas, CA. Co-authored the technical report of results from the survey program.

RRG Weldon Solar Project Cultural Resources Inventory Program Kern County, CA
As Supervisory Archaeologist, directed the field survey and site documentation for prehistoric and historic archaeological resources within a proposed 425-acre solar facility near Lake Isabella in the southern Sierra Nevada Mountains, southwest of Weldon, CA. Co-author of the technical report of results from the survey program. The program was conducted under CEQA and local guidelines of the County of Kern for the implementation of CEQA.

Abengoa Mojave Solar Project, Cultural Resources Inventory and Resource Evaluation Program San Bernardino County, CA
As Supervisory Archaeologist, supervised the survey of a proposed 1,765-acre solar facility in the Mojave Desert west of Barstow, CA. Also supervised the archaeological documentation and Phase II testing efforts, and co-authored the technical reports of results from the survey and testing programs.

Solar Millenium Ridgecrest Solar Project Cultural Resources Inventory Program, Kern County, CA
Co-Field Director of field survey for prehistoric and historic archaeological resources within a proposed 1,757-acre solar facility in the Mojave Desert west of Ridgecrest, CA. Participated in the preparation of the DPR site forms and was a contributing author to the technical report of results from the survey program.

County of San Diego Department of Parks and Recreation Open Space Preserves and Regional Parks, San Diego County, CA
Supervisory Archaeologist for Phase I pedestrian survey and cultural resource inventories of four Open Space Preserves and Regional Parks in unincorporated central San Diego County. The projects involved the identification and documentation of prehistoric and historic resources, built environment features, and existing infrastructure to assist the Department of Parks and Recreation in resource management. Inventory reports included extensive archival research and historical narrative, an inventory of identified sites, and management guidelines for potentially significant cultural resources developed in consultation with Native Americans where appropriate. Work performed prior to joining this firm.

Southern California Edison As-Needed Archaeological Services, Statewide, CA
Supervisory Archaeologist for surveys, resource identification, documentation, testing, and evaluation efforts related to Southern California Edison infrastructure replacements and development throughout the state on both private and public lands, including BLM, USACE, and USFS. Project involved completion of State of California DPR forms, assessment of resource significance according to NRHP eligibility and CEQA significance criteria, and management recommendations. Work performed prior to joining this firm.

AECOM Design + Planning

Resume

Stephanie Jow
Staff Archaeologist

Education
MA, Anthropology, San Diego State University, 2009
BA, Physical Anthropology, University of California, Santa Barbara, 2004

Affiliations
Member, Society for California Archaeology

Awards + Honors
Norton Allen Scholarship, San Diego State University Department of Anthropology, Fall 2009

Stephanie Jow has 5 years of archaeological and ethnographic experience in Southern California. While at this firm, her archaeological experience includes archaeological testing, data recovery, survey, laboratory analyses, document research, and report production for private, city, county, state, and federal clients. She also has worked closely with local Native American groups to ensure project compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966.

Ms. Jow has also contributed to social science projects for federal, state, and local clients. The resulting documents have included specialized technical studies on social and cultural issues, including community baseline reports, as well as more generalized socioeconomic analysis for NEPA- and CEQA-compliant documents. Analysis is based on careful consideration of existing demographic, economic, and social conditions using multiple methodologies, including ethnographic research, unstructured and semi-structured interviews, structured surveys, visual analysis, and geodemographic analysis.

Before joining this firm, Ms. Jow worked as a laboratory technician in the San Diego State Collections Management Lab and conducted ethnographic research on the Native American Indians of San Diego County. Her Master's thesis focused on modern identity among the Kumeyaay.

Project Experience

Caltrans SR-76 Mission to I-15 CEQA and NEPA Studies, San Diego, CA
Staff archaeologist and lab technician for a cultural resources study of two proposed alternatives for the expansion of State Route 76. The project included cultural resources surveys, identifying impacts to cultural resources within project area, coordinating with project engineers to avoid negative impacts to cultural resources, and conducting preliminary testing of archaeological sites within the project area.

Stephanie Jow

Resume

City of Fullerton, Engineering Department, Raymond Ave. Grade Separation Project, Orange County, CA
Lead staff archaeologist for a cultural resources evaluation of a proposed grade separation project in Orange County, California. The project included a record search, pedestrian survey, and consultation with local historic societies and Native American groups. Additional duties include the co-authorship of an evaluation report.

Caltrans I-5/SR 56 Realignment Community Impact Assessment, San Diego, CA
Social Scientist for the Community Impact Assessment of proposed changes to the interchange for Interstate 5 and State Route 56. The purpose of the proposed project is to construct a new interchange and realign the connecting roads in order to improve level-of-service in the immediate area.

Solar Millennium, LLC, Blythe Solar Power Project, San Bernardino County, CA
Staff archaeologist assisting in the testing and evaluation of historic and prehistoric archaeological sites in Blythe, CA. The project included an archaeological survey and recordation of three recorded sites with minimal excavation, and an evaluation report.

