

CALIFORNIA HIGH-SPEED TRAIN

Project Environmental Impact Report /
Environmental Impact Statement

Aesthetics and Visual Quality Technical Report

Merced to Fresno Section
Project EIR/EIS

April 2012



CALIFORNIA HIGH-SPEED TRAIN PROJECT EIR/EIS

TECHNICAL REPORT

Merced to Fresno Section
Aesthetics and Visual Resources

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Acronyms and Abbreviations

3D	three-dimensional
Authority	California High-Speed Rail Authority
Caltrans	California Department of Transportation
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
DOT	U.S. Department of Transportation
Downtown Master Plan	<i>City of Chowchilla Downtown Master Plan, Volume 1: Master Plan Goals, Objectives, and Policies</i>
EIR/EIS	environmental impact report/environmental impact statement
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
HMF	heavy maintenance facility
HST	high-speed train
KVP	key viewpoint
mph	miles per hour
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
OCS	overhead catenary system
RTP	regional transportation plan
SR	State Route
U.S.C.	United States Code



1.0 Introduction

The California High-Speed Train (HST) System is planned to provide intercity, high-speed service on more than 800 miles of guideway throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego, as shown in Figure 1-1. It will use a state-of-the-art, electrically powered, high-speed, steel-wheel-on-steel-rail technology, which will include contemporary safety, signaling, and automated train-control systems. The trains will be capable of operating at speeds of up to 220 miles per hour (mph) over a fully grade-separated, dedicated guideway alignment.

Two phases of the California HST System are planned. Phase 1 will connect San Francisco to Los Angeles/Anaheim via the Pacheco Pass and the Central Valley. An expected express trip time between San Francisco and Los Angeles is mandated to be 2 hours and 40 minutes or less. (Phase 1 would be built in stages dependent on funding availability.) Phase 2 will connect the Sacramento to the rest of the Central Valley, and will extend the system from Los Angeles to San Diego.

The California HST System will be planned, designed, constructed, and operated under the direction of the California High-Speed Rail Authority (Authority), a state governing board formed in 1996. The Authority's statutory mandate is to develop a high-speed rail system that is coordinated with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports. The Merced to Fresno HST Section is a critical Phase 1 link connecting the Bay Area HST sections to the northern and southern portions of the system.

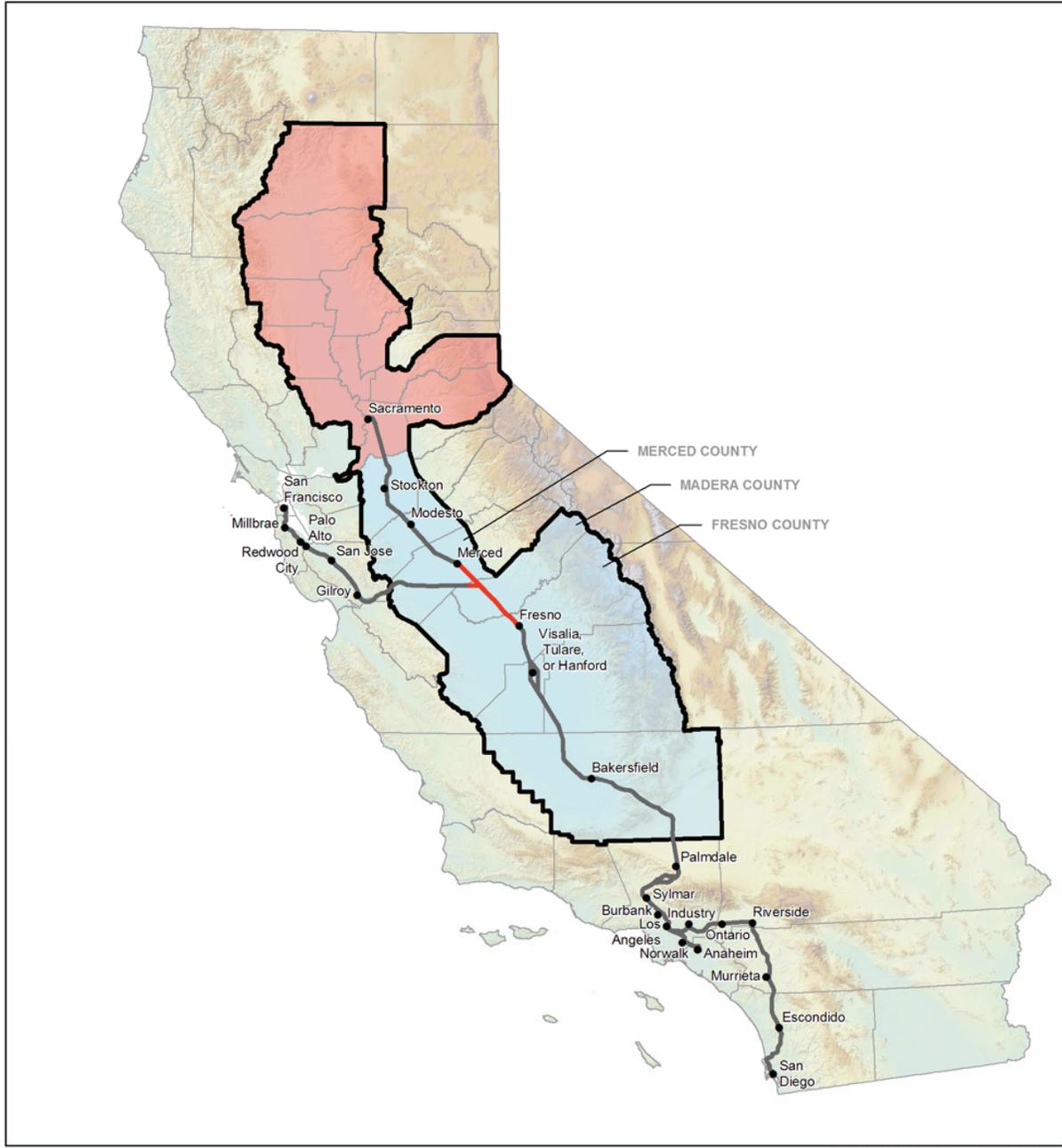
Definition of HST System

The system that includes the HST guideways, structures, stations, traction powered substations, and maintenance facilities and train vehicles able to travel 220 mph.

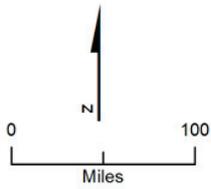
The Council on Environmental Quality provides for National Environmental Policy Act (NEPA) decision-making through a phased process. This process is referred to as *tiered* decision-making. This phased decision-making process provides for a broad level programmatic decision to inform more specific decisions using a tiered approach. A first tier programmatic environmental impact statement (EIS) addresses one large project with one overall purpose and need that would be too extensive to analyze in a traditional project EIS. The California Environmental Quality Act (CEQA) also encourages tiering and also provides for first-tier and second-tier EIRs.

The Merced to Fresno Section Project Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) is a second-tier EIR/EIS that builds upon and further refines work completed earlier as part of the two first-tier program EIR/EIS documents. The 2005 *Final Program EIR/EIS for the Proposed California High-Speed Train System* (Statewide Program EIR/EIS) provided a first-tier analysis of the general effects of implementing the HST System across two-thirds of the state. The *Final Bay Area to Central Valley HST Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS)* (Authority and Federal Railroad Administration [FRA] 2008), and the *Bay Area to Central Valley HST Revised Final EIR* (Authority 2010) were also first-tier and programmatic documents but focused on the Bay Area to Central Valley region. As a result of CEQA litigation, the Authority rescinded its 2008 programmatic decision, prepared a Revised Final Program EIR, and made a new decision on the Bay Area to Central Valley route in 2010. A second legal challenge resulted in the Authority preparing a Partially Revised Final Program EIR. The Authority is expected to rescind its 2010 decisions and make a new set of decisions for the Bay Area to Central Valley connection prior to considering the Merced to Fresno HST Final Project EIR/EIS. The Authority's rescission of the 2008 and 2010 programmatic decisions does not invalidate FRA's federal decisions on the 2005 and 2008 Program EIR/EISs.

First-tier EIR/EIS documents provided the Authority and FRA with the environmental analysis necessary for evaluation of the overall HST System and for making broad decisions about general HST alignments and station locations for further study in second-tier EIR/EISs. These documents are available on the Authority's website: www.cahighspeedrail.ca.gov. This technical report has been prepared to support the



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- Merced to Fresno Section
- Statewide HST System
- Potential Station
- Counties Commonly Associated with the Central Valley
- Sacramento Valley
- San Joaquin Valley

Figure 1-1
 HST System in California

Merced to Fresno Section Project EIR/EIS process, which analyzes the environmental impacts and benefits of implementing the HST in the more geographically limited area between Merced and Fresno and is based on more detailed project planning and engineering. The analysis therefore incorporates the earlier decisions and program EIR/EISs, and it provides more site-specific and detailed analysis.

Aesthetics and visual resources are natural and cultural landscape features that people see and that contribute to the public's enjoyment of the environment. Aesthetic and visual resource impacts generally are defined in terms of the extent to which the project's physical characteristics and potential visibility would change the perceived visual character and visual quality of the viewed landscape.

This technical report describes the existing visual environment within the Merced Fresno Section of the California HST System, including scenic resources, and analyzes the potential impacts on visual resources and aesthetics resulting from the development of the California HST System. This report is organized as follows:

- Section 1.0 – Describes the project and resource background.
- Section 2.0 – Provides a project description.
- Section 3.0 – Describes the methodology used to evaluate aesthetics and visual quality impacts.
- Section 4.0 – Includes the federal, state, and local laws, regulations, and orders that pertain to hazardous materials and wastes in the study area
- Section 5.0 – Describes the visual environment of the proposed project.
- Section 6.0 – Discusses the impact analysis relating to aesthetics and visual resources for the proposed project.
- Section 7.0 – Describes the optional mitigation measures available to compensate for impacts that cannot be minimized or avoided.
- Section 8.0 – Lists references used in the preparation of this technical report.
- Section 9.0 – Lists the preparer qualifications.
- Appendix A – Provides photographs and visual simulations from various KVPs.
- Appendix B – Contains the scores on which qualitative descriptions are based.
- Appendix C – Shows examples of HST stations.

The Statewide Program EIR/EIS (Authority and FRA 2005) concluded that the HST Project would have low potential to result in visual impacts on aesthetic and visual resources in the Central Valley, with the exception of changes at the HST stations. Potential mitigation strategies discussed in the Statewide Program EIR/EIS focused on design solutions that would lead to development of project facilities that are attractive and would integrate into the landscape context, minimizing view blockage, contrast with settings, light and shadow effects, and other visual impacts. Furthermore, where possible, the Authority would design the alignment at-grade, thereby reducing visual barriers. It also would lie along existing transportation corridors, thus minimizing changes in visual character.

The Statewide Program EIR/EIS recommended further analysis, specifically the identification of potential visual effects on residential and park and open space areas, particularly in areas with elevated structures. The EIR/EIS recommended that the analysis focus on identifying the potential for blockage of valued views; areas where shadows would be cast on residential and open space lands; and areas where the scale, form, line, and color of project facilities substantially would alter the existing character and quality of the setting. The purpose of such analysis, in addition to producing a detailed inventory of area-specific impacts, would be to identify areas for the incorporation of project siting adjustments and design modifications, landscaping, and other mitigation measures to reduce potentially considerable impacts to a

low level. The EIR/EIS also recommended conducting more specific analyses for each of the proposed station sites, identifying the potential for blockage of valued views; the areas where shadows would be cast; and the areas where the scale, form, line, and color of project facilities could be designed to blend with the surrounding landscape. These analyses could provide a basis for considering specific measures for integration into the final station designs to reduce the visual impacts of the stations on their surroundings.

The discussion of potential visual impacts in this report focuses on the potential for the blockage of views, contrast with existing visual character, and diminishment of existing visual quality in the general area, specifically with regard to identified scenic resources. The identified mitigation measures would reduce the impacts on visual resources along the HST alignment and within the vicinity of the proposed HST stations.

2.0 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 heavy maintenance facility (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.

2.1 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.

2.2 High-Speed Train Alternatives

As shown in Figure 2-1, 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 2-3) west to the Bay Area, and there are five potential sites for a proposed HMF.

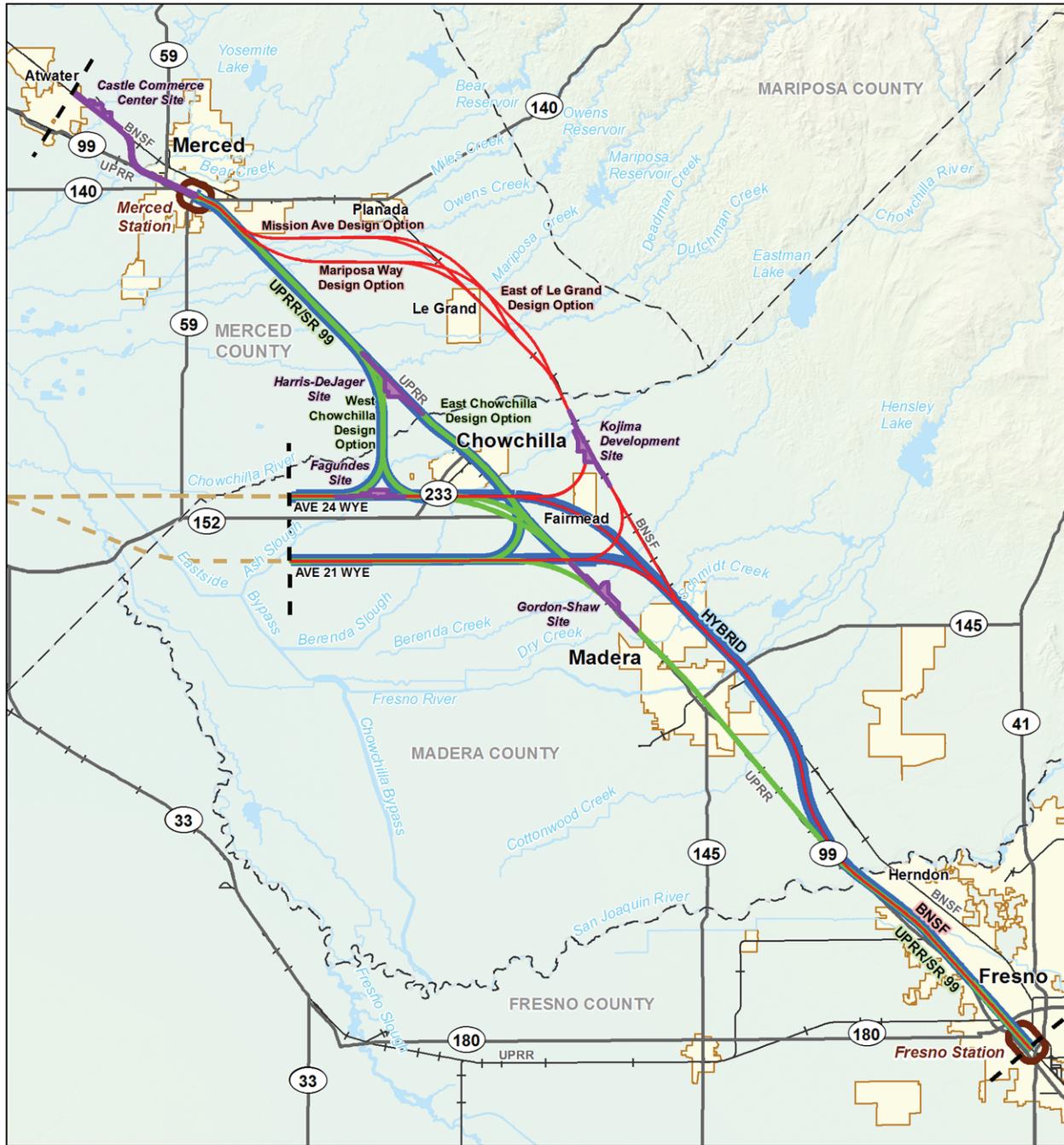
The Authority and FRA have identified the Hybrid Alternative as their preferred alternative for the north-south alignment between Merced and Fresno. The Hybrid Alternative would connect to San Jose to the west along one of three wye design options. The San Jose to Merced Section Project EIR/EIS will 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 and FRA have identified the Mariposa Street Station Alternative as their preferred alternative for an HST station in Downtown Fresno.

2.2.1 UPRR/SR 99 Alternative

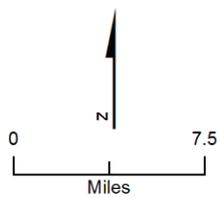
This section describes the UPRR/SR 99 Alternative, including the Chowchilla design options, wyes, and HST stations.

2.2.1.1 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



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- BNSF Alternative
- UPRR/SR 99 Alternative
- Hybrid Alternative
- Project Limit
- Connection to Other Section
- Station Study Area
- Potential Heavy Maintenance Facility
- City Limit
- County Boundary
- Railroad
- State / US Highway

Figure 2-1
 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.

The diagram illustrates a wye configuration where two main tracks from the left (labeled 'Westbound' and 'Eastbound') meet at a central point. From this point, two tracks branch out to the right, labeled 'Southbound' and 'Northbound'. The tracks cross each other in a specific sequence to allow for bidirectional travel. A label 'Transition Tracks' points to the area where the tracks are merging and crossing.

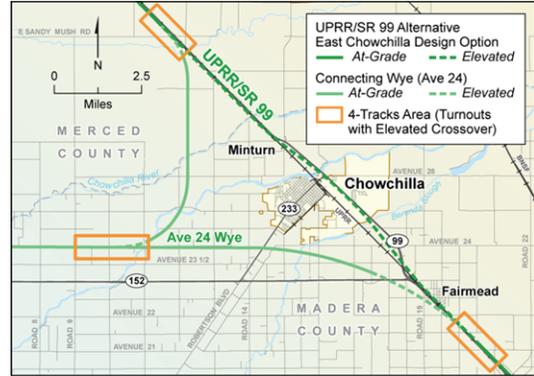
2.2.1.2 Wye Design Options

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

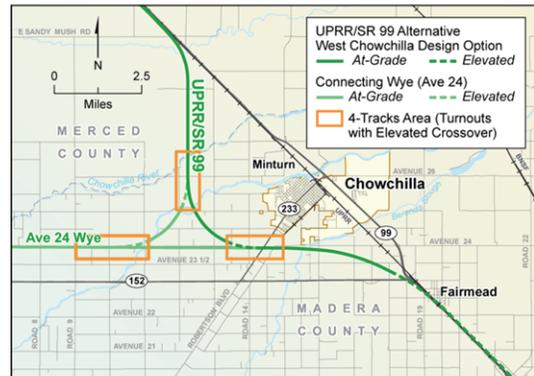
option and therefore does not have a variation.

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 2-2a shows the wye alignment for the East Chowchilla design option and Figure 2-2b 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.

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

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.

2.2.1.3 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. The Authority and FRA have identified Mariposa Street Station as their preferred 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 3 parking structures occupying a total of 5.5 acres. Two of the three potential parking structures would each sit on 2 acres, and each would have a capacity of approximately 1,500 cars. The third parking structure would have a slightly smaller footprint (1.5 acres), with 5 levels and a capacity of approximately 1,100 cars. 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 3 potential parking structures would each sit on 2 acres and each would have a capacity of approximately 1,500 cars. The third structure would 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.

2.2.2 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.

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

Continuing southeast along the west side of BNSF, 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

2.2.2.2 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.

2.2.3 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. The Authority and FRA have identified the Hybrid Alternative as their preferred alternative.

2.2.3.1 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 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.

2.2.3.2 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.

2.2.4 Heavy Maintenance Facility Alternatives

The Authority is studying five HMF sites (see Figure 2-1) 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.

3.0 Assessment Method

The methodology used to evaluate aesthetics and visual quality impacts is based on the federal guidelines provided in the U.S. Department of Transportation, Federal Highway Administration (FHWA) *Visual Impact Assessment of Highway Projects* (FHWA 1988) and the state guidelines provided in the California Department of Transportation (Caltrans) *Standard Environmental Reference*, Chapter 27: Visual & Aesthetics Review (Caltrans 2007). The Caltrans guidelines provide an overview of the visual and aesthetics review process that Caltrans uses. Chapter 27 references the FHWA methodology for visual impact assessment. The FHWA visual impact assessment methodology provides an approach and terminology for analyzing both visual quality and viewer response for transportation corridors, and is a well-established evaluation system, especially applicable for linear projects. FHWA developed this assessment method in response to National Environmental Policy Act (NEPA) requirements that consideration be given to determine the effects proposed federal actions or projects are likely to have on the quality of the human environment, including effects on the environment's visual quality. This system provides a methodology that is reliable and widely accepted for evaluating changes to visual or scenic quality resulting from proposed projects such as the HST.

The FHWA visual impact assessment methodology for visual assessment includes the following components:

- Define the project setting and viewshed.
- Determine who has views of the project.
- Identify key viewpoints (KVPs) and views for visual assessment.
- Analyze changes in existing visual resources and viewer response.
- Depict the visual appearance with the project.
- Assess the project's visual impacts.
- Propose methods to mitigate adverse visual impacts.

This section describes in detail the method for achieving each of these steps. The remainder of this report presents the application of these steps, and describes the evaluation of potential effects on aesthetics and visual resources from the proposed project.

3.1 Project Setting and Viewshed

The study area for aesthetics and visual resources includes much of the project's viewshed (i.e., the areas that could potentially have views of project features and the areas which viewers on project trains could potentially see as they travel through the landscape). The Merced to Fresno Section of the HST System is located on mostly flat terrain and passes through agricultural lands as well as urbanized areas. Viewing distances toward the corridor vary throughout the study area. In agricultural and other open areas, the corridor is visible over extensive areas because of the general scarcity of buildings and tall vegetation. In these areas, the study area is considered to be all areas within 0.5 mile of the alignment centerline from which the corridor would be visible. In urbanized areas, views toward the corridor are often more restricted due to the presence of buildings and tall vegetation. Therefore, the study area in urbanized areas encompasses the area within 0.25 mile of the centerline of the alignment from which the corridor would be visible.

3.2 Visual Resources

Visual resources within a study area are inventoried prior to assessing impacts. The inventory includes elements such as scenic highways, historical structures and districts, regionally and locally important visual or scenic resources, astronomical observatories, properties specifically oriented to views within the viewshed, and recreation areas and similar facilities (e.g., parks, trails, and wildlife and waterfowl refuges). This inventory was based on reviewing aerial and satellite photography and mapped data, visiting the sites, reviewing planning documents, checking the California List of Eligible and Officially

Designated Scenic Routes, and coordinating with other discipline leaders providing technical analyses of the project, including architectural historians and biologists.

3.3 Viewer Groups and Their Relative Sensitivities

Viewer groups within the study area represent such people as roadway, highway, and rail users; residents; commercial viewers; office viewers; park and trail users; and agricultural and industrial workers. The response of viewers to a specific object or view produces the visual experience of that view. Sensitivity varies among viewer types. Sensitivity to views affects the response. Viewer sensitivity (or level of concern) is a combination of the following factors for a specific view:

- How many people have that view and what types of viewers are they?
- How long can they see the view? Residents and recreationists generally have long-duration views while bicyclists and motorists typically have short-duration views.
- What is their likely level of concern about the appearance, aesthetics, and quality of the view? Level of concern is a subjective response. Factors such as the visual character of the surrounding landscape, the activity in which a viewer is engaged, and the viewer's values, expectations, and interests affect a viewer's level of concern.

Viewer sensitivity or level of concern does not imply support for or opposition to a proposed project; it is a neutral term that is an important parameter in assessing visual quality. Viewer sensitivity can instill distraction and is informed by the viewer's awareness of visual resource characteristics. Familiarity with a view can often increase viewer awareness, such as when viewing a visual resource from a residence or commute route. Local values and goals operate indirectly on viewer awareness and experience by shaping viewer expectations. These values are often expressed in local policies and practices. For example, widespread high level of concern in an area might indicate strongly held values about the visual environment. Also, the presence of officially designated cultural and historical resources might indicate a collective concern about a feature or features that are inherently part of the visual environment.

Low viewer sensitivity exists when there are few viewers who experience a defined view, or when they are not particularly concerned or are distracted by the view, such as a commuter on the freeway; high viewer sensitivity exists when there are many viewers who have a view frequently or for a long duration, as well as viewers (many or few), such as those in a residential neighborhood, who are likely to be very aware of and concerned about the view (FHWA 1988). Generally, residents and recreationists are highly sensitive viewers; local business staff and commuters are less sensitive viewers, although viewer sensitivity in established downtown areas can be high. In these areas, particularly in parks or along pedestrian-oriented sidewalks, viewers are likely to have expectations of a built environment particular to an identifiable urban core, including specific structures; expectations related to such views lead to higher viewer sensitivity. The FHWA visual quality analysis system recognizes that most views are seen by a variety of viewer types with different sensitivities to changes in the viewed landscape. The FHWA system uses the most sensitive viewer type as the basis for determining the potential impact of a proposed project on viewers. Roadway viewers, such as drivers and passengers in moving vehicles, have low to moderate sensitivity. Roadway viewers typically travel at relatively high speeds, which results in lower viewer exposures. Higher exposure typically would occur on non-highway roads, and travelers along scenic roads or through areas with a particular scenic value have greater sensitivity. Viewers from trains would have similar ranges of sensitivity and exposure. Although there is short exposure to individual objects in the foreground from any vehicle or HST traveling at top speeds, background elements can remain in views for longer periods, as can views from stations, where trains would be at standstills for boarding and deboarding.

3.4 Landscape Units and Key View Points for Visual Assessment

Landscape units are used to “break up” long linear projects into logical geographic entities for which impacts from a proposed project can be assessed. These units generally have similar visual characteristics (or character), although the visual characteristics of smaller locations within each landscape unit may differ from the overall unit’s character. Landscape units are often enclosed spatially or visually bounded and have distinct landscape character and interrelated visual elements that compose the viewshed.

Key View Points (KVPs) represent examples of visual character and visual quality found within a landscape unit. KVPs assist in characterizing the existing visual conditions of a landscape unit. They also assist in determining impacts within a landscape unit by illustrating how a proposed project would change views within a landscape unit. KVPs represent specific locations within a landscape unit from which a proposed project would be visible. These locations are typically selected to represent either (1) “typical” views from common types of viewing areas from which a proposed project could be seen, such as a highway or residential area, or (2) specific areas such as parks, viewpoints, and historic districts that may be impacted by a proposed project. KVPs are very useful for depicting the range of visual character and visual quality found within a landscape unit. The views from KVPs selected for analysis serve as site-specific examples of existing visual conditions so analysts can simulate the view with the proposed project in place to assess impacts. The impact determination for an individual KVP may not be the same as the impact determination for the entire landscape unit in which the KVP is located. This is because when determining impacts on landscape units, the entire landscape unit must be considered, not one specific location. Some KVPs are chosen to be representative of visual conditions within a landscape unit, and some are selected to represent sensitive or unique viewing locations. The condition of the viewed landscape seen from a sensitive or unique KVP may be very different than what is more typically seen in the landscape unit; thus the impact determination to KVPs may be different than that of the overall landscape unit.

Section 5.0 contains a more detailed discussion of these views. Appendix A provides photographs and simulated HST Project views from the KVPs.

3.5 Existing Visual Quality and Character

The FHWA visual quality assessment method provides a systematic and objective approach to evaluating visual changes that potentially would result from implementation of proposed projects or actions. The FHWA visual quality assessment method used in this technical report is based on a set of broad criteria that consider the following factors related to the proposed project:

- The overall visual and aesthetic quality of the area through which the HST would pass.
- The visual and aesthetic experience and expectations of viewers (including residents, users of parks and other public spaces, pedestrians, and motorists) looking at transportation corridors.
- The scale and contrast between existing and proposed elements in the area.

Visual quality is an assessment of the composition of the character-defining features for selected views. Under the FHWA visual quality analysis system, the characteristics are evaluated in terms of vividness, intactness, and unity (which are defined below) and scored for these characteristics. The scores are then averaged for a total visual quality score between 1 (very low visual quality) and 7 (very high visual quality). This assessment asks: Is this particular view common or dramatic? Is it a pleasing composition (with a mix of elements that seem to belong together) or not (with a mix of elements that either do not belong together or are unattractive and contrast with the other elements in the surroundings)?

Definitions of visual quality characteristics follow:

- Vividness is the degree of drama, memorability, or distinctiveness of the landscape components. Overall vividness is an aggregated assessment of landform, vegetation, water features, and human-made components in views.
- Intactness is a measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings. High intactness means that the landscape is free of unattractive features and is not broken up by out-of-place features and elements. Low intactness means that visual elements are unattractive, or they detract from the view's quality.
- Unity is the landscape's degree of visual coherence and compositional harmony considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape or to an undisturbed natural landscape.

Establishing visual quality categories is somewhat qualitative; however, the ratings for each KVP are based upon quantitatively determined scores. Appendix B provides the visual quality ratings for each of the KVPs.

The overall visual quality category for each KVP was determined from a composite of the assessed values (vividness, intactness, and unity) described above. Determining the individual visual quality category of each KVP assisted in establishing the visual quality categories found within the entire landscape unit. In addition to KVPs, the visual analysts depended on familiarity with each landscape unit (gained from several site visits) to establish the range of visual quality categories.

Changes in visual quality and the sensitivity of people who view the affected landscape (as described in Section 3.3) determine the level and degree of impact of a proposed project. For this project, there are four scenarios.

1. If a change in visual quality of one or more categories occurred (for example, high to moderately high, or moderate to low) in an area where people with high viewer sensitivity would see it, the impact is considered to be significant for the CEQA determination and substantial level of intensity for the NEPA assessment.
2. If viewers with moderate to low sensitivity observed a change of one visual quality category, the impact is considered to be less than significant for the CEQA determination and moderate (with moderate viewer sensitivity) or negligible level of intensity (with low viewer sensitivity) for the NEPA assessment.
3. If a change in visual quality of two or more categories occurred (for example, from high to moderate) in an area where people with high or moderate viewer sensitivity would see it, the impact is considered to be significant for the CEQA determination and substantial level of intensity for the NEPA assessment.
4. If viewers with low sensitivity observed a change of two or more visual quality categories, the impact is considered to be less than significant for the CEQA determination and negligible level of intensity for the NEPA assessment.

In many landscape units (and KVPs), the alternatives would alter visual quality, but not enough to lower the visual quality category. These impacts are considered to be less than significant for the CEQA determination and negligible or moderate levels of intensity for the NEPA assessment. Change to the visual quality of each KVP was determined by applying the FHWA visual quality analysis system, using the visual quality analyst's professional judgment and familiarity with the Merced to Fresno Section of the HST System. The analyst also reviewed engineering drawings of project components and examined simulations of the KVPs (as described in Section 3.6). The determination of the impacts on the entire landscape unit was based in large part on the impacts on the KVPs within the landscape units, but also included the analyst's review of engineering drawings of project components within the entire landscape

unit and on-the-ground familiarity with the landscape units within the Merced to Fresno Section of the HST System.

Not all KVPs used as representative samples within a landscape unit would necessarily have substantial levels of intensity on visual quality to make such a conclusion for the entire landscape unit. However, conclusions for each of the KVPs within each landscape unit, based on the preponderance of degradation to visual character or quality, would support a conclusion of substantial, moderate, or negligible adverse impacts for the landscape unit in general. Thus, the determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit would necessarily have the same determinations of impacts. The landscape unit determination is based on the KVPs as important viewing locations and representative samples of visual quality with and without the HST Project, tempered by the existing predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

This technical report also evaluates potential project effects on the existing visual character. Visual character is an impartial description of the landscape components; the relationships between the existing visible natural and built landscape features define visual character. These relationships are considered in terms of dominance, scale, diversity, and continuity. If there is a substantial change to the visual character, there is a significant impact under CEQA. Visual character-defining resources and features can include any number of the following:

- Landforms: types, gradients, and scale.
- Vegetation: types, size, maturity, and continuity.
- Land uses: height, bulk, scale, and architectural detail of associated buildings and ancillary site uses.
- Transportation facilities: types, sizes, scale, and directional orientation.
- Overhead utility structures and lighting: types, sizes, and scale.
- Open space: type (e.g., parks, reserves, greenbelts, and undeveloped land), extent, and continuity.
- Viewpoints and views to visual resources.
- Water bodies, historical structures, and downtown skylines.
- Apparent "grain" or texture, such as the size and distribution of structures and unbuilt properties or open spaces of the landscape.
- Apparent upkeep and maintenance.

3.6 Visual Appearance with the Project

Conducting an inventory of the visible physical changes allows an analysis of the future visual conditions with the project. The analysis then characterizes the future visual environment with the project using computer-generated photographic simulations.

A visual simulation depicts the view from each KVP as it would appear with the completed project. Computer modeling and rendering techniques produced the simulated images. Photographs of existing visual conditions (aerial and ground-view) and on-site investigations provided the basis for developing an initial digital model of the HST at key viewpoints. Project engineers provided profiles and plans for the HST alternatives. Comparison of the "before" photographs with the simulations of the constructed project conditions provided the basis for determining potential project impacts on views and visual quality.

3.7 Visual Impact Assessment

The project evaluation uses similar techniques to those for the existing conditions. A visual quality assessment for the view from each of the KVPs uses the seven-point scale described in Section 3.5. The visual character at a KVP with the HST alternative is considered. The project character and visual quality are compared to the existing conditions to identify character and quality changes. Then consideration of the viewer groups' exposure, sensitivity, and potential reaction aid in determining the potential visual impact. The degree of potential visual impact accounts for the potential changes in visual character and visual quality, and the viewer group's response to these changes. The impact analysis evaluates the visual changes for each KVP and summarizes the change in visual quality for the landscape unit. Section 6.0, Visual Impact Assessment, discusses the methods for evaluating effects under NEPA and CEQA criteria.

This analysis discusses the visual quality of views under existing and proposed conditions in qualitative terms; Appendix B contains the scores on which those qualitative descriptions are based.

3.8 Methods to Mitigate Impacts

As needed and where available, mitigation methods address substantial level of intensity under NEPA and significant impacts under CEQA.

4.0 Regulatory Framework

The following federal, state, and local laws, regulations, and agency jurisdiction and management guidance apply to this resource. Consideration of potential impacts on the existing visual environment is informed by federal, state, and local rules and policies. These rules and policies focus on preserving visual quality, minimizing conflicts, improving aesthetic character, and mitigating adverse effects. The following sections briefly summarize the federal, state, and local regulations and policies.

4.1 Federal Regulations

National Environmental Policy Act [42 U.S.C. Section 4321 et seq.]

NEPA requires the consideration of potential environmental effects, including potential aesthetic and visual effects, in the evaluation of any proposed federal agency action. NEPA also obligates federal agencies to consider the project and program environmental consequences and costs as part of the planning process. General NEPA procedures appear in the Council on Environmental Quality (CEQ) regulations 23 Code of Federal Regulations (CFR) 771.

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

The Department of Transportation Act became law on October 15, 1966. It is aimed to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites.

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

The NHPA establishes the federal government policy on historical preservation. Under the NHPA, significant cultural resources, referred to as historical properties, include any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places (NHRP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. Potential adverse effects include change in the physical features within the property's setting that contribute to its historical significance and introduction of visual elements that diminish the integrity of the property's significant historical features.

Federal Railroad Administration [64 Federal Register Part 28545]

The FRA's *Procedures for Considering Environmental Impacts* states that "the EIS should identify any significant changes likely to occur in the natural environment and in the developed environment. The EIS should also discuss the consideration given to design quality, art, and architecture in project planning and development as required by DOT Order 5610.4."

4.2 State Regulations

California Environmental Quality Act [California Public Resources Code Section 21000 et seq.] and CEQA Guidelines [California Code of Regulations, Title 14, Section 15000 et seq.]

CEQA requires state and local agencies to identify the significant environmental impacts of their proposed actions, including potential significant aesthetic and visual impacts. It requires agencies to avoid or mitigate those impacts, when feasible.