Abengoa Solar Inc, Lockhart Substation Connection and Communication Facilities, Mojave Solar Power Plant Project, San Bernardino County, CA
Field director for an archaeological survey in support of a proposed solar electric generating facility in San Bernardino County. The project included an archaeological survey of the project site and buffer zones, the recordation of historic and prehistoric archaeological sites, and the preparation of a cultural resources report. In addition, local historical societies, the Native American Heritage Commission, and local tribal representatives were contacted regarding information and concerns about cultural resources in the area.

Southern Nevada Supplemental Airport EIS, Jean, NV
Field crew chief and assistant project manager for a cultural resources evaluation of a proposed airport in southern Nevada. The project included surveying and recording approximately 230 prehistoric and historic archaeological sites in the Ivanpah Valley region of southern Nevada. Additional duties included updating archaeological and historic sites and contributing to the authorship of an evaluation report.

NAVFAC Southwest and MCB Camp Pendleton Basewide Utilities Infrastructure Project, MCB Camp Pendleton, San Diego County, CA
Staff archaeologist and lab technician for the testing of over 50 archaeological sites in support of basewide utilities infrastructure improvements on MCB Camp Pendleton in northern San Diego County. Additional duties included seven months of Section 106 Native American consultation work with local Juaneño and Luiseño Native American Tribes.

NAVFAC Southwest and MCB Camp Pendleton, Grow the Force Permanent Bed-down Facilities Project, MCB Camp Pendleton, San Diego County, CA
Staff archaeologist and lab technician for the testing of archaeological sites in support of the Grow the Force initiative on MCB Camp Pendleton in northern San Diego County. This initiative is related to an increase of 3,000 Marines at MCB Camp Pendleton by FY 2013. Additional duties included seven months of Section 106 Native American consultation work with local Juaneño and Luiseño Native American Tribes.

NAVFAC Southwest and MCB Camp Pendleton Piedra de Lumbres (PDL) Quarry Evaluation Project, MCB Camp Pendleton, San Diego County, CA
Lab technician for the evaluation of the prehistoric Piedra de Lumbre chert quarry site (CA-SDI-10,008/10,708) on MCB Camp Pendleton in northern San Diego County.

NAVFAC Southwest and MCAS Yuma Chocolate Mountains Aerial Gunnery Range, Imperial and Riverside Counties, CA
Staff archaeologist for the survey of a supplemental magazine and a National Register Evaluation of a prehistoric trail, on the Chocolate Mountains Aerial Gunnery Range. Additional duties included the coordination of the Native American consultation program and Native American monitor, and contributing to the evaluation report.

NAVFAC Southwest and MCB Camp Pendleton Tertiary Treatment Plant Project, MCB Camp Pendleton, San Diego County, CA
Lab technician for the evaluation of the prehistoric site CA-SDI-14,170 and testing of four additional previously identified prehistoric sites and two discovery sites for a reclaimed water pipeline on MCB Camp Pendleton in northern San Diego County.

San Diego Department of Parks & Recreation Jolly Boy, Old Town San Diego State Historic Park, San Diego, CA
Lab technician of historic artifacts, specifically the analysis of ceramics. Project included testing, data recovery, and construction monitoring for renovations to an existing building on the site of the former Aguilar Serrano adobe in Old Town San Diego.

Christy Dolan, RPA
Historical Archaeologist

Education

MA, Anthropology, Concentration Historical Archaeology, College of William and Mary, 1994

BA, History and Anthropology, University of New Hampshire, 1985
Museum Studies Certificate Program, Harvard University

Professional Registration

Register of Professional Archaeologists (RPA)

Affiliations

Member, Society for Historical Archaeology
Member, Society for California Archaeology

Christy Dolan has 18 years of experience in the study of historic period archaeological and architectural resources. Her archaeological experience includes document research; surveys; and excavations of 18th, 19th, and 20th century sites in California, Arizona, Washington, Nevada, Colorado, Missouri, Virginia, Washington, D.C., and throughout New England. She has authored documents that represent the results of historic studies, surveys, inventories, evaluations, and preservation plans. Her work with several cultural resource management firms has broadened her knowledge of procedures for NEPA, NHPA, and CEQA and has allowed her to work with a variety of federal agencies.

Ms. Dolan has conducted numerous architectural surveys and is conversant with architectural styles and terminology for a broad array of structures, including military, industrial, municipal, commercial, and residential buildings. She has completed many special studies of the built environment, including National Register nominations, HABS, HAER, and National Historic Landmark nominations. She has a broad knowledge of material culture, building styles, and structural engineering practices in the 19th and 20th centuries.