State Scenic Highway Program

The State Scenic Highway Program lists highways that are either eligible for designation as a scenic highway or already are designated as a scenic highway. Designation as scenic highway depends on how much of the natural landscape travelers can see, the scenic quality of the landscape, and the extent to which development intrudes on the traveler's enjoyment of the view (Caltrans 2010). Because no designated state scenic highways are located within the HST alignments, they are not discussed further.

4.3 Local and Regional Plans, Policies, and Regulations

Several city and county plans including general plans, downtown master plans, community plans, and specific plans address aesthetic and visual resources. Policies and regulations include design guidelines, designating scenic corridors and routes, and identifying areas of particular scenic value. Local community design guidelines will be addressed during the subsequent phase of detailed architectural design and system engineering. The Authority will coordinate and collaborate with local jurisdictions, citizens, and community leaders in regard to the appropriate mitigation measures and local design guidelines that are most context-appropriate for the locale's built and natural environment. The following sections describe relevant plans, policies, and regulations for each jurisdiction within the Merced to Fresno Section.

4.3.1 Merced County

The *Merced County Year 2000 General Plan* (Merced County 1990) discussion of aesthetics and open space lands for recreation purposes "recognizes the visual amenities and needs for public and private recreation open space areas in the County". This discussion is included in the Open Space/Conservation chapter of the *Merced County Year 2000 General Plan*.

Open Space/Conservation Policy 4 directs the county to buffer nonrecreational land uses from sensitive public recreation lands through site design and other techniques. Policies 7, 9, and 10 specify proper management for lands with high aesthetic values, including stream corridors, lands surrounding highways, and areas where power transmission and distribution facilities should be underground. In addition, Land Use Policy 4 specifies design characteristics for development within a Highway Interchange Center, and Land Use Policy 5 allows for agricultural land use designations within and adjacent to Highway Interchange Centers (intersections of highways and roads that require overpasses or other infrastructure) as a means for maintaining scenic characteristics and aesthetic goals until such time that viable projects are submitted.

The *Le Grand Community Specific Plan* (Merced County Planning Department 1983) does not include any goals, objectives, or policies related to aesthetics and visual resources.

4.3.2 City of Atwater

The Scenic Resources discussion in the Open Space and Conservation Element of the *City of Atwater General Plan* (City of Atwater 2000) identifies open space areas associated with agricultural uses as scenic corridors. Routes within or near the study area designated as scenic corridors include Bellevue Road, Buhach Road, and entrances to the city. Open space and conservation policies aim to protect and beautify these streets by regulating signs, utility lines, land use, and other activities that would detract from the aesthetic value of these corridors. Specifically, open space and conservation policies protect scenic resources within the city by using landscaping and other features to enhance and beautify major streets and gateways into and through the city (Policy CO-10.1) and by avoiding excessive signage and other features that could detract from the scenic quality of prominent circulation routes (Policy CO-10.2). In addition, the city encourages actions that enhance the scenic value of these corridors, such as landscaping, maintenance, and architectural design (Land Use Policy LU-4.1).

4.3.3 City of Merced

The *Merced Vision 2015 General Plan* (City of Merced 1997) has no specific discussion of aesthetics or scenic resources in Merced that would apply to the proposed project. However, goals, policies, and actions listed in Section 6 (Urban Design) and Chapter 7 (Open Space, Conservation, and Recreation) would apply to the proposed project and any potential visual impacts that could result from its construction.

Policy UD 2.2, through Implementing Actions 2.2b through 2.2g, mandates the maintenance and enhancement of the unique community appearance of Merced by addressing the scale of building design relative to neighborhood character, discouraging visual monotony along major streets, specifying landscaping requirements, expanding programs for the undergrounding of utility lines, and requiring,

where possible, landscaping associated with railways. Policy OS 1.3 specifies implementing actions for the protection and enhancement of designed scenic routes. These actions include criteria for additional scenic route designation (Implementing Action 1.3.a), direction to preserve existing scenic corridors (Implementing Action 1.3.b), guidelines for review of a project within a designated scenic corridor (Implementing Action 1.3.c), and direction for exploration of future scenic corridor designation in south Merced.

4.3.4 Madera County

The Land Use Goals, Policies, and Implementation Programs section of the *Madera County General Plan Policy Document* (Madera County 1995) identifies visual and scenic resources as important quality-of-life amenities for county residents and a principal asset in promoting recreation and tourism. Policy 1.H.1 requires that new development in scenic rural areas be planned and designed to avoid locating structures along ridgelines, on steep slopes, or in other highly visible locations, except under certain conditions. Policy 1.H.2 requires that new development incorporate sound soil conservation practices and minimize land alterations. Policies 1.I.1 through 1.I.4 address the designation, provision, protection, enhancement, and management of scenic routes.

4.3.5 City of Madera

The *Comprehensive General Plan and Environmental Impact Report* (City of Madera 1992) addresses scenic resources in the Resource Management Element and classifies them as Open Space for Outdoor Recreation. No specific policies in this element pertaining to aesthetics and scenic resources would apply to the proposed project. No specific policies in the Land Use or in the Transportation, Circulation, and Traffic elements would apply to the proposed project.

In the public review draft of the *City of Madera General Plan Update* (City of Madera 2009), Goals 1 through 10 address high-quality urban design, sense of community, public art and entryways, streetscapes, walkability, human scale, neighborhood character, preserving the historical character of downtown, attractive downtown, downtown revitalization, and commercial development to enhance the pedestrian environment. Policies 2, 3, 11, 12, 13, and 18 of the update address high-quality urban design; city architectural quality standards; entry point identification; public art in the public and private realms; and sound barrier design, landscaping, and mitigation.

4.3.6 City of Chowchilla

The *City of Chowchilla 2040 General Plan Update* (City of Chowchilla 2009), released in draft form, currently is under review by the City of Chowchilla. The Land Use, Circulation, and Open Space and Conservation elements include objectives, policies, and implementation measures that would apply to the proposed project's potential impacts on aesthetic and visual resources. Policy LU 9.1 in the Land Use Element promotes an aesthetically pleasing, pedestrian-friendly, and diverse downtown, directing the city to develop the *City of Chowchilla Downtown Master Plan, Volume 1: Master Plan Goals, Objectives, and Policies* (Downtown Master Plan) (City of Chowchilla and Chowchilla Redevelopment Agency 2008). Policy 2.2 of the Downtown Master Plan specifies that new development, remodels, and renovations in the downtown area will be consistent with the Downtown Master Plan's Design Guidelines/Design Standards.

The Circulation Element addresses scenic highways. The City of Chowchilla designated W Robertson Boulevard (SR 233) from SR 99 to SR 152 as a Scenic Corridor. The State Historical Resources Commission designates W Robertson Boulevard as a Point of Historical Reference, and the Madera County Regional Transportation Plan designates it a Road of Regional Significance. In addition, Policy CI 7.1 in the Circulation Element discusses sound barrier standards and incorporation of surface treatments and landscaping, and Policy CI 7.4 discusses landscaping for development along regional highway rights-of-way.

The Open Space and Conservation Element identifies no specific objectives, policies, or implementation measures related to aesthetic or scenic resources. However, Policy OC-13 identifies biological

communities and wildlife habitats as contributing to the overall recreational, educational, and aesthetic values of the community.

4.3.7 Fresno County

Scenic Resources and Scenic Roadways are addressed in the Open Space and Conservation Element of the *Fresno County General Plan Policy Document* (Fresno County 2000). There are no Fresno County-designated Scenic Roadways, including designated Landscaped Drives or designated Scenic Drives, within or in the vicinity of the proposed project. Scenic resources policies (Policies OS-K.1 through OS-K.4) are intended to protect the scenic resources of the county and to make sure that development enhances those resources through the identification of important scenic resources, development review, acquisition, encouragement of easements, coordination with other agencies and groups, and other methods including the discouragement of development that degrades areas of scenic quality.

Policy OS-H, Parks and Recreation, and Policy OS-I, Recreational Trails, include related policies. Policy OS-H.11 is the section of the *Fresno County General Plan Policy Document* that provides direction for the county to support of the policies of the San Joaquin River Parkway Master Plan (San Joaquin River Conservancy 2000) to protect the San Joaquin River as an aquatic habitat, recreational amenity, aesthetic resource, and water source. Policy OS-1.10 directs the county to review development proposals for consistency with and accessibility to the trails in the Conceptual Recreational Trail Corridor Map. The San Joaquin Bluff Trail, which would extend from SR 99 to Woodward Park, is among those listed on the Fresno County Conceptual Recreational Trail List.

4.3.8 City of Fresno

The Public Facilities and Open Space/Recreation Elements of the *2025 Fresno General Plan* (City of Fresno Planning and Development Department 2002) address aesthetics and visual resources. Public Facilities Policy E-4a addresses measures to preserve and develop scenic or aesthetic qualities along scenic corridors or boulevards identified in the adopted 2025 Fresno General Plan Land Use and Circulation Map; none of these scenic corridors is within the study area. The Open Space/Recreation Element describes the San Joaquin River Parkway Trail network as being a system designed, in part, to provide access to scenic vistas on the bluffs above the river. Policy F-14a states that the multipurpose trail will extend as far west as SR 99.

As shown in the Community Plan Boundary Map (City of Fresno Planning and Development Department 2009a), the proposed project would be built on land included in the following community plans: Bullard, Central Area, Edison, Fresno-High Roeding, and West Area. Of these, only the Edison, Fresno-High Roeding, and West Area community plans specifically reference aesthetic and scenic resources, and only the West Area Community Plan (which is an appendix to the *2025 Fresno General Plan*) includes policies that would apply to the proposed project. Policy W-7d provides specifications for wall and earth berms (raised barriers associated with roadways or transportation corridors) required to protect the integrity of residential areas adjacent to nonresidential development.

As shown in the Specific Plan Boundary Map (City of Fresno Planning and Development Department 2009b), the proposed project would be built on land that would be subject to the specific plans for the following areas: Fresno-Downtown-Chandler Airport, Highway City Neighborhood, Fulton-Lowell, and Tower District. Of these, only the Highway City Neighborhood and Tower District specific plans reference aesthetic and scenic resources. The Highway City Neighborhood Specific Plan (City of Fresno Development Department, Planning Division 1998) includes guidance regarding the visual appearance of land left over from development projects (remnant parcels), berms, and underused land resources (Parks, Recreation, and Open Space Policy 5-2); and conservation, revitalization, and support for cultural and entertainment resources, including Forestiere Underground Gardens (Historic Preservation, Cultural Resources and Entertainment Policies 7-3 and 7-4). The *Tower District Specific Plan* (City of Fresno Development Department, Planning Division 1991) also includes guidance about the enhancement of public open space areas and visual appearance through the landscaping of remnant parcels and berms (Policy 9). The *Tower District Specific Plan* designates Fulton Street and Van Ness Avenue as Scenic Drives; neither roadway is within or in the vicinity of the proposed study area.

5.0 Visual Environment of the Project

The study area for the Merced to Fresno Section extends approximately 65 miles through the San Joaquin Valley. This area is part of the larger Central Valley of California, an important agricultural region that is becoming increasingly populated. The area between and including the cities of Merced and Fresno includes urban areas (Merced, Chowchilla, Madera, and Fresno) distributed along SR 99 and other smaller communities and agricultural land. Farmland varies in size and intensity of use, but agricultural activities frequently visible throughout the area include grazing and production of grain and field, row, orchard, and vineyard crops. There is little topographical variety along the proposed corridor. Rivers, sloughs, and other waterways traverse the area, mostly running east to west, and contribute to occasionally visible depressions in land form. The Sierra Nevada Mountains are visible to the east; however, the actual study area is relatively flat and expansive.

To facilitate the assessment of the aesthetic impacts of the project, the study area is divided into landscape units, which are smaller geographic units that are used for determining project impacts. These landscape units are distinguished from one another primarily by the land use patterns and physical settings within them. The landscape units are divided into mainly urbanized and agricultural areas, beginning at the northern extent of the corridor. Section 5.3 describes in detail the existing visual character and visual quality for each of the following landscape units, including specific views (KVPs) toward the proposed corridor for the three HST alternatives; a separate section addresses potential HMF sites. The following landscape units were identified between Merced and Fresno for each HST alternative:

UPRR/SR 99 Alternative

- Merced Landscape Unit
- Merced-Chowchilla Landscape Unit
- Chowchilla Landscape Unit
- Chowchilla-Madera Landscape Unit
- Madera Landscape Unit
- Madera-Fresno Landscape Unit
- Fresno Landscape Unit
- West of SR 99 Landscape Unit (including the Ave 24 and Ave 21 wyes)

BNSF Alternative

- Merced Landscape Unit
- Merced-Le Grand Landscape Unit
- Le Grand Landscape Unit
- Le Grand-Madera Acres Landscape Unit
- Madera Acres Landscape Unit
- Madera Acres-SR 99 Landscape Unit
- East of SR 99 Landscape Unit (including the Ave 24 Wye and Ave 21 Wye design options)
- West of SR 99 Landscape Unit (including extensions of the Ave 24 Wye and Ave 21 Wye design options)
- Fresno Landscape Unit

Hybrid Alternative

- Merced Landscape Unit
- Merced-Chowchilla Landscape Unit
- West of SR 99 Landscape Unit (including the north-south portion and the Ave 24 Wye design option)
- East of SR 99 Landscape Unit (including the Ave 21 Wye design option)
- Madera Acres Landscape Unit
- Madera Acres-SR 99 Landscape Unit
- Fresno Landscape Unit

Heavy Maintenance Facility

- Castle Commerce Center Landscape Unit
- Harris-DeJager Landscape Unit
- Fagundes Landscape Unit
- Gordon-Shaw Landscape Unit
- Kojima Development Landscape Unit

Although the description of each of the landscape units includes a discussion of the general surrounding areas, the focus of these descriptions is on the parts of the potential viewshed that are contained within the study area, as described in Section 3.1 (the area within 0.25 mile from the centerline of the alignment in urban areas and 0.5 mile from the centerline of the alignment in the agricultural areas). In general, it is assumed that the visual changes caused by the proposed project would be of greatest concern in the areas within the foreground (within 500 feet of the viewer) and middle ground (within 0.25 mile of the viewer) viewing ranges. Appendix A includes photographs showing the appearance of these landscape areas and the factors affecting their visual character and visual quality.

5.1 Existing Visual Resources

A visual or scenic resource is a site, object, or feature of the landscape that contributes substantially to the visual character of its surrounding area or is important because of its visual quality. For this discussion, visual resources also include designated scenic routes, views toward or within natural areas, parks, and urban areas that have historical or cultural significance or that have buildings of similar significance or landmark status. These visual resources have been identified in policy documents, cultural resource reports, or during observations of scenic value and apparent popularity during field work related to aesthetics and visual resources. Aerial photography and satellite mapping were also used to identify visual resources. These resources were used to select KVPs for this analysis.

Identified visual resources serve as a basis for the determination of a proposed project's overall aesthetic effect. Because visual resources contribute to the visual character and visual quality of an area, removing, damaging, or otherwise diminishing a visual resource as the result of a proposed project could constitute an impact.

The most important visual resources within the study area, based on analysis of aerial and satellite mapping, site surveys, and review of policy documents, include the following:

- **Designated Scenic Corridors in Atwater.** The Open Space and Conservation Element of the Atwater General Plan (City of Atwater 2000) designates Bellevue Road and Buhach Road as scenic corridors. Santa Fe Drive also is a scenic corridor because it serves as one of Atwater's primary entrances. The city regulates activities that would detract from aesthetic value along these streets. Bellevue Road and Buhach Road intersect with Santa Fe Drive within 0.25 mile of each other along the eastern edge of Atwater, near the proposed Castle Commerce Center HMF site. The three HST alternatives would include this area if the HMF were located at Castle Commerce Center.
- **Designated Scenic Corridors in the City of Merced.** Within the city limits, the City of Merced has designated N Bear Creek Drive, N Street from 16th Street to the Merced County Courthouse, and M Street from 18th Street to Bear Creek as scenic routes. N Bear Creek Drive extends to within approximately 0.1 mile of the proposed HST corridor, north of Downtown Merced. As included in the view from KVP 2 (see KVP locations in figures provided in Section 5.3), the intersection of N Street and 16th Street is approximately 0.07 mile away (approximately 400 feet) from the proposed alignment and northwest of the Downtown Merced Station at Martin Luther King Jr. Way between W 15th and 16th Streets. The intersection of Martin Luther King Jr. Way and 18th Street is approximately 0.25 mile from the proposed HST alignment.
- **Views toward the Sierra Nevada Mountains from Merced County.** Panoramic views toward the Sierra Nevada Mountains are among aesthetic and visual resources specifically described in the



Merced County Year 2000 General Plan (Merced County 1990). Other natural aesthetic amenities in the area include rivers, hillsides, and areas composed of a mix of orchards and open field crops.