Project Experience

City of Davis Railroad Depot Survey, Davis, CA
As Archaeologist, conducted archaeological survey and prepared an HPSR for a late 19th century railroad depot. [5/1998 – 6/1999]

City of Seal Beach Marina Drive Bike Path, Seal Beach, CA
As Historian/Archaeologist, conducted National Register eligibility study for several historic buildings under Caltrans guidelines. Prepared HRER with the findings and coordinated with Caltrans to define APE. [5/2003 – 6/2004]

City of National City Plaza Boulevard Widening, National City, CA
As Historian/Archaeologist, conducted National Register eligibility study for several historic buildings and structures under Caltrans guidelines. Prepared HRER with the findings Completed archaeological survey and records search and prepared ASR. As part of this study, conducted Native American contact program. [9/1999 – 12/2000]

City of Oceanside Pacific Street Bridge Architectural and Cultural Resources Survey and Evaluation, San Diego, CA
As Historian, conducted historic research and archaeological survey, and prepared HASR and ASR. Assessment conducted following Caltrans guidelines. [5/2003 – 5/2004]

County of San Diego South Santa Fe Avenue Reconstruction Project, Vista, CA
As Historian, conducted National Register eligibility study for several historic buildings and structures under Caltrans guidelines. Prepared HRER with the findings. [5/1999 – 9/2010]

Coronado Bridge Retrofit Archaeological Monitoring, San Diego, CA
Oversaw archaeological monitoring for the retrofit of several supports for the Coronado Bridge. Coordinated with Caltrans and PCL Constructors. This work will be documented in a monitoring report at its conclusion. [7/2000 – 11/2000]

City of Chula Vista Palomar Street Widening Project, Chula Vista, CA
As Historian, surveyed several blocks surrounding a portion of Palomar Street for the City of Chula Vista. Recorded several structures and buildings, three of which were part of a gas station that was in operation in the 1930s. Reported the results in several documents prepared in the Caltrans format. These included a Negative ASR, an HASR, and an HPSR. [6/1996 – 7/1997]

Caltrans and City of San Diego SR-56 Cultural Resource Study, Addendum Technical Reports, San Diego County, CA
As Historical Archaeologist, conducted archaeological testing of late 19th century homestead site. [5/1996 – 4/1997]

City of Encinitas Manchester Avenue/Interstate 5 Interchange Historic Properties Survey, San Diego, CA
As Task Manager for Historic Resources, conducted historic research and compiled information for the historic background and the assessment of historic structures for the HASR. [4/2004 – 6/2005]

County of Los Angeles Arroyo Seco Bike Path Finding of Effects Documentation, Los Angeles, CA
As Historic Resource Specialist, oversaw preparation of the historic resources portion of a Finding of Effects for a proposed bike path in the Arroyo Seco Flood Control Channel. Used character-defining features identified during the preparation of a Historic Architectural Survey Report to help determine the effects. [9/2004 – 4/2005]

NPS Jefferson National Expansion Memorial Environmental Impact Statement and General Management Plan Update, St. Louis, MO
As Task Manager for Archaeological Resources, worked with NPS to develop alternatives, conduct public meetings and prepare an Environmental Impact Statement for the Jefferson National Expansion Memorial and grounds in St Louis. Responsible for archaeological section for EIS and discussion in GMP of impacts to archaeological resources. [5/2008 – 12/2009]

U.S. Coast Guard Air Station San Francisco EA – Public Works Building, San Francisco, CA
As Historic Resources Specialist, conducted review of historic resources on Air Station San Francisco and prepared sections for an EA that evaluated the impacts of constructing a new public works building. This included evaluating potential impacts from the demolition of a structure eligible for inclusion in the National Register of Historic Places. (4/1997 – 6/1998)

NAVFAC Southwest P-527 Historic Railroad Study, MCB Camp Pendleton, San Diego County, CA
As Historical Archaeologist, surveyed segment of historic railroad at Camp Pendleton. Systematically recorded the railroad ties, tie plates, rails, rail connectors, trestles, and associated artifacts. Prepared report on findings. (4/1997 – 5/1998)

NAVFAC Southwest Cultural Resource Phase I Inventory Report for Small Arms, Demolition Ranges, and Training Areas on San Clemente Island, Los Angeles County, CA
As Historical Archaeologist, inventoried historic resources on San Clemente Island including World War II-era military sites, Chinese abalone camps, and sites relating to the early ranching period on the island. (5/1999 – 8/1999)

DGS Caltrans Headquarters Cultural and Historical Research Report, San Diego, CA
As Historical Archaeologist, conducted historic research and prepared documentation for the Caltrans District 11 proposed building. Assessed potential for archaeological resources through intense historical research including a review of Sanborn fire insurance maps and aerial photographs for an area that was first settled in the late 19th century. Followed up with the creation of a research design and testing plan for archaeological resources. (5/2000 – 5/2001)

Chapman University Cultural Resource Survey, Orange, CA
As Historical Archaeologist, performed an inventory of 25 properties within the historic urban core of Orange. Conducted historical research and architectural assessments for each property within the project area. Also assessed potential for the presence of subsurface cultural resources through review of Sanborn fire insurance maps. (5/2000 – 7/2001)

City of Los Angeles, Bureau of Engineering Public Safety Facilities Master Plan, Historical Assessment,
Los Angeles, CA
As Project Manager, oversaw historical assessment of 1950s building that serves as the Los Angeles Police headquarters. Also assessed associated landscaping. The landscaping and building were designed by architect Welton Beckett. Prepared the technical report, which evaluated the resources and assesses impacts. (5/2004 – 9/2005)

City of Lathrop River Islands Architectural History Report, Lathrop, CA
As Historian, conducted fieldwork to record and evaluate early farming and ranching buildings in Lathrop. Resources within the project area included irrigation canals, early 20th century dairy, late 19th century railroad, and farming/ranching complexes from 1900-1950. Results were summarized for inclusion in an EIR. (1/2004 – 11/2005)

Burns and McDonnell Los Angeles County Courthouse EIR, Los Angeles, CA
As Historian, conducted archaeological and architectural survey of four city blocks. Conducted in-depth historic research for each of the blocks and recorded and assessed several buildings. Prepared technical reports and EIR sections with findings. (5/2000 – 8/2001)

Bosa Development Historical Research for Parcel 2 (Block M299/775) of the Santa Fe Depot Composite Site,
San Diego, CA
As Historical Archaeologist, conducted archival research for a downtown San Diego block and former railroad freight yard to determine the potential for archaeological remains. Compiled data from Sanborn fire insurance maps, historic photographs, historic parcel maps, and railroad documents. Proposed a preexcavation trenching plan to explore archaeologically sensitive areas identified by the historic research. (9/1999 – 12/2000)

Mission San Juan Capistrano National Historic Landmark Nomination, San Juan Capistrano, CA
Revised nomination for the seventh California mission and the Old Stone Church, circa 1800. As Historical Archaeologist, conducted historical research of the 11 California mission properties to prepare the nomination form. (9/1996 – 5/1997)

County of San Diego Black Canyon Road Bridge Historic American Engineering Record Documentation and Historic Preservation Plan, San Diego County, CA
As Historian, prepared Historic American Engineering Record documentation and Historic Preservation Plan for concrete bridge built in 1913. Conducted extensive historical research, including a patent search. (5/1998 – 12/1998)

UNiT Cumbres & Toltec Scenic Railroad Cultural Landscape and Archaeological Assessment, CO
As Historical Archaeologist, conducted reconnaissance survey of Colorado portion of the Cumbres & Toltec Scenic Railroad between Antonito and Cumbres. Identified archaeological sites, discussed their historic significance, and made recommendations for preservation and future interpretation.(8/2006 – 12/2007)

AECOM Design + Planning Résumé

Charlane Gross
Senior Archaeologist

Education
M.A., Social Science, San Jose State University, 1991
B.A., Anthropology, University of California, Berkeley, 1987
Identification and Evaluation of Mid-20th Century Buildings, 2007
Section 4(f) Compliance for Transportation Projects, 2006
Integrating Cultural Resources in NEPA Compliance, 2005
Consulting with California SHPO Training with Caltrans, 2004
Identification and Management of Traditional Cultural Places, National Preservation Institute, 2003
Consultation with Indian Tribes, National Preservation Institute, 2002
Heritage Resources Management Program, Section 106 Training, University of Nevada, Reno, 2001

Cetrifications
40-hour Hazardous Waste Operations Training-Current
Register of Professional Archaeologists

Affiliations
Society for California Archaeology
Society for American Archaeology

Awards + Honors
AEP Outstanding Public Involvement/ Education Program, March 2009 – Stewardship of the Lower Putah Creek Watershed

Professional History
2009– Present
Design + Planning at AECOM
Senior Archaeologist

2000 – 2009
EDAW
Senior Archaeologist

1986– 2000
Various Firms and Agencies
Archaeologist - Osteologist

With 23 years of field experience on a wide variety of projects, Charlane Gross is well versed in both historic and prehistoric research, surveys, test excavations, and data recovery. Ms. Gross has considerable experience with writing reports on cultural resource management, consulting with Native Americans, and directing archaeological field crews for survey, testing, and data recovery. While certified for Hazardous Waste Operations, Ms. Gross has provided research, identification, excavation, and treatment for Superfund and other hazardous materials sites. Her experience with hazardous materials sites includes mine, rail, chemical, and other manufacturing sites.

Ms. Gross authored numerous reports, site evaluations, and historic property assessments and therefore understands project needs from the field through the reporting phases. Ms. Gross has evaluated sites for eligibility on the National Register of Historic Places and California Register of Historical Resources.

Ms. Gross specializes in human osteology and burial excavation techniques. Her body of work includes both historic and prehistoric burial excavations, field identification, lab analysis, and conservation. Her projects have included prehistoric Native American sites, historic cemeteries, osteological analysis, and various burial sites associated with project construction. She has helped supervise the research, excavation, site mapping, conservation, and interpretation for several historic cemeteries. As a project manager with AECOM during the last 8 years, Ms. Gross' responsibilities have included scope and budget preparation, client contacts, Native American consultation, and supervision of all aspects of projects, as well as documentation of results.