- **Downtown Merced.** The *Merced County Year 2000 General Plan* (Merced County 1990) lists Courthouse Park as a visual amenity. The park is approximately 0.5 mile from the proposed HST alignment. Closer to the alignment and northwest of the proposed Downtown Merced Station, there are several buildings on the NRHP (Mondo Building, Tioga Building, Merced Theater, El Capitan Hotel), the historical Southern Pacific Railroad Depot, and Bob Hart Square. Portions of Downtown Merced are historic districts.
- **W Robertson Boulevard/Highway 233 in Chowchilla.** Palm and date trees planted along this roadway identify this location in long-distance views and contribute to the visual character of the roadway corridor and of Downtown Chowchilla. Chowchilla has designated W Robertson Boulevard (SR 233) from SR 99 to SR 152 as a scenic corridor. The State Historical Resources Commission designated W Robertson Boulevard as a Point of Historical Reference. The proposed HST alignment would cross Robertson Boulevard at its intersection with the UPRR tracks on the northeastern edge of Downtown Chowchilla, approximately 0.3 mile southwest of SR 99. Both the BNSF Alternative and South SR 152 Wye would cross Robertson Boulevard south of SR 152.
- **Courthouse Park in Madera.** Courthouse Park occupies two blocks in Downtown Madera and is approximately one block from the proposed alignment. Facilities include picnic areas and space for events. The NHRP lists Madera County Courthouse, which is located in the park.
- **San Joaquin River.** The San Joaquin River Parkway Master Plan (San Joaquin River Conservancy 2000) identifies the San Joaquin River as an aesthetic resource, and there are plans for a trail along the river bluff extending east from SR 99. Access to the scenic vistas from the bluffs overlooking the river is a reason for the creation of a trail system. The San Joaquin River marks the boundary between Fresno and Madera counties and provides a natural-appearing buffer between primarily managed agricultural land and the northern extent of the City of Fresno.
- **Forestiere Underground Gardens in Fresno.** Forestiere Underground Gardens is on W Shaw Avenue approximately 0.3 mile west of the proposed HST alignment. The state designated this area as a California State Historical Landmark.
- **Roeding Park in Fresno.** Roeding Park is a 159-acre urban park that includes numerous picnic areas, tennis courts, a dancing pavilion, playgrounds, and Chaffee Zoo. The park contains groves of ash, cedar, pine, eucalyptus, maple, and redwood trees. Fresno estimates that 600,000 people visit the park annually. The eastern park edge is adjacent to the proposed HST corridor, which would be visible from KVP 16 (see KVP locations in Fresno in Figure 5-6, provided in Section 5.3).
- **Downtown Fresno.** Several buildings of historical and cultural significance exist in Downtown Fresno, and portions of the downtown area are designated historic districts. The Pantagenes/Warnors Theater, San Joaquin Light and Power Building, and the Bank of Italy/Bank of America Building are listed in the NRHP. These buildings are along Fulton Mall, within approximately 0.25 mile of the two station alternatives. Fulton Mall is a six-block-long, outdoor pedestrian mall and has been nominated for listing in the NRHP.
- **Courthouse Park in Madera.** Courthouse Park applies only to the UPRR/SR 99 Alternative. It occupies two blocks in Downtown Madera and lies approximately one block from the proposed HST alignment. KVP 11 (see KVP location on figures provided in Section 3.16.4.2 below) represents the view from the street corner sidewalk on W Yosemite Avenue at the entrance to Courthouse Park. Facilities include picnic areas and space for events. The Madera County Courthouse, which falls within the park, is in the NRHP.

5.2 Viewer Groups and Existing Viewer Sensitivity

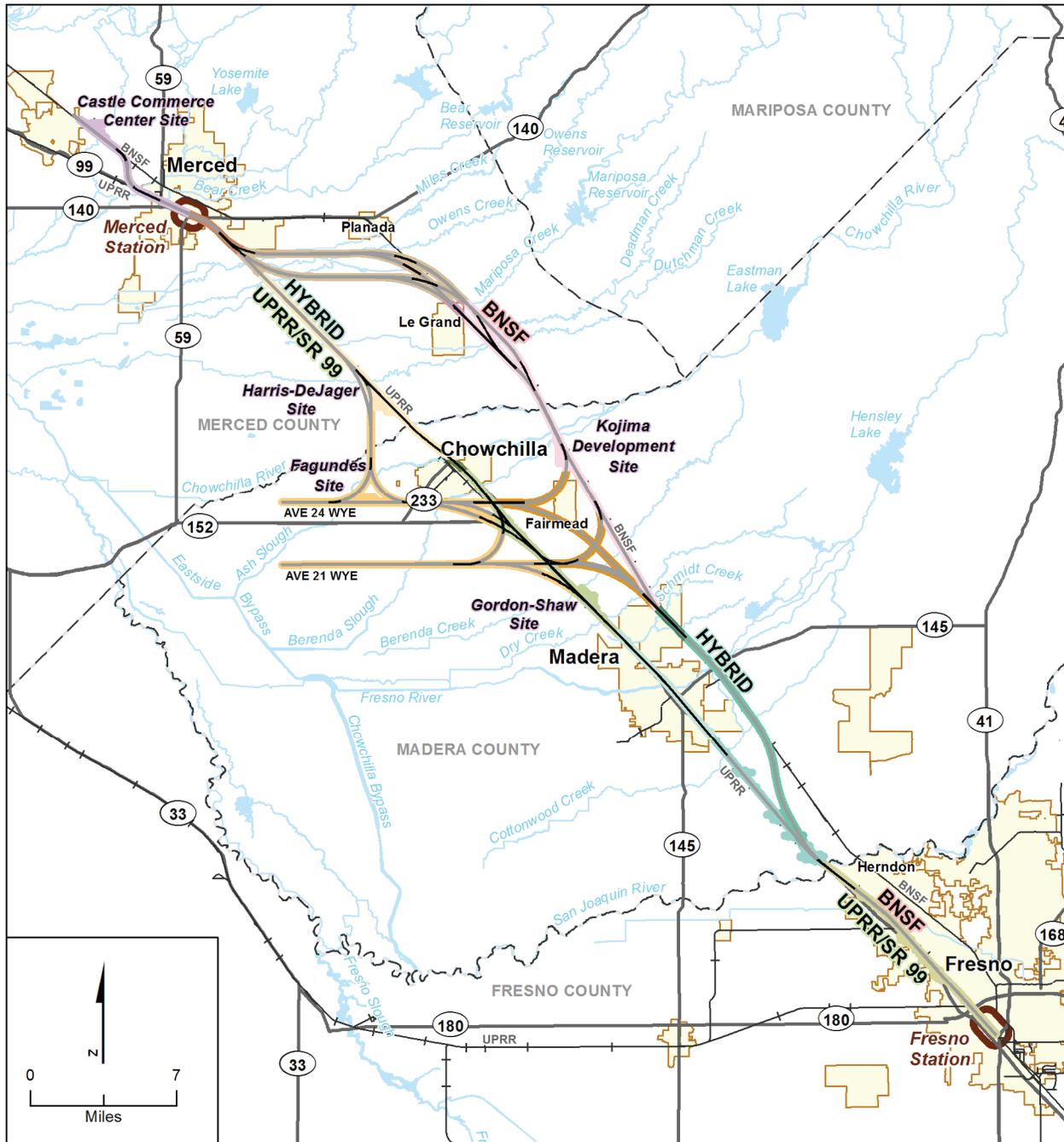
The project study area includes many residential areas. In some locations, residences or neighborhoods are adjacent to the proposed alignment. As discussed in Section 3.3, residents are considered highly sensitive viewers with a relatively high degree of awareness to changes in existing visual resources. Recreationists are considered similarly sensitive, although the degree of sensitivity would depend in part on whether they are participating in active recreation (e.g., sports and cycling) or passive recreation (e.g., picnicking and observing views). Recreational activity is assumed to occur at the parks and natural areas throughout the study area. In addition, viewer sensitivity in established downtown areas can be moderate or high. In these areas, particularly in parks or along sidewalks, viewers are likely to have expectations of a visual setting that, because it is a function of the built environment and even specific structures, is unique to more highly developed areas.

Workers in the vicinity of the proposed alignment are moderately sensitive viewers. Although potential exposure to visual resources in the area may be available often or even consistently, depending on the location of work, it is assumed that worker attention would primarily be focused elsewhere than toward any particular view. Workers in the study area include farm workers who would have exposure to long-distance views in the study area's agricultural areas, and workers in more urbanized areas, such as central business districts, commercial areas, and industrial zones.

The visual sensitivity of viewers from the roadway, including drivers and passengers in moving vehicles, varies but generally is considered to be low to moderate. Roadway viewers typically travel at relatively high speeds, which results in low viewer exposure. Moderate to high exposure would occur on roads other than highways, and there would be greater sensitivity for people traveling on designated scenic roads through areas with particular scenic value. These viewers include travelers en route to destinations farther away and local residents or workers commuting or making local trips. Viewers from trains would have similar ranges of sensitivity and exposure. Although there is a short exposure to individual objects in the foreground from an HST traveling at top speeds, background elements can remain in views for long periods.

5.3 Existing Visual Character and Quality

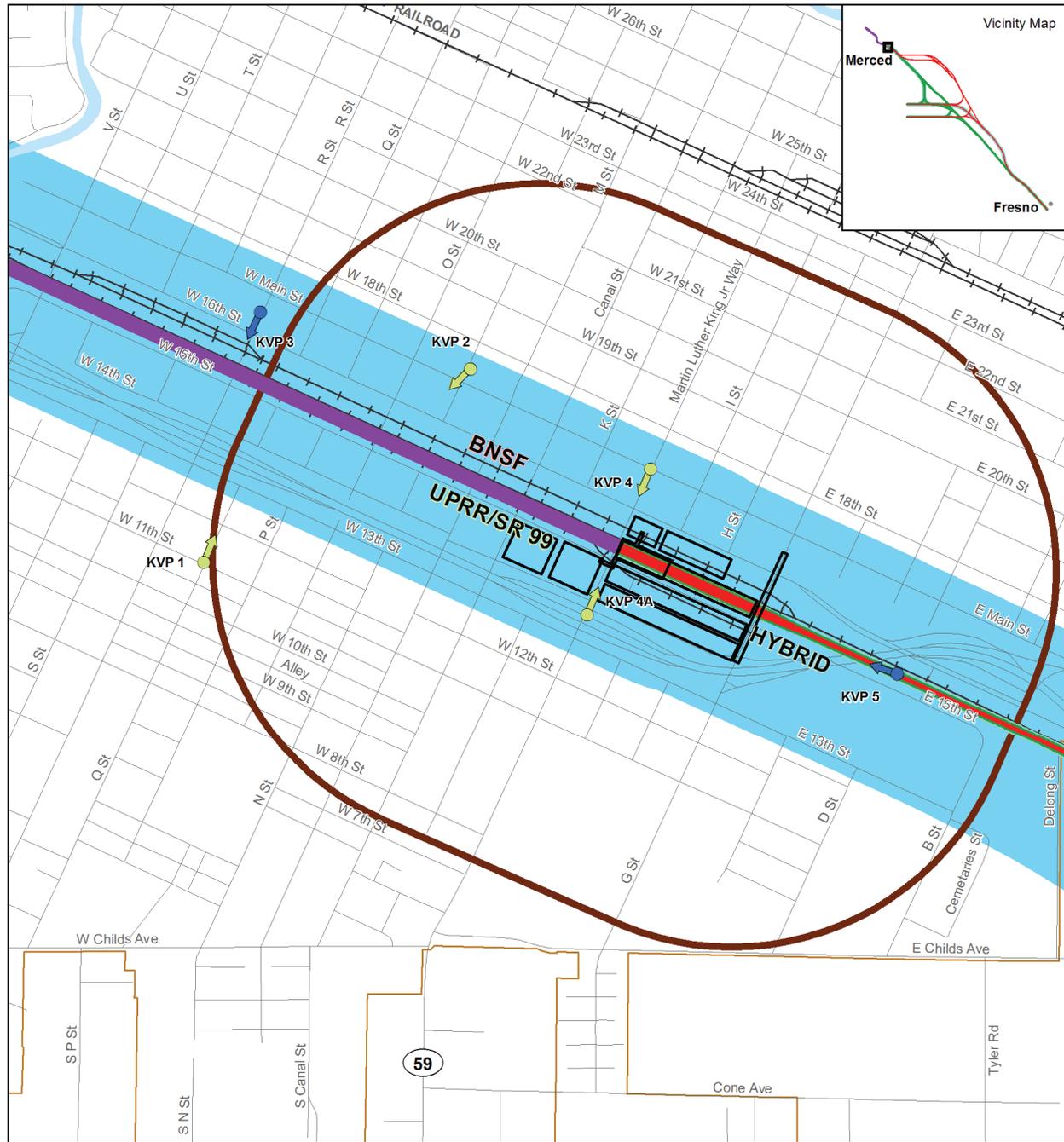
The UPRR/SR 99 Alternative and the BNSF Alternative describe in detail the existing visual character and quality for each landscape unit. The Hybrid Alternative includes a mix of these same landscape units. In the following sections, the existing visual character of the general area is described, and views in which the existing visual character is apparent are discussed. As described in Section 3.5, the visual quality of existing views within each landscape unit was evaluated on the basis of the degree of vividness, intactness, and unity in the views from KVPs. Conclusions regarding the project's potential impacts are based on expected changes to the visual quality of specific views, which represent the general change in visual character for each landscape unit. Section 5.3.5 summarizes the existing visual quality assessment for KVPs in each landscape unit. Figure 5-1 shows the general locations of each landscape unit. Figures 5-2 through 5-6 show the locations of the KVPs within each landscape unit. Appendix A contains photographs and simulated project views from each KVP.



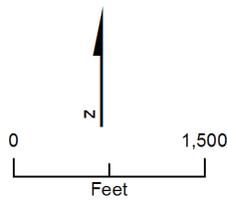
- | | | |
|-------------------------|----------------------|---|
| Landscape Unit | Chowchilla-Madera | — HST Alternative At-Grade or Retained Fill |
| HMF | Madera Acres | — HST Alternative Elevated |
| Merced | Madera - Fresno | City Limit |
| Merced - Le Grand | Madera | County Boundary |
| Merced - Chowchilla | Madera Acres - SR 99 | Railroad |
| Le Grand | Fresno | |
| Le Grand - Madera Acres | East of SR 99 | |
| Chowchilla | West of SR 99 | |
| | Station Study Area | |

MF_TR_VS_01 Jul 09, 2011

Figure 5-1
 Landscape Units

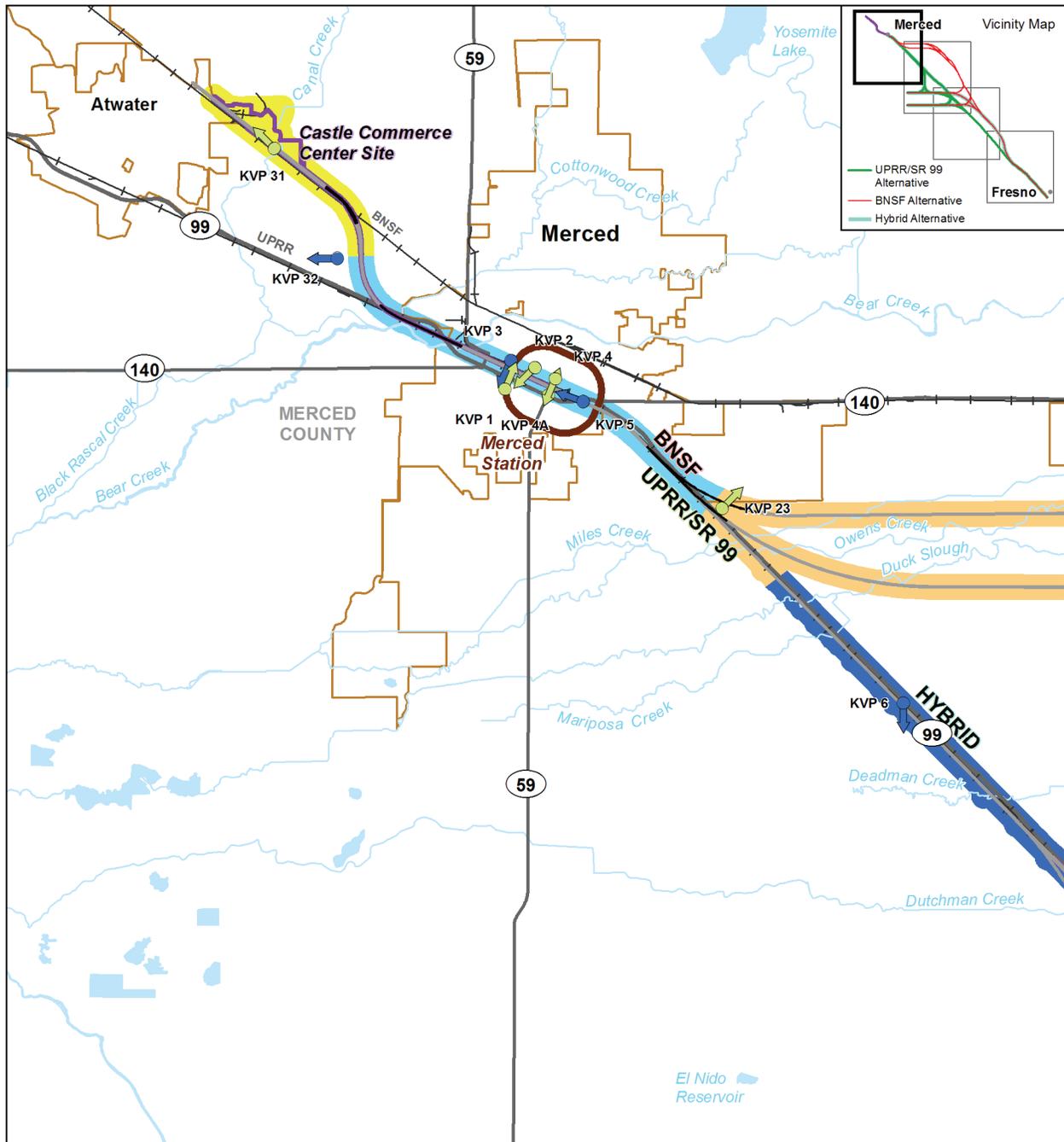


MF_TR_VS_06 May 23, 2011



- UPRR/SR 99 Alternative
 - BNSF Alternative
 - Hybrid Alternative
 - Potential Heavy Maintenance Facility
 - Station Study Area
 - City Limit
 - +— Railroad
-
- Range of Existing Visual Quality within Landscape
 - Moderately Low – Moderate
-
- ➔ Key View Point, View Orientation and Existing Visual Quality of View
 - ➔ Moderately Low
 - ➔ Moderate