Ms. Gross has worked on projects in California, Delaware, Guam, Hawaii, Nevada, New Jersey, New York, Pennsylvania, and West Virginia.

Project Experience

TRANSPORTATION PROJECTS

Grant Line Road/Highway 99 Interchange Reconstruction Project EIR, Elk Grove, CA
Client: City of Elk Grove
Cultural Resources Task Manager. The City proposes to improve the interchange to serve planned and anticipated development in the area. Ms. Gross conducted Native American consultation, revised previous Historic Property Survey Report to new Caltrans format Historical Resource

Charlene Gross

Résumé

Compliance Report, and prepared cultural resources section of EIR.

Suisun Valley Road Bridge 77, Solano County, CA
Client: Solano County Department of Transportation
Senior Archaeologist/Osteologist. Ms. Gross conducted field identification of prehistoric burial. Coordinated with Native American Most Likely Descendant (MLD). Identified human remains were carefully removed, studied and documented at AECOM's laboratory, and returned to the MLD for reinterment. Prepared NRHP evaluation of prehistoric site CA-SOL-61. Project was conducted prior to replacement of a National Register eligible 1910 bridge over Suisun Creek. Conducted and archaeological investigations in compliance with the guidelines of Caltrans District 4 and the Federal Highway Administration (FHWA).

Pleasants Valley Road Rehabilitation Project, Solano County, CA
Client: Solano County Transportation Department
Senior Archaeologist. Ms. Gross conducted background research and archaeological field survey for road widening and bridge replacement project. Supervised preparation of an Archaeological Survey Report, Historic Architectural Survey Report, and Historic Properties Survey Report for compliance with Section 106 of the National Historic Preservation Act.

Oakville Cross Road Bridge Replacement, Napa County, CA
Client: County of Napa
Senior Archaeologist. Ms. Gross prepared Finding of Effect document for the Extended Survey. She wrote Draft Data Recovery Plan and Draft Memorandum of Agreement between FHWA, Caltrans, State Historic Preservation Office (SHPO), Napa County for the Oakville Cross Road Bridge Replacement Project over the Napa River. Technical documents were prepared to meet Caltrans District 4 and FHWA requirements, including a NRHP evaluation.

State Route 87/Guadalupe Corridor, Santa Clara County, San Jose, CA
Client: Caltrans, District 4
Senior Archaeologist. Ms. Gross recovered, identified, and provided treatment for Native American burials discovered during construction of this 3.1-mile freeway alignment. She also authored monitoring report.

Sacramento Rail Yard Remediation Project, Sacramento, CA
Client: ERM West and Union Pacific
Project Manager/Principal Investigator. The Sacramento Rail Yard project involves the remediation of the site of the western terminus of the Transcontinental Railroad. Ms. Gross conducted historic research and assessed previous cultural resources reports to determine whether they adequately addressed the resource, a mid-19th century to mid-20th century habitation area and historic railroad terminus. She evaluated the probability of locating buried prehistoric and historic resources. She authored the cultural resources assessment report. On-site from 2001 to 2005, she provided archaeological monitoring, identification, data recovery, and reporting for any resources unearthed during remediation work.

Davis-Dixon Bike Path, Phase IV, Solano County, CA
Client: Solano County Transportation Department
Senior Archaeologist. Ms. Gross conducted background research and archaeological field surveys for road widening to add a bike path. She supervised preparation of an archaeological survey report, historic architectural survey report, and historic properties survey report for compliance with Section 106 of the National Historic Preservation Act.

Abernathy Bike Path, Solano County, CA
Client: Solano County Transportation Department
Senior Archaeologist. Ms. Gross conducted background research and archaeological field surveys for road widening to add a bike path. She supervised preparation of an archaeological survey report, historic architectural survey report, and historic properties survey report for compliance with Section 106 of the National Historic Preservation Act.

Cordelia Road Bridge, Solano County, CA
Client: Solano County Transportation Department
Senior Archaeologist. Ms. Gross conducted background research and archaeological field survey for bridge replacement project. Supervised preparation of an Archaeological Survey Report, Historic Architectural Survey Report, and Historic Properties Survey Report for compliance with Section 106 of the National Historic Preservation Act.

Gordon Valley Road Bridge, Solano County, CA
Client: Solano County Transportation Department
Senior Archaeologist. Ms. Gross conducted background research and archaeological field survey for 1930s vintage bridge replacement project with existing aboveground water pipeline to place underground. Supervised preparation of an Archaeological Survey Report, Historic Architectural Survey Report, and Historic Properties Survey Report for compliance with Section 106 of the National Historic Preservation Act.

WATER AND WATER-RELATED PROJECTS

Natomas Levee Improvements Program, Landside Improvements Project, Sacramento and Sutter Counties, CA
Client: Sacramento Area Flood Control Agency
Cultural Resources Task Leader. For the past two years, Ms. Gross has managed a multi-million dollar effort to identify, inventory, and evaluate sites along a 42-mile levee corridor on the Sacramento River. Ms. Gross developed the research

Charlane Gross

Résumé

design and historic property treatment plans for multiple segments of the corridor. She designed and implemented the combined surface and subsurface inventory and testing program and coordinated field staffing at multiple sites. The program has successfully identified buried prehistoric sites, evaluated historic and prehistoric sites for NRHP/CRHR eligibility. Ms. Gross' work on the project has involved coordination with state, local, and federal agencies, Native American tribes, and local stakeholders. Numerous site inventory and testing reports, evaluation plans, California Office of Historic Preservation approvals, and agreement documents have been produced in coordination with US Army Corps of Engineers, flood management engineers, and geotechnical consultants.

Feather River Levee Repair Project EIR and EIS, Yuba County, CA
Client: Three Rivers Levee Improvement Authority (TRLIA)
Senior Archaeologist. AECOM prepared a separate EIR and EIS on the Feather River Levee Repair Project, an element of the Yuba-Feather Supplemental Flood Control Project. Ms. Gross assisted in development of background information and preparation of the EIR and EIS documentation for this project.

Feather and Bear Rivers Levee Setback Project, Yuba County, CA
Client: Yuba County Water Agency and TRLIA
Senior Archaeologist. AECOM led a consulting team in preparing a Land Acquisition and Management Plan (LAMP) addressing options for the treatment of lands and project design within a levee setback area on the Bear River at the confluence with the Feather River, including at site CA-YUB-5, a prehistoric burial mound site. In response to the discovery of prehistoric archaeological remains and artifacts at two sites in the construction footprint, AECOM conducted archaeological site testing and reporting, including recovery and preservation of burials; coordinated with the pertinent Native American representatives, local authorities, and USACE archaeologists; used a geomorphic model as a predictor of where there is potential for the presence of subsurface archaeological deposits within the footprint of the setback levee; and facilitated discussions of treatment of the discovery sites. In addition, AECOM has conducted extensive construction monitoring and provided oversight of environmental controls during construction activity.

Upper Truckee River and Marsh Restoration Project, South Lake Tahoe, CA
Client: California Department of General Services/California Tahoe Conservancy
Senior Archaeologist. This project involved the restoration of wetlands and the stream channel of the river with the largest watershed draining into Lake Tahoe, which required significant planning, environmental review, and permitting. Water quality, public access, flooding, and special-status raptor (bald eagle and osprey) impacts were key issues in the environmental review along with protection of the Tahoe yellow cress, a California endangered plant.

Yosemite Creek Habitat Restoration, Candlestick Point, San Francisco, CA
Client: Wetland Research Associates/California State Parks Foundation
Cultural Resources Task Leader. AECOM is working with Wetland Restoration Associates to restore wetlands and the Yosemite Creek Channel, located within the Candlestick Point State Recreation Area. The project may impact historic fill (placed after the 1906 earthquake) as well as numerous prehistoric resources, including shellmounds. Ms. Gross has been involved in the early stages of the project, including Native American contact program, cultural resources site survey, and input into the preparation of an Initial Study (IS)/Mitigated Negative Declaration (MND).

South Bay Salt Ponds Habitat Restoration Planning and EIR/EIS, San Francisco Bay Area, CA
Client: USACE, Department of Fish and Game (DFG), U.S. fish and Wildlife Service (USFWS), Coastal Conservancy, Santa Clara Valley Water District, Alameda County Flood Control District
Cultural Resources Task Leader. AECOM is preparing a plan that integrates the complexities of ecological restoration, public recreation and access, and flood protection, developing and refining alternatives, and as well as providing environmental review (National Environmental Policy Act [NEPA]/California Environmental Quality Act [CEQA]), permitting, and design for the conversion of historic salt ponds back to tidal wetland. The project vicinity includes intensive historic and prehistoric use areas. Ms. Gross' duties include coordination of Native American consultation with various federal agencies, preparation of an Environmental Setting Report, and development of Impacts and Mitigation Measures for cultural resources.

Eastern Sacramento County Replacement Water Supply EIR, Sacramento County, CA
Client: Sacramento County Water Agency
AECOM is preparing the EIR for this project that includes construction of a water supply conveyance system that would transport remediated water to discharge locations along the Sacramento and American Rivers in Sacramento County. The remediated water would be used for replacement water, would serve new development areas in eastern Sacramento County, and would provide enhanced environmental benefits within Sacramento County, including providing enhanced fishery flows along the Cosumnes River. The EIR will comprehensively evaluate the project-related environmental effects of constructing project facilities (i.e., pipelines, pump stations, and discharge and diversion structures) for the discharge of remediated water and diversion of surface water. Cultural resource investigations in the project area included archival research and intensive and reconnaissance inventories.