Figure 5-2
 Key Viewpoints
 in the Merced HST Station
 Area



MF_TR_VS_02-05_a Jul 01, 2011

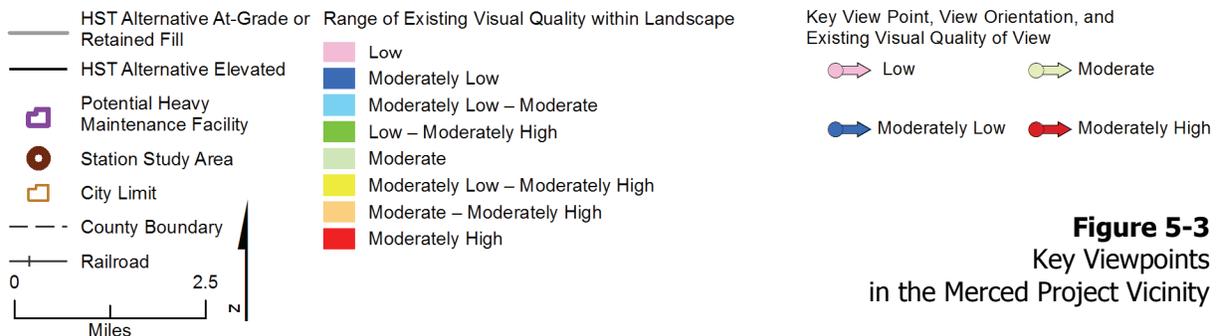
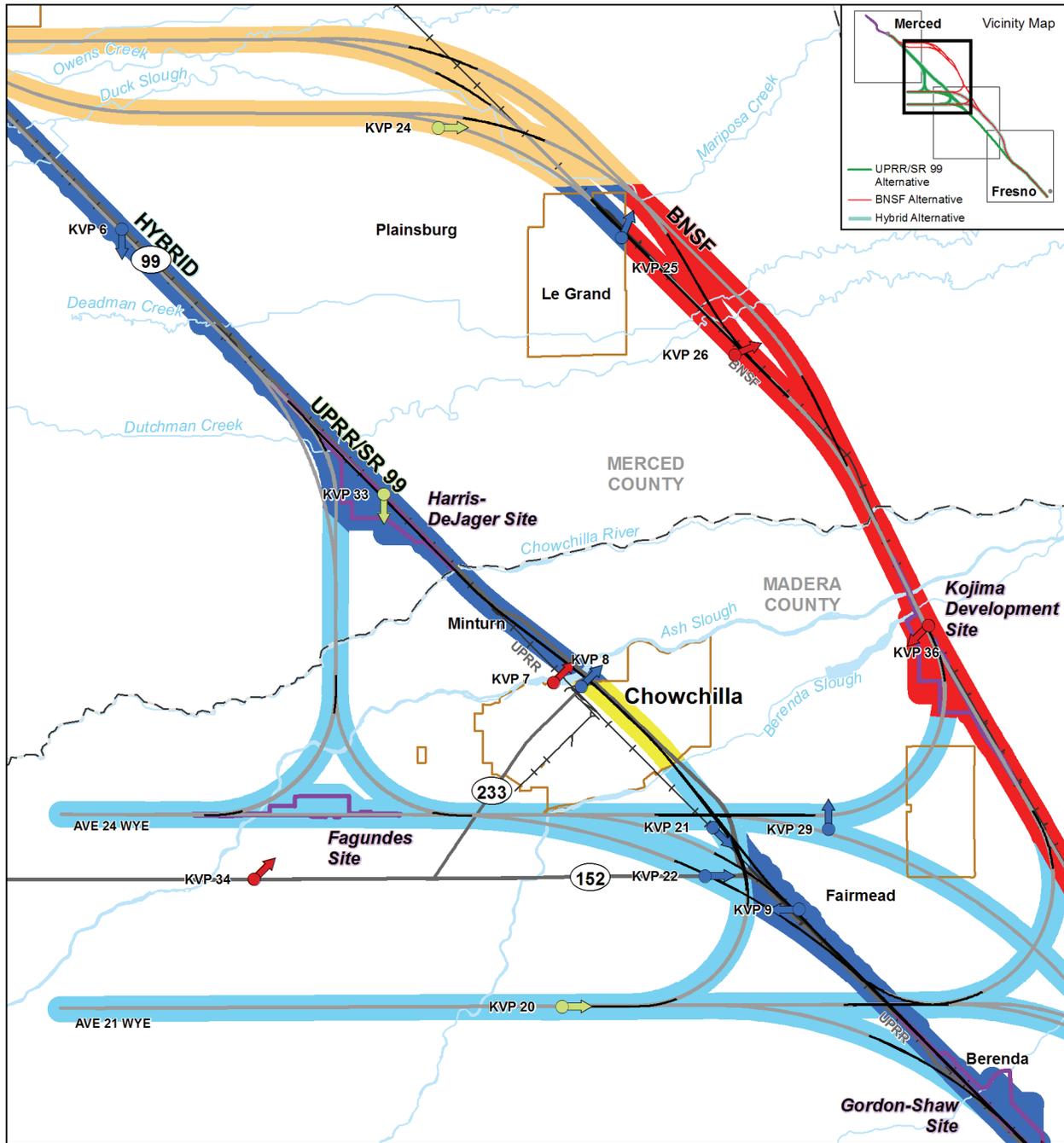


Figure 5-3
 Key Viewpoints
 in the Merced Project Vicinity



MF_TR_VS_02-05_b Jul 09, 2011

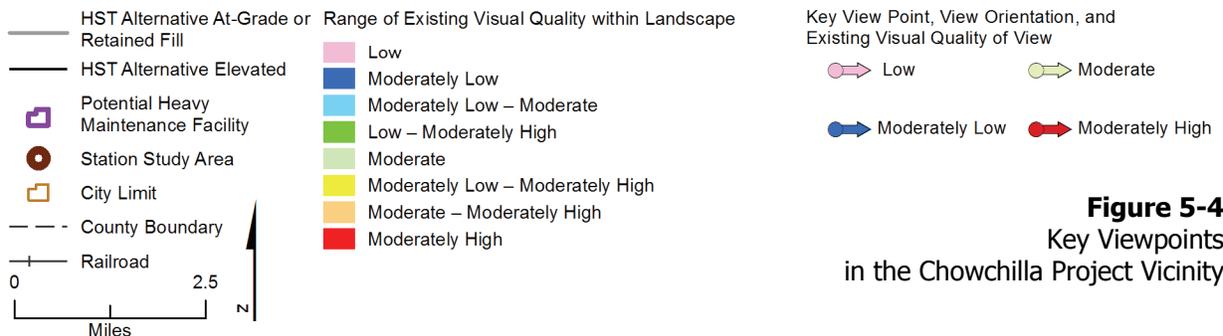
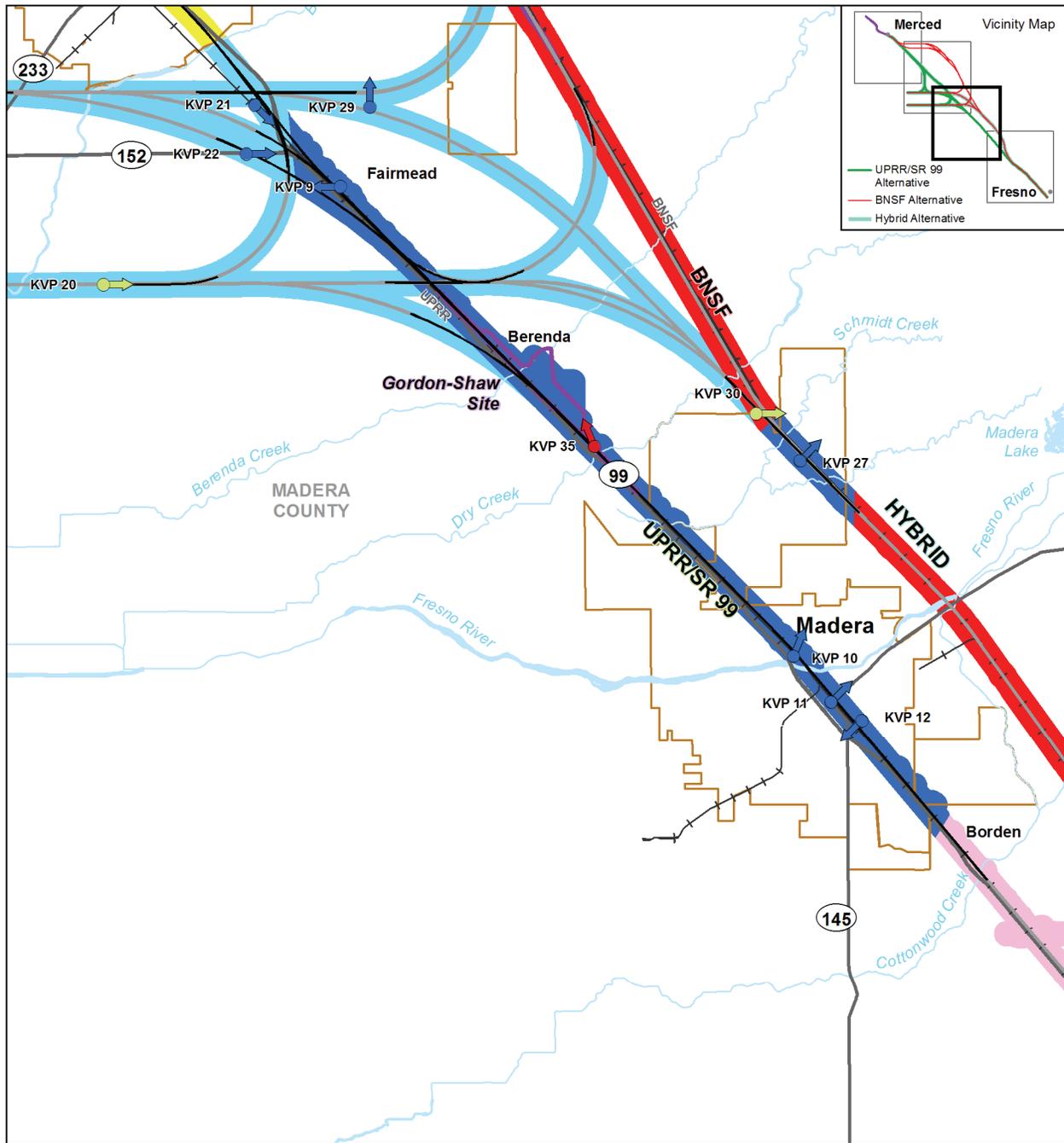


Figure 5-4
Key Viewpoints
in the Chowchilla Project Vicinity



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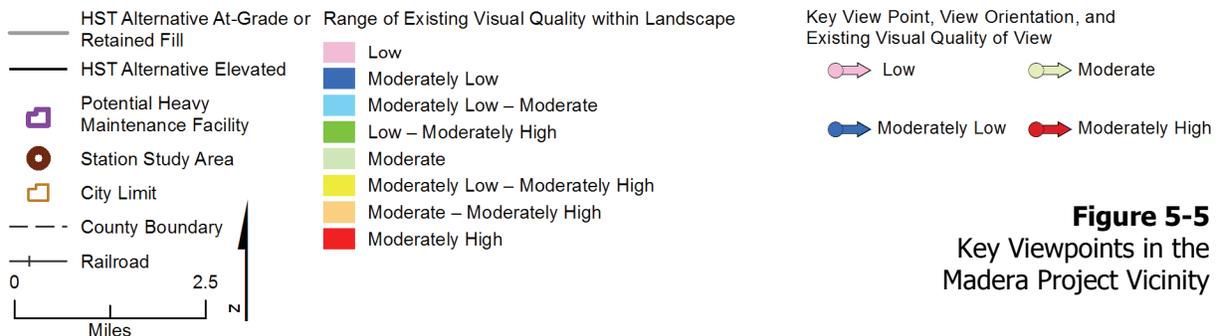
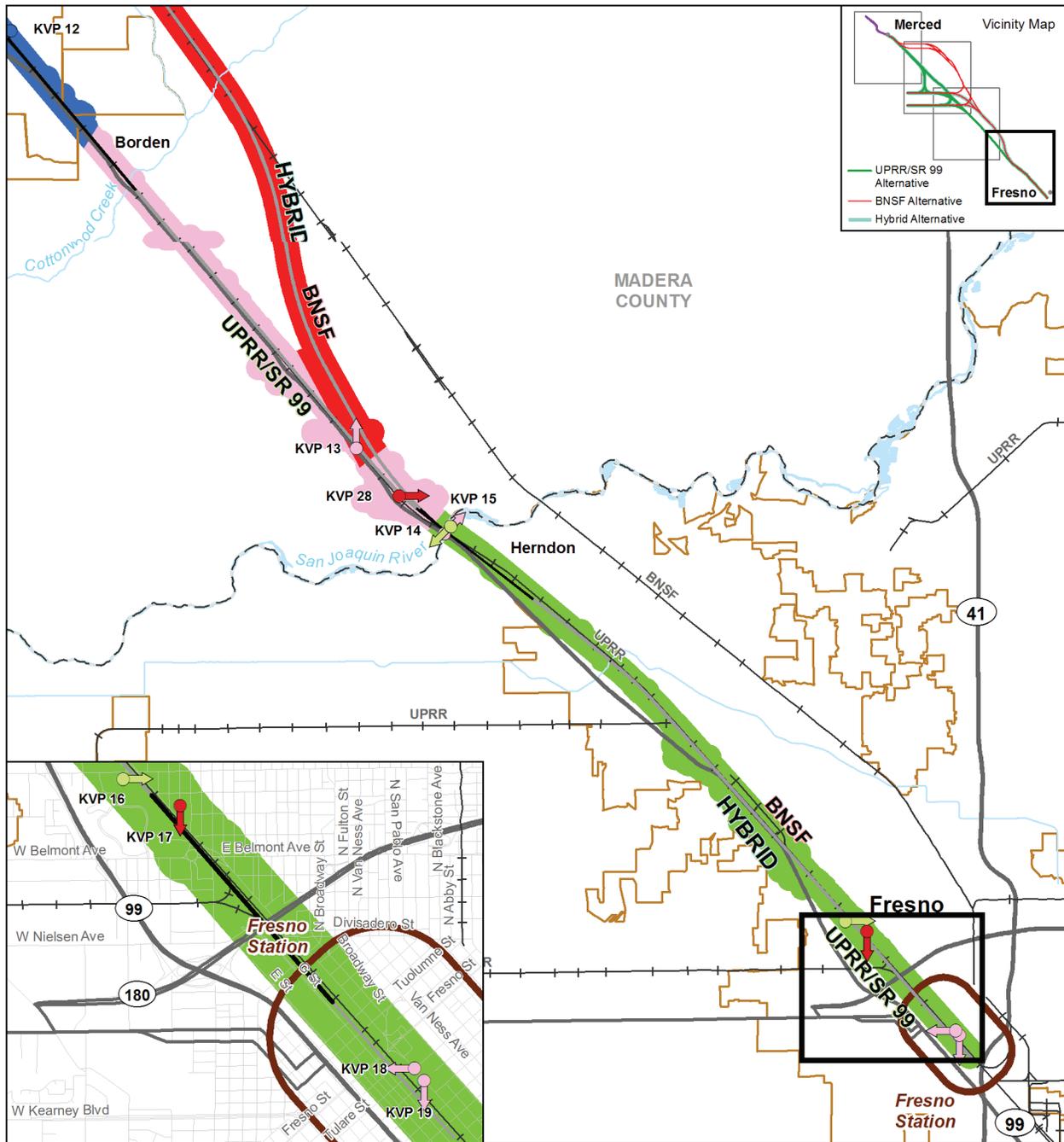


Figure 5-5
 Key Viewpoints in the
 Madera Project Vicinity



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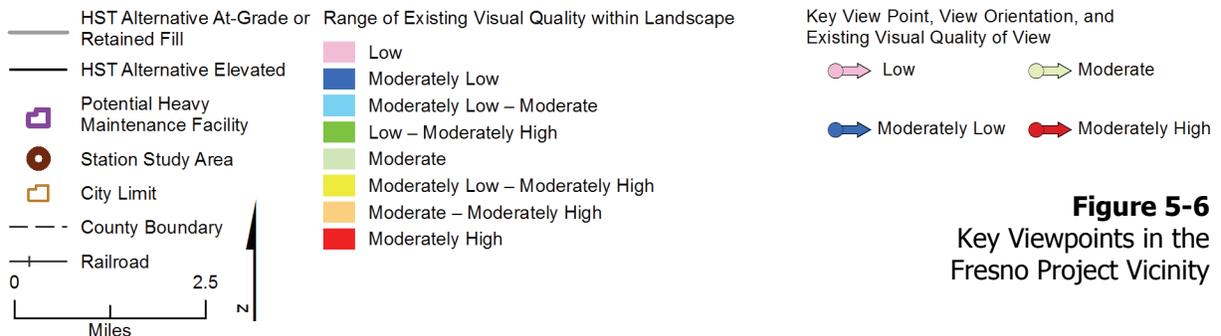


Figure 5-6
 Key Viewpoints in the Fresno Project Vicinity

5.3.1 UPRR/SR 99 Alternative

The study area for the UPRR/SR 99 Alternative extends from Merced to central Fresno. The UPRR/SR 99 Alternative study area includes all or part of each of the landscape units identified in this section.

5.3.1.1 Merced Landscape Unit

The Merced Landscape Unit includes the approximately 4.5-mile-long portion of the proposed alignment from the south Merced city limits to the downtown core and proposed HST station area. Sensitivity is generally low in the commercial and freeway corridors near the downtown. Downtown Merced mainly has commercial, residential, and public land uses and includes several historical and culturally significant buildings. Viewer sensitivity is moderate in the downtown area. This area of the city is well-lighted at night by lighting associated with commercial and pedestrian-oriented uses typical for a downtown of this size. Downtown Merced has a traditional grid street pattern, and views toward the existing rail corridor and proposed HST guideway and station area exist from several locations.

Visual Character and Representative Viewpoints

The visual character of the Merced Landscape Unit varies by the degree and type of urbanization within and south of the city's downtown. Downtown Merced contains mainly commercial, residential, and public uses and includes several historical and culturally significant buildings, such as the Mondo (Bank of Italy) Building, Merced Theater, and the Tioga Building.

Because Downtown Merced is laid out in a traditional grid street pattern, views toward the proposed alignment and proposed HST station area are available from a number of different locations. KVP 1, at the intersection of 11th Street and Q Street, is within a residential portion of downtown separated from the more commercial part of downtown by SR 99. Figure 5-2 shows the viewpoint location and Figure A-1 (refer to Appendix A) shows the view from this KVP. This view includes the elevated highway, which sits atop a berm (a raised barrier associated with roadways or transportation corridors) and beyond the tree-lined streets and single-family residences typical of the area. The project alignment would be beyond the elevated highway in this view.