Barry Scott, RPA
Senior Archaeologist

Education

M.S., Anthropology, California State University, Sacramento, 1988
B.A., Anthropology, California State University, Sacramento, 1983

Professional Registration

Register of Professional Archaeologists (RPA)

Affiliation

Society for American Archaeology

Lectures + Instructions

National Historic Preservation Law training course, 1988 and 1995

California Environmental Quality Act Step by Step, Sponsored by University of California, Davis Extension, March 1994

Environmental Impact Report/Environmental Impact Statement (EIR/EIS) Preparation and Review, Sponsored by University of California, Davis Extension, February 1994

Professional History

2010–Present
Design + Planning at AECOM
Cultural Resources Group Leader and Senior Archaeologist

2006–2010
ICF International (formerly Jones & Stokes Associates)
Cultural Resources Team Leader and Senior Archaeologist

2003–2006
Environmental Science Associates
Senior Archaeologist and CEQA Project Manager

1994–2003
Jones & Stokes Associates
Senior Archaeologist

1990–1993
Iguana Archaeological Research Consultants
Principal Investigator

Barry Scott is a project director and project manager who performs various phases of environmental project management for CEQA, NEPA, and Section 106 of the National Historic Preservation Act (NHPA) compliance projects. Specific roles include staff oversight and quality control; direct oversight of subcontractors; preparation of technical documents for compliance with Section 106 of the NHPA, as well as CEQA, NEPA, and other state and federal laws; development of mitigation plans; and preparation of CEQA and NEPA compliance documents. Besides management of multidisciplinary projects, Barry also manages large, complex cultural resource investigations; oversees research and evaluations; performs archaeological reconnaissance, excavation, and monitoring; and oversees implementation of state and federal regulations related to cultural resources. He is experienced in the preparation of environmental compliance documents such as EIRs, EISs, ISes, and EAs.

Mr. Scott has extensive experience organizing and participating in meetings and consultation between various state, local, and federal agencies and client representatives, especially to address cultural resource issues. He also specializes in coordination with Native Americans and with project design staff to develop methods of avoiding impacts on significant cultural resources. Mr. Scott has 24 years of experience in the archaeology of California and is a Registered Professional Archaeologist with extensive experience conducting cultural resource inventories and evaluations and overseeing historic and historic architecture investigations. He has conducted or has been Principal Investigator for numerous cultural resource investigations throughout the western United States, for the private sector and local, state and federal agencies.

Project Experience

US Bureau of Reclamation, Friant-Kern and Madera Canal, Fresno County, CA. Project manager for an environmental assessment (EA) under NEPA for a repair and rehabilitation project for approximately 200 miles of canals in Madera, Fresno, Tulare, and Kern Counties. The EA comprised analysis of all environmental topics including biology, cultural resources, water, air quality, noise, climate change, traffic, land use, and visual resources.

Big Sandy Rancheria Band of Mono Indians, Casino and Resort EIS, Fresno County, California. Project director for an EIS for the Bureau of Indian Affairs and the Big Sandy Rancheria. Mr. Scott oversaw completion of technical studies, directed agency consultation, conducted overall review for quality, and ensured adherence to schedule, budget, and quality. Key issues included water supply, cultural resources, effluent, traffic, and public services.

Parsons-Brinkerhoff, Cypress Bridge Project, Shasta County, California. Cultural resources investigation director for archaeological remains discovered at the location of bridge construction over the Sacramento River in the city of Redding. the project involved archaeological excavation, excavation of human remains, Native American consultation, construction monitoring, agency consultation, and artifact analysis.

Vestar Development Company, Weston Ranch Towne Center Project, San Joaquin County, California. Project manager for an EIR assessing a proposed commercial development center in the city of Stockton. Mr. Scott was responsible for oversight of the environmental compliance schedule, budget, work quality, and communication with the project proponent and the CEQA lead agency.

California State University, Sacramento, Tel Dor Excavations, Israel. Supervisor serving as excavation crew chief and assistant area supervisor. Mr. Scott supervised students and volunteers excavating an ancient mound in Israel; he also conducted independent field research for his master's thesis.

US Bureau of Reclamation, Historic/Ethnographic Surveys, Mid-Pacific Region, USA. Assistant to regional archaeologist assisting in and conducting surveys in California, Oregon, and Nevada. Mr. Scott conducted historic and ethnographic research, wrote survey reports, and formulated management recommendations.

Clayton Group, Verizon Communication Towers, City and County of San Francisco, California. Principal-in-charge for initial studies assessing cellular communications towers at the Dumbarton Bridge and at the Bay Bridge on Yerba Buena Island.

California Department of Transportation, Storm Damage Repair, Northern California. Cultural resources coordinator for Caltrans storm damage repair projects throughout Caltrans Districts 1, 2, and 3, including Humboldt County. Mr. Scott consulted with project engineers and Caltrans staff, preformed cultural resources inventories, developed avoidance and monitoring measures, and engaged in Native American consultation.