The downtown core area is visible in the view from KVP 2. Figure 5-2 shows the viewpoint location, and Figure A-2 (refer to Appendix A) shows the view from this KVP. Several relatively tall buildings in this area, including the Tioga Building (visible along N Street), define the downtown commercial core's scale. The HST alignment would be beyond the Tioga Building in this view.

The location for the Downtown Merced Station is visible from KVP 4, and KVP 5. Figure 5-2 shows the location of these viewpoints, and Figures A-4 and A-5 (refer to Appendix A) show the view from these viewpoints. North of the HST corridor, the station's roof would be visible to the southwest on the south side of Martin Luther King Jr. Way from the corner of W Main Street (KVP 4).

In views from the southern portion of the landscape unit, residential uses, both older and more recently developed neighborhoods, are visible to the east; to the west, farm lands become increasingly visible beyond the commercial, industrial, and other uses including Mercy Medical Center. This part of the landscape unit includes an undercrossing of SR 99 by the proposed alignment. KVP 5 provides a view from SR 99 toward the location where the proposed alignment would emerge from the undercrossing and continue to the Downtown Merced Station. Figure 5-2 shows the location of this viewpoint, and Figure A-5 (refer to Appendix A) shows the view from this viewpoint.

Visual Quality

The visual quality categories within the Merced Landscape Unit range from moderate to moderately low. Existing visual quality in the unit was assessed in part by evaluating the views toward the HST corridor from within the downtown commercial area (KVP 4), and from SR 99 (KVP 5). Table 5-1 summarizes the following discussion and identifies the overall visual quality of each view.

Table 5-1
 Merced Landscape Unit – Visual Quality

KVP Location	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Merced Landscape Unit					
Martin Luther King Jr. Way and W Main St	KVP 4 (Figure A-4)	Moderately low	Moderately low	Moderately low	Moderately low
SR 99 at E 15th St	KVP 5 (Figure A-5)	Moderately low	Moderate	Moderately low	Moderately low

In the view from KVP 4, a commercial district with street parking and road signs exemplify the automobile-oriented portion of downtown. Street trees and shrubbery, which introduce natural elements to the landscape, dot the area and off-street parking lots. There is an inconsistent mix of manmade and natural elements. The Merced Cinema, with its distinctive tower landmark above Martin Luther King Jr. Way, contributes to vividness from a greater viewing distance, but less so from the street and sidewalk nearby. Some businesses have signage that encroaches on the streetscape and is out of scale with the size of the businesses. Traffic signal poles also encroach on the streetscape. Most commercial buildings are single story.

In the view from KVP 5, the SR 99 guardrail partially obstructs views by motorists, but the UPRR right-of-way largely fills the middle ground view from the highway toward Downtown Merced. Large trees in the foreground adjacent to the highway overpass contrast with the starkness of the rail corridor. Commercial and industrial buildings and warehouses, some with signage that encroaches on the horizon, line either side of the UPRR tracks. The UPRR right-of-way and highway guardrail provide a strong linear element. The distant views to the horizon and perspective vanishing point of tracks provide memorableness from the elevated overpass.

5.3.1.2 Merced-Chowchilla Landscape Unit

The Merced-Chowchilla Landscape Unit lies between Merced and Chowchilla, a distance of approximately 12.5 miles. The proposed alignment generally runs along the existing UPRR in this landscape unit and would pass through mostly agricultural land, on which row crops, orchards, and occasional associated structures currently are in view from SR 99. The area is void of lighting because it is rural and agricultural. Viewers are primarily travelers and commuters along SR 99 in this landscape unit. Because this landscape is common in the valley, sensitivity should be low. This landscape unit includes the potential Harris-DeJager HMF site, which is along the western side of SR 99, between Sandy Mush Road and the Chowchilla River. Section 5.3.4 contains discussions of the visual character and representative viewpoints associated with each potential HMF site.

Visual Character and Representative Viewpoints

Expansive views over relatively flat agricultural land characterize the Merced-Chowchilla Landscape Unit. Mature trees frequently are visible in the distance, and occasional clusters of such vegetation often indicate the presence of a creek, slough, or other waterway. In views from SR 99, the Sierra Nevada Mountains are visible to the east. The existing UPRR tracks are, in conjunction with SR 99, part of a wider transportation corridor through the San Joaquin Valley. This alignment also intermittently includes electric transmission facilities, as seen in the view from KVP 6, which is south of Le Grand Avenue. This view is typical of the landscape unit. Figure 5-3 shows the viewpoint location, and Figure A-6 (refer to Appendix A) shows the view from this KVP. The proposed HST alignment would be on the western side of the existing UPRR tracks.

Visual Quality

The visual quality categories within the Merced–Chowchilla Landscape Unit range from moderately low to moderately high. Evaluating the view toward the proposed alignment from the southbound lane of SR 99, immediately east of the proposed alignment (KVP 6), assisted in determining existing visual quality. Table 5-2 summarizes the following discussion and identifies the visual quality category of KVP 6.

Table 5-2
 Merced-Chowchilla Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Merced-Chowchilla Landscape Unit					
SR 99	KVP 6 (Figure A-6)	Moderate	Low	Moderate	Moderately low

The view from KVP 6 is expansive and allows for visibility of some trees along the horizon, beyond agricultural lands. This set up is typical of such views in the landscape unit, and the presence of relatively long-distance views toward these features results in a moderate degree of vividness in the view. Utility poles and lines in the foreground and middle ground partially obstruct objects in the background and, as seen in conjunction with the guideway and other horizontal features, contribute to an overall disharmony in the view that results in moderately low overall visual quality.

5.3.1.3 Chowchilla Landscape Unit

The Chowchilla Landscape Unit includes an approximately 2-mile-long portion of the proposed alignment within the City of Chowchilla. The proposed alignment passes through a residential neighborhood on the northern edge of town and the eastern edge of Downtown Chowchilla near the UPRR tracks. The UPRR tracks are generally parallel to, but somewhat removed from, SR 99 in this landscape unit. Portions of this landscape unit include well-lighted transportation and commercial facilities. Viewer sensitivity ranges from low to moderate in this landscape, which includes views from local roads and SR 99 (generally low sensitivity), the northern extent of the SR 233 and Robertson Boulevard Scenic Corridor (moderate sensitivity) and the residential neighborhood on the northern edge of town (moderate sensitivity).

Visual Character and Representative Viewpoints

A rapid transition in landform and use from the landscape unit’s northern edge to its southern border characterizes the Chowchilla Landscape Unit. The proposed alignment first crosses Ash Slough, which flows east–west and forms the northern boundary of the city. The view from KVP 7, which is in a residential neighborhood on the northern edge of the city, shows the riparian Ash Slough area, with the UPRR and SR 99 (which would include the HST alignment) located beyond. Figure 5-4 shows the viewpoint location, and Figure A-7 (refer to Appendix A) shows the view from this KVP. Just south of the slough, the proposed alignment would enter a commercial area that contains mainly highway services (gas stations, restaurants, hotels, and convenience stores) and that also serves as a gateway to Downtown Chowchilla to the east.

The view from the eastern gateway to Downtown Chowchilla, toward the UPRR/SR 99 transportation corridor and the HST alignment, is shown from KVP 8. This viewpoint is located along SR 233, which is Robertson Boulevard through Chowchilla. Figure 5-4 shows the viewpoint location, and Figure A-8 (refer to Appendix A) shows the view from this KVP. This viewpoint is from an outdoor seating area just off of the street. As discussed in Section 6.1, Robertson Boulevard between SR 99 and SR 152 (approximately 2 miles southwest of Chowchilla) is a scenic corridor.

Visual Quality

The visual quality categories within the Chowchilla Landscape Unit generally range from moderately high to moderately low. Evaluating the views toward the proposed alignment from the residential neighborhood on the northern edge of town (KVP 7) and from within Downtown Chowchilla along Robertson Boulevard (KVP 8) assisted in categorizing existing visual quality within this landscape unit. Table 5-3 summarizes the following discussion and identifies the overall visual quality of the view.

Table 5-3
 Chowchilla Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Chowchilla Landscape Unit					
Northeast Chowchilla	KVP 7 (Figure A-7)	Moderately high	Moderately high	Moderately high	Moderately high
Robertson Blvd (SR 233)	KVP 8 (Figure A-8)	Moderately low	Moderately low	Moderate	Moderately low

The view from KVP 7 toward the proposed alignment contains elements of moderately high scenic value, with Ash Slough in the foreground and the Sierra Nevada Mountains visible in long distance views. The existing UPRR tracks and SR 99 are linear features that, while present, do not disturb the landscape context or distract from the view’s moderately high visual quality. The mature trees that buffer the Chowchilla gateway from SR 99 and the freeway overpass provide a moderate degree of unity in the view from KVP 8. The broad roadway provides a strong linear feature in an otherwise disjointed view, in which the visual features throughout the immediate landscape include trees, streetlights, signage, and commercial business location markers. The freeway off-ramp and overpass are less prominent linear features that further reduce the sense of order to the view and contribute to moderately low visual quality.

5.3.1.4 Chowchilla-Madera Landscape Unit

The Chowchilla-Madera Landscape Unit consists of the UPRR/SR 99 Alternative between the southern part of Chowchilla and the north city limits of Madera, a distance of approximately 11 miles. The proposed alignment, which generally follows the existing UPRR, passes through a residential area in south Chowchilla and agricultural land and the communities of Fairmead and Madera Acres. The portion of the landscape unit south of Chowchilla’s commercial area is industrial, containing warehouses, large agricultural facilities, other industrial-appearing uses, and the Madera County fairgrounds.

Viewer sensitivity is assumed to be high in the residential areas adjacent to the study area, but low elsewhere in the landscape unit. Few light sources exist in this landscape unit, other than fixtures mounted on buildings. This landscape unit contains the potential Gordon-Shaw HMF site located along the eastern side of SR 99, extending from immediately south of Avenue 20 to approximately Avenue 18¾. Section 5.3.4 discusses the visual character and representative viewpoints associated with each potential HMF site.

Visual Character and Representative Viewpoints

Agriculture, the area’s dominant land use, characterizes the Chowchilla-Madera Landscape Unit. Views are expansive and frequently include structures related to agricultural uses alongside orchards, vineyards, or row crops. Stands of trees near the proposed alignment and in the distance are more plentiful in the northern portion of the landscape unit than in the southern portion, where there are larger plots of land

and fewer waterways (e.g., creeks and sloughs). The land is relatively flat in this area, and eye-level views toward the proposed alignment would be available from the two unincorporated communities within the landscape unit.

The view from KVP 9 shows the view to the west from within Fairmead, looking down Avenue 22½ near its intersection with Maple Street. The Galilee Missionary Baptist Church is visible in the left portion of the view, on the southern side of Avenue 22½. Showing beyond the UPRR tracks is the roof of the former Mammoth Orange stand, which currently is not in operation. Figure 5-4 shows the viewpoint location, and Figure A-9 (refer to Appendix A) shows the view from KVP 9. The elevated HST guideway would appear beyond the church, in front of the UPRR tracks. The area surrounding KVP 9 is primarily residential. Light industrial and warehouse uses predominate in the portion of Madera Acres nearest the proposed alignment.

Visual Quality

The visual quality category found within the Chowchilla-Madera Landscape Unit is generally moderately low. Evaluating the view toward the proposed alignment from the primarily residential Community of Fairmead (KVP 9) assisted in categorizing the existing visual quality. Table 5-4 summarizes the following discussion and identifies the overall visual quality of the view.

Table 5-4
 Chowchilla-Madera Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Chowchilla-Madera Landscape Unit					
Fairmead	KVP 9 (Figure A-9)	Moderately low	Low	Moderately low	Moderately low

Trees visible beyond the UPRR tracks and SR 99 provide a slight degree of vividness to the view from KVP 9, which otherwise includes three distinct types of structures (residence, church, and former commercial) lining the roadway. Beyond the grid-like layout of the roads in Fairmead and the alignment of residences and other structures along those roads, there is little order in this view. The natural and built components including transmission lines on both sides of the road are disparate, and the buildings partially obstruct long-distance views from this location.

5.3.1.5 Madera Landscape Unit

The Madera Landscape Unit includes the 5.5-mile-long portion of the proposed alignment within the City of Madera. The proposed alignment, which would pass through the center of Madera, generally would be aligned with the existing UPRR and SR 99. Street and building lighting typically associated with predominantly residential areas like Madera Acres results in a relatively well-lighted nighttime environment.

Visual Character and Representative Viewpoints

Madera is similar to Merced in that a grid street pattern frames the layout of the urban area, with the downtown core area in a rotated grid aligned with the railroad right-of-way. In Madera, industrial areas and business parks mostly are to the east and west of downtown and are not present within the landscape unit. Because of this distribution of uses, a variety of views down streets toward the proposed alignment define the visual character of the Madera Landscape Unit. Many of the most direct views are from parks and from within residential areas. Residential areas are close to the downtown commercial area and larger public areas, and facilities (e.g., large parks, fairgrounds, hospitals, and schools) are on the downtown’s periphery. Views of the Sierra Nevada Mountains are common from within the Madera

Landscape Unit. Views of the Fresno River are less common but do occur close to the river. Industrial areas and business parks are mostly located to the east and west of downtown and do not exist within the landscape unit. This downtown environment includes well-lighted streets. Viewer sensitivity in the study area should be moderate to high..

North of downtown, unobstructed views toward the proposed alignment exist from Rotary Park, as seen in KVP 10, and from linear parks along Sharon Avenue and the Fresno River. Figure 5-5 shows the viewpoint location, and Figure A-10 (refer to Appendix A) shows the view from this KVP. The view from KVP 10 demonstrates the scale of residential development and the presence of foliage typical throughout the Madera Landscape Unit. The view from KVP 11, at the northern corner of Courthouse Park, shows SR 145 as it passes through the center of the city. Figure 5-5 shows the viewpoint location, and Figure A-11 (refer to Appendix A) shows the view from this KVP. The proposed alignment is in front of the buildings in the center of the view; these two-story buildings are typical of the scale in the downtown urban core. Views toward the proposed alignment from the residential neighborhood south of the commercial center further reflect the scale of development in Madera. Within this landscape unit, trees are present in most views and the proposed alignment is visible from most east–west oriented streets. KVP 12 is east of the intersection of 11th Street and D Street. Figure 5-5 shows the viewpoint location, and Figure A-12 (refer to Appendix A) shows the view from this KVP.

Visual Quality

The visual quality category found within the Madera Landscape Unit is generally moderately low. Evaluating the view toward the project site from parks in a residential area (KVP 10), the downtown commercial core (KVP 11), and a residential area south of the downtown commercial core (KVP 12) assisted in categorizing the existing visual quality. Table 5-5 summarizes the following discussion and identifies the overall visual quality of each view.

Table 5-5
 Madera Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Madera Landscape Unit					
Rotary Park	KVP 10 (Figure A-10)	Moderately low	Low	Moderate	Moderately low
W Yosemite Ave	KVP 11 (Figure A-11)	Moderately low	Low	Moderate	Moderately low
E 11th St	KVP 12 (Figure A-12)	Moderately low	Low	Moderately low	Moderately low

From the viewpoint along the edge of Rotary Park (KVP 10), the proposed HST alignment follows the UPRR tracks beyond N Gateway Drive and in front of the residential neighborhood on the opposite side of the tracks along Sharon Boulevard. Trees associated with both the residential area, roadway median, and Rotary Park appear in the view. In conjunction, the roadways, tracks, and berm add a strong horizontal form to the view, although the vertical trees and utility poles in the view appear in front of the horizontal elements at various points, encroaching to various degrees. In the view from the corner of W Yosemite Avenue and S Gateway Drive (KVP 11), the two-story buildings that provide Downtown Madera with the scale distinguishing it from other parts of the landscape unit recede into the background behind a collection of commercial structures, signs, and traffic signals associated with the intersection of the surface streets and the at-grade railroad tracks. The HST alignment would be within the existing railway corridor. Overall, the view is typical of such settings in terms of general coherence and composition. Like other views from within residential neighborhoods composed of mainly single-family homes and a grid street system, trees that line the street help frame the view from KVP 12. Most of the trees appear to be on private property; thus, there is variety in species and size. Trees also frame the terminus of the view and appear above the structures visible on the other side of the proposed HST alignment. An electric

transmission tower, overhead lines, and associated poles are particularly noticeable components of this view, occupying horizontal, vertical, and diagonal (near to far) space.

5.3.1.6 Madera-Fresno Landscape Unit

The Madera-Fresno Landscape Unit includes approximately 9 miles of the UPRR/SR 99 Alternative. The proposed alignment, which generally is near the existing UPRR route, passes through a predominantly agricultural area. Because most project viewers would be either motorists traveling at relatively high speeds or occasional agricultural workers, visual sensitivity is assumed to be low to moderate. Nighttime light sources in this landscape unit are few.

Visual Character and Representative Viewpoints

Views from and within the Madera-Fresno Landscape Unit include a greater proportion of agricultural land uses (e.g., orchards, vineyards, and row crops) than landscape units to the north. The land surrounding the existing UPRR tracks and SR 99 is relatively flat; landforms, natural features, and built structures that deviate from the flatness are prominent in views of the area and in views from within the area toward surrounding land. Clusters of trees are visible throughout the valley floor. The depressed land on the north bank of the San Joaquin River, at the southern tip of the landscape unit, appears unique compared with the predominant land form. Also, because of the flat terrain, highway overpasses are the largest objects visible within the landscape in many views. The proposed HST alignment would pass beneath several overpasses in this landscape unit. The view from KVP 13, in the northbound lane of SR 99 south of Avenue 9, includes a portion of the broad side of an overpass and berm. Figure 5-6 shows the viewpoint location, and Figure A-13 (refer to Appendix A) shows the view from this KVP. Industrial and warehouse-type structures occasionally are visible throughout the landscape unit. The structures visible from KVP 13 are within the proposed HST alignment.