Williams Communications, Fiber Optic Construction Projects, California and Nevada. Cultural resources coordinator overseeing coordination with state and federal agencies, including the California State Lands Commission, Native American Heritage Commission, BLM, and Nevada State Historic Preservation Officer, for several Williams Communications fiber optic cable installation projects in the western United States, including routes from Salt Lake City to Sacramento, Pittsburg to Sacramento, Point Arena to Sacramento, San Francisco to Santa Clara, and San Luis Obispo to Bakersfield.

Federal Highway Administration, Highway Bridge Replacement and Rehabilitation Program, Butte, Yuba, Solano, Calaveras, Tuolumne, and Sacramento Counties, California. Cultural resources lead and project manager for cultural resource documents evaluating bridge replacement projects in Butte, Yuba, Solano, Calaveras, Tuolumne, and Sacramento Counties.

AT&T, Fiber-Optic Construction Projects, California, Oregon, Utah. Cultural resources lead for cultural resources investigations related to several fiber-optic construction projects. Mr. Scott initiated and facilitated agency (BLM, USFS, CA SHPO, SLC) coordination meetings for Section 106 of the NHPA and CEQA compliance, and coordinated extensively with numerous Native American groups and individuals. Projects included an 81-mile-long fiber-optic cable installation project extending from Bandon, Oregon, to Winston, Oregon; a 600-mile-long fiber-optic cable system installation project extending from Bandon, Oregon, to Cloverdale, California; a 502-mile-long coaxial cable removal project extending from Lucin, Utah, to Red Bluff, California; a 96-mile-long coaxial cable removal project extending from Sherman Oaks to Santa Maria, California; and a 196-mile-long coaxial cable removal and 125-mile-long fiber-optic cable installation project extending from San Luis Obispo to Bakersfield and Los Angeles County, California.

US Bureau of Reclamation, Folsom Reservoir Reoperation Project, Sacramento County, California. Cultural resources investigator conducting cultural resource investigations, including database searches and a quantitative and qualitative impact analysis.

US Bureau of Reclamation, Central Valley Project Improvement Act EIR/EIS, Central Valley, California. Cultural resources investigator conducting a cultural resource database search and impact analysis for all portions of California potentially affected by proposed operation changes in the Central Valley Project.

Sanitation Districts of Los Angeles County, Joint Outfall System 2010 Master Facilities Plan Program EIR, Los Angeles County, California. Cultural resources investigator conducting a cultural resource analysis, including database searches, field survey, report preparation, and preparation of environmental impact report technical section.

USACE, Sacramento District, Cultural Resource Inventory—Sierra Army Depot, Lassen County, California. Principal investigator and project manager for a cultural resource inventory of 4,470 acres at the Sierra Army Depot, a high-security facility.

Lodi Unified School District, Podesta Ranch Elementary School, San Joaquin County, California. Project director and director of Native American consultation for this Native American burial site excavation project at a school construction site in the city of Stockton. Mr. Scott directed the archaeological assessment, testing, burial recovery excavation, Native American consultation, analysis, and report preparation.

South San Joaquin Irrigation District, South County Surface Water Supply Project, San Joaquin County, California. Cultural resources director for a cultural resources inventory, archaeological testing, and archaeological monitoring project near the city of Lathrop. Mr. Scott oversaw the survey and archaeological test excavation at a Native American archaeological site, recovery of Native American human remains, Native American consultation, preparation of a monitoring and discovery plan, and archaeological and Native American monitoring during project construction.

HDR Inc., French Camp Road Interchange and Sperry Road Extension Project, San Joaquin County, California. Cultural resources director preparing a detailed archaeological research proposal for an extended Phase I archaeological excavation project at a previously recorded site located west of McKinley Road, near the intersection of Sperry Road in the city of Stockton. Mr. Scott also conducted extensive archaeological test excavations, conducted Native American consultation, and prepared an Extended Phase I excavation report for Caltrans review and approval.

Port of Stockton, Navy Drive Bridge Replacement Project, San Joaquin County, California. Cultural resources lead overseeing compliance with Section 106 of the NHPA, CEQA, and Caltrans and FHWA requirements for cultural resources studies and documentation. Mr. Scott prepared an area of potential effects map, a Historic Properties Survey Report, and an Archaeological Survey Report.

Contra Costa County Transportation Authority, Countywide Transportation Plan Programmatic EIR, Contra Costa County, California. Cultural resources lead for a program-level cultural resources impacts analysis for a wide range of project types. Mr. Scott developed mitigation measures that identify appropriate levels of future analysis, avoidance, and mitigation.

SRMC Pacific Materials, Aggregate Quarry Project, San Joaquin and Stanislaus Counties, California. Director of cultural resources investigation for the cultural resources impact analysis and identified mitigation measures in support of the EIR for this project.