Visual Quality

The visual quality category found within the Madera-Fresno Landscape Unit is generally low. Evaluating the view toward the project site from the northbound lane of SR 99 south of Avenue 9 (KVP 13) assisted in categorizing the existing visual quality in the unit. Table 5-6 summarizes the following discussion and identifies the overall visual quality of the view.

Table 5-6
 Madera-Fresno Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Madera-Fresno Landscape Unit					
SR 99	KVP 13 (Figure A-13)	Low	Moderately low	Low	Low

The entire view from KVP 13 includes built elements, from the highway, rail line, and structures in the foreground to the overpass and berm in the distance and the transmission line that extends from the foreground into the horizon. The structures and the variety of vegetation associated with them introduce distinctive features in what is otherwise a mostly flat agricultural landscape. However, these features encroach on one another. Their presence, in conjunction with the transmission line extending to the horizon and the Avenue 9 overpass extending across the horizon, contribute to a low degree of unity in this view.

5.3.1.7 Fresno Landscape Unit

The Fresno Landscape Unit includes the portion of the study area within the Fresno city limits from the city's northern boundary to approximately 11 miles south. The northern boundary is the San Joaquin River and the southern boundary is near Chukchansi Park, a baseball stadium near the south side of the downtown commercial core. The variety of land uses in the landscape unit, including parks, industrial uses, residential neighborhoods, and the downtown and other commercial districts, results in the assumption that visual sensitivity ranges from low to high. Portions of the landscape unit are well lighted, and other areas have little to no evening light sources.

Visual Character and Representative Viewpoints

As with other cities in the study area and the region, Fresno includes a variety of land uses extending outward from a relatively dense urban core dedicated primarily to commercial and civic uses. When traveling from the north on SR 99 through the landscape unit toward downtown, parks, agricultural land, residential neighborhoods, and industrial areas of varying size and density are visible, several of which are associated with the railway or trucking operations. The proposed HST alignment is adjacent to SR 99 at the point of the San Joaquin River crossing. As seen from KVP 14, in the northbound lane of SR 99, the existing UPRR tracks cross the river east of the highway. Figure 5-6 shows the viewpoint location, and Figure A-14 (refer to Appendix A) shows the view from this KVP. Camp Pashayan, on the south shore of the river, is visible beyond the bridge in this view. KVP 15 is at a gazebo within Camp Pashayan. Figure 5-6 shows the viewpoint location, and Figure A-15 (refer to Appendix A) shows the view from this KVP. The wide San Joaquin River basin forms a natural northern boundary for the city and county of Fresno, and the prominent natural features contrast with the built features present throughout the rest of the landscape unit. The City of Fresno identifies the San Joaquin River as a scenic resource, as discussed in Section 5.1.

Developed areas are visible in at least a portion of views throughout the entire area south of the San Joaquin River. Residential neighborhoods or warehouse complexes are often located next to land in agricultural production. Views are somewhat more uniform in land use and appearance in areas closer to downtown. This may be due to the intensity of development being greater than in the north, allowing for buildings and adjacent uses to occupy greater portions of views. For example, a higher degree of urbanization is evident in the view from Shaw Avenue, west of the proposed alignment and adjacent to Forestiere Underground Gardens. Figure 5-6 shows the viewpoint locations in Fresno.

The views from KVP 16 (A and B) are from inside the northeast area of the park, looking through park trees toward city streets. There is little variety of use in this area, mostly picnicking. Figure A-16 (refer to Appendix A) shows these two views.. KVP 16A is within Roeding Park (identified in Section 5.1 as an existing visual resource). The view is toward the proposed HST alignment, generally east of the park; the view includes the existing transportation corridor that consists of two busy arterials with the UPRR in the middle, and farther east a mostly residential neighborhood.. KVP 16B is a view from the same general area in the park as KVP 16A; the view is north of the park toward W Olive Avenue—to become an overcrossing of the HST—and farther north are a commercial center and parking lot, which lowers intactness of the view.

KVP 17 (refer to Figure A-17 in Appendix A) is along N Vagedes Avenue, within that residential neighborhood; the view toward the proposed HST alignment, generally west of the neighborhood, represents the scale of development and presence of trees in the neighborhoods north of downtown.

The proposed alignment is visible from numerous locations throughout Downtown Fresno, where more large-scale development exists than anywhere else in the study area. The traditional grid street pattern in Downtown Fresno affords many direct views toward the proposed alignment. Despite the generally large buildings in the downtown area, the area within and adjacent to the proposed alignment is not particularly dense. Viewer sensitivity is assumed to be moderate. There are many views like those from KVP 18 (near intersection of H Street and Tulare Street) and KVP 19 (at the intersection of H Street and Kern Street) near Chukchansi Park, a baseball stadium in Downtown Fresno. Figure 5-6 shows the

viewpoint locations, and Figures A-18 and A-19 (refer to Appendix A) show the views from these KVPs toward the two potential downtown station sites for the HST, which would be at-grade. The Mariposa Street Station would be visible in the view to the northwest from KVP 18, and the Kern Street Station would be visible in the view to the southeast from KVP 19. From these vantage points, views toward the proposed HST alignment would be partially obstructed by buildings, and new development would appear among other low-rise, relatively large structures along the UPRR through Fresno.

Visual Quality

The visual quality categories found within the Fresno Landscape Unit range from moderately high to low. Evaluating the view toward the proposed HST alignment from the SR 99 bridge spanning the San Joaquin River (KVP 14), Camp Pashayan (KVP 15), Roeding Park (KVP 16A and KVP 16B), a residential neighborhood north of downtown (KVP 17), and Downtown Fresno (KVP 18 and KVP 19) assisted in the categorization of range of visual quality found within the Fresno Landscape Unit. Table 5-7 summarizes the following discussion and identifies the overall visual quality of each view.

Table 5-7
 Fresno Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Fresno Landscape Unit					
San Joaquin River	KVP 14 (Figure A-14)	Moderate	Low	Low	Low
Camp Pashayan	KVP 15 (Figure A-15)	Moderate	Moderately low	Moderate	Moderate
Roeding Park (N Golden State Blvd)	KVP 16A (Figure A-16)	Moderately high	Moderately low	Moderately high	Moderate
Roeding Park (W Olive Ave)	KVP 16B (Figure A-16)	Moderately high	Moderately low	Moderately high	Moderate
N Vagedes Ave	KVP 17 (Figure A-17)	Moderate	Moderately high	High	Moderately high
Chukchansi Park (Mariposa St Station)	KVP 18 (Figure A-18)	Low	Low	Low	Low
Chukchansi Park (Kern St Station)	KVP 19 (Figure A-19)	Low	Low	Low	Low

The visual quality of the views toward the proposed alignment from SR 99 (KVP 14) and Camp Pashayan (KVP 15) is similar in that each includes a moderate degree of vividness based on the natural features prominent in the area, which appears mostly undisturbed. The two views differ on the degree to which the bridges encroach on the view.

Views toward the HST Project from within Roeding Park (KVP 16A and KVP 16B) include several mature trees interspersed with typical park facilities including picnic tables, grills, light poles, roads and covered eating areas. Structures and roadways are visible through the trees beyond the low fence bordering the park. The visual quality of the two proximate KVPs (KVP 16A and KVP 16B) from the northeast area of Roeding Park is moderate and affected mostly by encroaching elements of the transportation corridors and parking lot. Vividness and unity are moderately high due to the mature trees and park landscape design.

The view from the residential neighborhood to the east of the proposed alignment and Roeding Park (KVP 17) is framed evenly by mature street trees in the foreground and, in the middle ground, roadside landscaping and trees in Roeding Park. These elements do not overlap and together create a high degree of visual coherence.

The dominant feature in the view from Downtown Fresno toward the proposed HST alternative and Mariposa Street Station (KVP 18) is the Greyhound Bus station, visible on the opposite side of H Street. The trees that line the street add an element of color to the area during times the year when leaves are present. This intersection is fairly nondescript. The view from Downtown Fresno toward the proposed HST alignment and Kern Street Station (KVP 19) includes the western portion of Chukchansi Park, tree-lined H Street, and the warehouses and parking lot visible beyond these features in the foreground.

5.3.1.8 West of SR 99 Landscape Unit

The West of SR 99 Landscape Unit includes land west of SR 99. Under the UPRR/SR 99 Alternative, this area would include the Ave 21 Wye and the Ave 24 Wye, as shown in Figure 5-1. Aside from the western portions of cities located along SR 99, this landscape unit includes no incorporated or unincorporated communities. However, there are a small number of residences and schools located at scattered sites within this predominantly agricultural area. Therefore, viewer sensitivity should be moderate to low, although it would be high in residential views toward the study area. Consistently, few light sources exist in the landscape. This landscape unit also contains the potential Fagundes HMF site, which includes land north and south of Avenue 24, between Road 11 and Road 13. Section 5.3.4 discusses the visual character and representative viewpoints associated with each potential HMF site.

Visual Character and Representative Viewpoints

Views from throughout the area west of SR 99 are typically expansive, and many would include portions of the proposed project elements described in Section 2.0, Project Description. In the view from KVP 20, along Avenue 21 west of Road 16, the proposed Ave 21 Wye would run parallel to and north of the roadway. Figure 5-4 shows the viewpoint location, and Figure A-20 (refer to Appendix A) shows the view from this KVP. The proposed Ave 21 Wye would cross orchards and other agricultural lands, bisecting north-south roadways, including Road 16, which is visible in the middleground in this view, approximately 0.25 mile away from the viewpoint. In the view from KVP 21, along Chowchilla Boulevard south of Chowchilla, a cluster of residences typical of the area immediately west of SR 99 is visible in the middleground. Figure 5-4 shows the viewpoint location, and Figure A-21 (refer to Appendix A) shows the view from this KVP. The Ave 21 Wye would pass through the residential cluster prior to merging with the UPRR/SR 99 Alternative.

In the view from KVP 22, along SR 152 immediately west of Road 18, the Ave 24 Wye would cross the highway less than 0.1 mile in front of the viewpoint. Figure 5-4 shows the viewpoint location, and Figure A-22 (refer to Appendix A) shows the view from this KVP. This land, immediately west of SR 99, is primarily agricultural with relatively large tracts occupied by orchards, as evidenced in the view to the south of SR 152, and fields, as evidenced in the view to the north of SR 152. Relatively few reference objects appear in this portion of the landscape unit, which has few distinctive features.

Visual Quality

The visual quality categories found within the West of SR 99 Landscape Unit range from moderate to moderately low. Evaluation of the views toward the proposed Ave 21 Wye (KVP 20 and KVP 21) and toward the Ave 24 Wye (KVP 22), either of which would pass through the landscape unit, assisted in the categorization of the existing visual quality. Table 5-8 summarizes the following discussion and identifies the overall visual quality of the view. In the view from Avenue 21 toward the Ave 21 Wye (KVP 20), orchards of varying maturity and the trees near the intersection of Avenue 21 and Road 16 visibly recede into the background from the middleground and, therefore, frame the view, which is bisected by linear features (i.e., roadway, transmission lines, and irrigation ditch). In the view from Chowchilla Boulevard toward the Ave 21 Wye (KVP 21), structures and the cluster of mature trees identify the residential area.

The cluster of trees distinguishes the residential area from the rest of the land visible in the view, which contains numerous transmission lines and, in the distance, an elevated portion of SR 99.

Table 5-8
 West of SR 99 (UPRR/SR 99 Alternative) Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
West of SR 99 Landscape Unit					
Avenue 21	KVP 20 (Figure A-20)	Moderate	Moderately low	Moderate	Moderate
Chowchilla Blvd	KVP 21 (Figure A-21)	Moderately low	Moderately low	Moderately low	Moderately low
SR 152	KVP 22 (Figure A-22)	Low	Moderately low	Moderately low	Moderately low

In the view from SR 152 toward the Ave 24 Wye (KVP 22), the highway and transmission line corridor bisect a large swatch of agricultural land in which relatively few structures, residential or otherwise, are located. The overall character of the area is clearly agricultural.

5.3.2 BNSF Alternative

The BNSF Alternative would follow the same alignment as the UPRR/SR 99 Alternative through Merced and south of the San Joaquin River. However, it would bypass Chowchilla and Madera by traversing east of SR 99 and passing near or through Le Grand and Madera Acres. This alternative would include either the Ave 24 Wye or the Ave 21 Wye.

The visual character and quality previously described for the West of SR 99, Merced, and Fresno landscape units would be the same under the BNSF Alternative. The following sections discuss the visual character and quality for the landscape units associated with the BNSF Alternative that are not already described for the UPRR/SR 99 Alternative.

5.3.2.1 Merced-Le Grand Visual Character and Representative Viewpoints

The Merced-Le Grand Landscape Unit includes approximately 11 miles of the BNSF Alternative between the southern portion of Merced and the Community of Le Grand. The proposed alignment extends across a predominantly agricultural area before joining the existing BNSF corridor, which runs north-south and generally parallel to the UPRR/SR 99 Alternative. The majority of the viewers within the landscape unit would travel along local roads; however, there are rural residences throughout the area. Therefore, viewer sensitivity for the area should range from moderate to high. Few light sources exist within this landscape.

Visual Character and Representative Viewpoints

The land east of Merced transitions rapidly from suburban to large-scale agriculture, with rural residential uses distributed throughout the area. This area has expansive views toward the Sierra Nevada Mountains. This landscape unit has a more diverse topography than land to the west. More pronounced depressions associated with streams and gullies exist in this area than in areas along the center of the valley floor; the setting is that of the lowest portion of a foothills area. In views toward this landscape unit from the Merced area, the transition from urban to agricultural uses is evident, as shown in the view from KVP 23, along SR 99. Figure 5-3 shows the viewpoint location, and Figure A-23 (refer to Appendix A) shows the view from this KVP. The Sierra Nevada Mountains are visible beyond an increasingly agricultural landscape. In the view from KVP 24, east of the intersection of E Mariposa Way

and S Burchell Avenue in the agricultural area northwest of Le Grand, a diversity of crops is visible. Figure 5-3 shows the viewpoint location, and Figure A-24 (refer to Appendix A) shows the view from this KVP. Two alignments are under consideration through this landscape unit; one would pass through the intersection in front of KVP 24, approximately 0.4 mile from the viewpoint. A ranch entrance is on the opposite side of the T-intersection of E Mariposa Way and S Burchell Avenue.

Visual Quality

The visual quality categories found within the Merced-Le Grand Landscape Unit ranges from moderately high to moderate. Evaluating the view toward the proposed alignment from the northbound lane of SR 99, immediately south of Merced (KVP 23) and from within the agricultural land northwest of Le Grand (KVP 24), assisted in categorizing the existing visual quality in the landscape unit. Table 5-9 summarizes the following discussion and identifies the overall visual quality of the views.

Table 5-9
 Merced-Le Grand Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Merced-Le Grand Landscape Unit					
SR 99	KVP 23 (Figure A-23)	Moderately high	Moderately low	Moderate	Moderate
E Mariposa Way	KVP 24 (Figure A-24)	Moderate	Moderate	Moderately high	Moderate

This landscape unit’s location at the foothills’ base to the east is apparent. The view from KVP 23 is expansive and allows for long-distance views toward the Sierra Nevada Mountains. This is typical of many views to the east from within the landscape unit. Such long-distance visibility, in conjunction with large swaths of agriculture consisting predominantly of orchards or field crops, results in variety of colors and forms that create relatively memorable views, despite the occasional encroachment of structures, including a subdivision visible from KVP 23. The overall impression from views in the area is one of an increasingly agricultural landscape. The view from KVP 24 represents views throughout the eastern portion of the landscape unit, where agricultural lands dominate the views. Orchard crops limit long-distance views and roadways include electric transmission line corridors, enhancing the linear forms that divide the agricultural lands. Residential and agricultural structures including water pumping infrastructure exist throughout the area but are subordinate to the overall agricultural character.

5.3.2.2 Le Grand Landscape Unit

The Le Grand Landscape Unit consists of the portion of the proposed BNSF Alternative that would run either through the Community of Le Grand or to the east of Le Grand, a distance of approximately 1 mile. The design option through Le Grand generally would align with the BNSF tracks and Santa Fe Avenue, and the design option to the east would pass through the more sparsely developed outskirts of town. Viewer sensitivity within the residential area is assumed to be high, and viewer sensitivity from within the commercial and industrial areas is assumed to be low. Sources of light in the area are associated with commercial and residential lighting in town.

Visual Character and Representative Viewpoints

The central portion of Le Grand consists of two separate grid patterns of mostly residential and commercial development on the western side of the BNSF tracks and industrial and commercial uses on the eastern side of the tracks. Development is more suburban on the outer edge of the town. The industrial-appearing structure associated with the Black Rock Milling Company, immediately east of the BNSF tracks, is the most prominent building in the area. The structure serves as a backdrop in many views to the east from within residential neighborhoods, as shown in the view from KVP 25, located along

Marshall Street, north of Ford Street, in Le Grand. Figure 5-4 shows the viewpoint location, and Figure A-25 (refer to Appendix A) shows the view from this KVP. From this location, the portion of the BNSF Alternative that would pass through Le Grand would be partially visible beyond the houses and in front of the mill.

Visual Quality

The visual quality category found within the Le Grand Landscape Unit is generally moderately low. Evaluating the view toward the proposed alignment from a location within a residential neighborhood (KVP 25) assisted in the categorization of existing visual quality in the Le Grand Landscape Unit. Table 5-10 summarizes the following discussion and identifies the overall visual quality of the views.

Table 5-10
 Le Grand Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Le Grand Landscape Unit					
Marshall St	KVP 25 (Figure A-25)	Moderately low	Moderate	Moderately low	Moderately low

The view from KVP 25 represents views toward the in-town BNSF Alternative from a residential area. The mill on the eastern side of the existing BNSF tracks and Santa Fe Avenue is the dominant feature in this view, distinct from the single-family home neighborhood both in terms of scale and appearance. Residential and industrial uses characterize the view from KVP 25 and other locations adjacent to this portion of the proposed BNSF Alternative.

5.3.2.3 Le Grand-Madera Acres Landscape Unit

The Le Grand-Madera Acres Landscape Unit consists of the portion of the proposed BNSF Alternative between the communities of Le Grand and Madera Acres, a distance of approximately 17 miles. The route would align with Santa Fe Avenue, which traverses land that is almost entirely agricultural. An alternative to the northern portion of the route would veer east of Santa Fe Avenue. This landscape unit has relatively few residences and parts of it have views toward the Sierra Nevada Mountains. Light sources are scarce. Viewer sensitivity is assumed to be moderate. This landscape unit contains the potential Kojima Development HMF site, along the western edge of Santa Fe Avenue, extending from immediately south of Berenda Reservoir to approximately Avenue 18¾. Section 5.3.4 discusses the visual character and representative viewpoints associated with each potential HMF site.

Visual Character and Representative Viewpoints

The landscape between Le Grand and Madera Acres is overwhelmingly agricultural in use and character and mostly devoid of prominent structures beyond occasional residences or buildings associated with farmland. Views toward the Sierra Nevada Mountains are expansive and unobstructed from locations that are not adjacent to orchards. In the view from KVP 26, on Buchanan Hollow Road, immediately west of Santa Fe Avenue, open space relative to structures and linear features such as roads and transmission facilities are dominant. Figure 5-4 shows the viewpoint location, and Figure A-26 (refer to Appendix A) shows the view from this KVP. The existing BNSF tracks are visible, approximately 0.2 mile in front of the viewpoint. The BNSF Alternative would follow the BNSF tracks in this location.

Visual Quality

The visual quality category found within the Le Grand-Madera Landscape Unit is generally moderately low. Evaluating the view to the east toward the proposed alignment with the mountains to the east serving as backdrop, as in the view from Buchanan Hollow Road (KVP 26), assisted in the categorization

of the existing visual quality of the landscape unit. Table 5-11 summarizes the following discussion and identifies the overall visual quality of the view.

The view from KVP 26 is expansive and provides a long-distance view toward the Sierra Nevada Mountains that is typical of many views to the east from within this landscape unit. Open spaces associated with agricultural uses and the slight variation in topography associated with the lowest extent of the Sierra Nevada Mountain foothills create a memorable, aesthetically vivid landscape. The railroad tracks and transmission line that cut across the landscape are noticeable, but do not detract substantially from the naturalistic qualities of the view. However, structures in the landscape provide evidence of an area with rural residences and agricultural development, suggesting that visible open spaces are more likely to be farmland than land left in a mostly natural state.

Table 5-11
 Le Grand-Madera Acres Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Le Grand-Madera Acres Landscape Unit					
Buchanan Hollow Rd	KVP 26 (Figure AVQ-26)	Moderately high	Moderate	Moderately high	Moderately high

5.3.2.4 Madera Acres Landscape Unit

The Madera Landscape Unit consists of the portion of the BNSF Alternative through the Community of Madera Acres, a distance of approximately 2 miles. Madera Acres is a mostly residential community north of Madera, extending between the area around the BNSF Alternative to SR 99 in the west. Viewer sensitivity is assumed to be high. Street and building lighting typically associated with predominantly residential areas like Madera Acres results in a relatively well-lighted nighttime environment.

Visual Character and Representative Viewpoints

Madera Acres is a suburb of the City of Madera, and the visual character reflects the physical layout: relatively low-density homes aligned along a mostly non-grid pattern. Views toward the HST alignment from within this landscape unit include houses, either in front of or behind the existing BNSF tracks. The BNSF Alternative would generally follow the existing BNSF railway. In the view from KVP 27, which is on Avenue 18¾ southwest of Old Mill Road, the existing BNSF tracks are atop retained fill beyond the homes on Old Mill Road. Figure 5-5 shows the viewpoint location, and Figure A-27 (refer to Appendix A) shows the view from this KVP.

Visual Quality

The visual quality category found within the Madera Acres Landscape Unit is generally moderately low. Evaluating the view toward the proposed alignment from a location within a residential neighborhood (KVP 27) assisted in the categorization of the existing visual quality in the Madera Acres Landscape Unit. Table 5-12 summarizes the following discussion and identifies the overall visual quality of the views.

The view from KVP 27 represents a typical view toward the existing BNSF tracks and proposed BNSF Alternative from the residential areas adjacent to the railway corridor. Color in the view comes mostly from trees and yards associated with the single-family homes, with a consistent scale of development throughout the view. A vacant lot along Old Mill Way, at the terminus of Avenue 18¾, allows greater visibility toward the existing tracks. The railroad tracks, streets, and transmission line are the view’s most prominent linear features, but they do not detract substantially from the overall neighborhood character.

Table 5-12
 Madera Acres Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Madera Acres Landscape Unit					
Avenue 18¾	KVP 27 (Figure A-27)	Moderately low	Moderately low	Moderate	Moderately low

5.3.2.5 Madera Acres-SR 99 Landscape Unit

The Madera Acres-SR 99 Landscape Unit includes the area that extends from south of Madera Acres to the point where the BNSF Alternative would merge with the UPRR corridor, near the SR 99 crossing of the San Joaquin River. This segment is approximately 13 miles long. Viewer sensitivity is assumed to be low by the small number of drivers along SR 99 and residents in the area. Street and building lighting typically associated with predominantly residential areas like Madera Acres results in a relatively well-lighted nighttime environment. No evening light sources exist in the remaining area.

Visual Character and Representative Viewpoints

The northern portion of this landscape unit, along the eastern edge of Madera, has a denser population than other parts of the landscape unit. Agricultural production on a relatively large scale on land that is relatively flat characterizes most of the landscape unit. The view from KVP 28, atop the Avenue 7 overpass of SR 99, demonstrates the scale of the farmland parcels in the area. Figure 5-6 shows the viewpoint location, and Figure A-28 (refer to Appendix A) shows the view from this KVP. The BNSF Alternative would pass approximately 0.2 mile from the viewpoint, cut through a vineyard and orchard, and would be overcrossed by Avenue 7 immediately beyond the intersection visible near the bottom of the off-ramp.

Visual Quality

The visual quality category found within the Madera Acres-SR 99 Landscape Unit is generally moderately low. Evaluating the view toward the BNSF Alternative location from the elevated vantage point of the Avenue 7 SR 99 overpass (KVP 28) assisted in the categorization of the existing visual quality in the landscape unit. Table 5-13 summarizes the following discussion and identifies the overall visual quality of the view. Few people would view this portion of the alignment, and views mostly would be from vehicles traveling at highway speed or along roads providing access to farmlands. Viewer sensitivity is assumed to be low. No evening light sources exist in the area.

Table 5-13
 Madera Acres-SR 99 Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
Madera Acres-SR 99 Landscape Unit					
Avenue 7	KVP 28 (Figure A-28)	Moderately high	Moderately high	High	Moderately high

The view from KVP 28 represents the visual character of most of the landscape unit: relatively larger areas devoted to single crops in an area that remains agriculturally diverse. The agricultural diversity allows a greater variety of colors and textures and, therefore, more vivid views. Multiple transmission lines cut across the view in different directions, and the road system does not completely adhere to a grid

as it does elsewhere in the study area. The lack of notable structures in the view from KVP 28 confirms the preponderance agricultural production in this area, despite the presence of linear infrastructure features.

5.3.2.6 East of SR 99 Landscape Unit

The East of SR 99 Landscape Unit includes the lands east of SR 99 excluded from the BNSF Alternative landscape units previously discussed. Under the BNSF Alternative, this area would include the portions of the Ave 21 Wye and the Ave 24 Wye east of SR 99, as shown in Figure 5-1. Berenda Reservoir to the north and Madera Acres to the south generally bound the area. Correctional and power generation facilities are the most noticeable structures in this landscape unit; rural residences and ranches are the most numerous features. Views in the vicinity of the landscape unit are primarily from local roads and residences; therefore, viewer sensitivity is assumed to be moderate to high. Lights are bright around the correctional facilities, but light from other sources in the area is scarce and of low intensity.

Visual Character and Representative Viewpoints

Views from throughout the area east of SR 99 include a variety of buildings and vegetation, similar to those described for the other landscape units in the BNSF Alternative. The view from KVP 29, which is to the north from a location on Road 19½, shows residential and agricultural uses. Figure 5-5 shows the viewpoint location, and Figure A-29 (refer to Appendix A) shows the view from this KVP. The proposed Ave 24 Wye would cross the road approximately 0.1 mile from the viewpoint. In the view from KVP 30, along Avenue 19 immediately north of Madera Acres, fewer structures are visible, but developments appear, including the Dry Creek Canal and its levee entrance on the north side of the road, the edge of a residential neighborhood on the south side of the road, and transmission poles. Figure 5-5 shows the viewpoint location, and Figure A-30 (refer to Appendix A) shows the view from this KVP. The proposed Ave 21 Wye would cross the road approximately 0.07 mile in front of the viewpoint, just beyond the canal, en route to connecting with the main BNSF Alternative in Madera Acres. Each of these views represents views throughout the landscape unit; the entire area is developed to some extent and land is used for residential or agricultural purposes, either directly or indirectly.

Visual Quality

The visual quality categories found within the East of SR 99 Landscape Unit range from moderate to moderately low. Evaluation of the view toward the proposed Ave 24 Wye (KVP 29) and toward the Ave 21 Wye (KVP 30), either of which would pass through the landscape unit, assisted in the categorization of the existing visual quality in the portion of the East of SR 99 Landscape Unit associated with the BNSF Alternative. Table 5-14 summarizes the following discussion and identifies the overall visual quality of the view. Each of these views includes a discrete section of vegetation that frames the uses visible on the nearby land. In the view from KVP 29, the vineyard on the right side of the road contrasts with the residences and ranch areas on the left side of the road. In the view from KVP 30, mature vegetation on the opposite side of the canal provides a background for an increasingly residential area through which canal flows. These views are typical of the complementary land uses in views throughout this landscape unit and parts of the entire study area; however, the features often lack cohesion.

Table 5-14
 East of SR 99 Landscape Unit – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
East of SR 99 Landscape Unit					
Road 19½	KVP 29 (Figure A-29)	Moderately low	Moderate	Moderately low	Moderately low
Avenue 19	KVP 30 (Figure A-30)	Moderate	Moderately high	Moderate	Moderate

5.3.3 Hybrid Alternative

The Hybrid Alternative is a combination of the UPRR/SR 99 and BNSF alternatives in terms of alignment and profile. Descriptions for the UPRR/SR 99 and BNSF alternatives include the landscape units under the Hybrid Alternative. The Hybrid Alternative includes the Merced, Merced–Chowchilla, West of SR 99, East of SR 99, Madera Acres, Madera Acres–SR 99, and Fresno landscape units. The Ave 24 Wye portion of the Hybrid Alternative overlaps in the West of SR 99 Landscape Unit with the north–south alignment. The Hybrid Alternative also has an exclusive Ave 21 Wye design option that is slightly east of and has a different curvature than the Ave 21 Wye for the UPRR/SR 99 and BNSF alternatives. According to previous descriptions for these landscape units, the north–south alignment has a moderate to moderately low visual quality between Merced, west of Chowchilla, and the areas between SR 99 and the BNSF railway. The visual quality increases to moderately high adjacent to the BNSF north of Madera Acres. Madera Acres has a moderately low visual quality that becomes moderately high south of community to the UPRR, immediately north of the San Joaquin River. Entering the City of Fresno, the visual quality varies from low after crossing the river to moderate and moderately high approaching the city, primarily because of features such as Roeding Park and historical neighborhoods. Visual quality near the proposed HST station site varies, but generally it is low because of the UPRR tracks, industrial buildings, and large roadway bridges.

5.3.4 Heavy Maintenance Facility Alternatives

Five potential HMF locations are within the study area: Castle Commerce Center, Harris-DeJager, Fagundes, Gordon-Shaw, and Kojima Development. With one exception, each of these sites is within distinct linear landscape units. The Castle Commerce Center HMF Landscape Unit is linear because access to it would require the construction of a guideway for an HST branch between the Downtown Merced Station and Atwater. This branch, in a later phase of the project, could become part of an HST alternative selected to continue to Modesto. Descriptions of the proposed HMF locations and the additional guideway for the Castel Commerce Center HMF follow.

Visual Character and Representative Viewpoints

The Castle Commerce Center HMF site would be located along Santa Fe Avenue in Atwater, mostly south of W Bellevue Road, on vacant land, as represented by KVP 31 (location shown in Figure 5-3). The Castle Commerce Center HMF would accommodate either the UPRR/SR 99 Alternative or the BNSF Alternative. The coexistence of agricultural uses and increasingly urbanized land characterizes the area. The HST branch line would generally follow the existing BNSF railway approximately 3 miles south of the HMF site, then cross over to meet with the UPRR corridor into Merced, ending at the Downtown Merced Station, as shown in Figure 5-3. The HST branch line would pass under a proposed Martin Luther King Jr. Way overcrossing next to the HST station, through commercial and residential areas near the station, past industrial/warehouse areas north of Downtown Merced, across Bear Creek, and onto the HMF site.

In the view from KVP 31, on Santa Fe Avenue, the proposed HMF site would be visible on the northern side of Santa Fe Avenue. Viewers in the vicinity of the site and the access guideway are assumed to have low to moderately high visual sensitivity; residential viewers and visitors to the Castle Air Museum are likely to have greater sensitivity than commuters, workers, and other motorists traveling through the area. Current commercial, industrial, and recreational uses provide moderate light levels along the Santa Fe Avenue corridor. Back at the start of the branch line in pedestrian-oriented Downtown Merced, viewer sensitivity is assumed to be moderate. Viewer sensitivity also is assumed to be moderate in residential areas due to distant views towards the HMF site that are partially screened by landscaping. This area of the city is well-lighted at night by lighting associated with commercial and pedestrian-oriented uses typical for a downtown of this size and activities. Because Downtown Merced has a traditional grid street pattern, views toward the HST guideway and other parts of the city, particularly with tall buildings, exist from several locations. However, SR 99 is an elevated highway that can block views from residential neighborhoods west of the highway toward the eastern parts of the city.

The Harris-DeJager HMF site would be adjacent to the west side of SR 99, generally between Sandy Mush Road to the north and the Chowchilla River to the south. Figure 5-4 shows the location of the proposed HMF site, which would be associated with only the UPRR/SR 99 Alternative with the Ave 21 Wye. The HMF site is agricultural, but as seen in the view from KVP 33, which is in the southbound lane of SR 99, the eastern edge of the site also is characterized visually by the road, railroad, and electric transmission line corridors that are adjacent to or bisect the HMF site. The HMF would occupy property in an agricultural area that is largely absent of buildings. Figure 5-4 shows the viewpoint location. Viewer sensitivity is assumed to be low to moderate because most views of the site would be from local roads and from SR 99, where vehicles would be traveling at highway speeds, and drivers have low sensitivity to the landscape. The relatively few light sources in the area are concentrated along the SR 99 corridor, where nearby uses include a currently non-operating gas station and a California Highway Patrol weigh station.

The Fagundes HMF site would be located on land to the north and south of Avenue 24, east of Road 11. Figure 5-4 shows the location of the proposed HMF site, which would be associated with either the UPRR/SR 99 Alternative or the BNSF Alternative with the Ave 24 Wye. The view from KVP 34 shows the southern portion of the proposed site, approximately 1 mile away, from the westbound lane of SR 152, west of Road 12. The site is on land that appears to be entirely dedicated to agricultural production, with mostly fields in the southern portion (visible from KVP 34) and more agriculture-related structures in the northern portion. Few discernable features detract from the unified perception of a landscape entirely dedicated to agricultural production. Established large-scale agricultural facilities are present in the general area, but they are distant from the site. The Sierra Nevada Mountains can be seen in the background from many locations. There are several scattered residences in the general area. Figure 5-4 shows the viewpoint location. Viewer sensitivity is assumed to be low in the vicinity of the Fagundes site because most views would be from local roads or from SR 152 to the south. Residents and workers spend more time in the area and are assumed to have moderate sensitivity. Existing light levels in the area are low.

The Gordon-Shaw HMF site would occupy the land east of SR 99 generally between Berenda to the north and Avenue 18½ to the south. Figure 5-5 shows the location of the proposed HMF site, which would be associated with only the UPRR/SR 99 Alternative with the Ave 24 Wye. As shown by KVP 35, which is an elevated view to the north toward the potential HMF site from the Avenue 18½ overpass, agricultural and agriculture-related uses occupy the general area entirely. Trees along the horizon mark the northern boundary of the HMF site. The visual quality of existing views toward this site is generally moderate; the site is vacant, unfarmed agricultural land adjacent to a large vineyard. Figure 5-5 shows the viewpoint location. Viewer sensitivity is assumed to be low to moderate because most views toward the site would be from vehicles passing through agricultural land or traveling at highway speed along SR 99. There is strip commercial development across the highway from the site. Viewers in the commercial area and vineyard are assumed to have moderate sensitivity. General lighting in the area is adequate for commercial uses on the western side of SR 99, opposite the proposed HMF site, and for industrial-type facilities to the north and south of the site. Expansive views from this area include the UPRR and SR 99 corridors; structures are visible west of SR 99.

The Kojima Development HMF site would be west of Santa Fe Avenue in the area south of the Berenda Reservoir. Figure 5-4 shows the location of the proposed HMF site, which would be associated with only the BNSF Alternative and only the Ave 21 Wye. The view from KVP 36 shows the site from the southbound lane of Santa Fe Avenue. Orchards and land used for field crops visible beyond the existing BNSF tracks indicate the types of agricultural uses in the general area. Trees visible in the center of the view from KVP 36 also represent agricultural land in the general area; mature trees occasionally occur on agricultural land and are not limited to riparian areas. Figure 5-4 shows the viewpoint location. This proposed site would be partially visible from Berenda Reservoir, a recreation area, and viewer sensitivity is assumed to be moderate. Existing light levels in the area are low.

5.3.4.1 Visual Quality

Evaluating views from nearby roadways that either afford the most prominent views toward the HMF site or approximate views from the greatest number of potential viewers allows a determination of the existing visual quality category (or categories) near each potential HMF site. The Castle Commerce Center HMF site would require construction of an additional access guideway between the HMF and the Merced HST station, thus requiring an evaluation of the view toward the access guideway from nearby sensitive receptors (KVPs 1, 2, 3, and 4A). Table 5-15 summarizes the following discussion and identifies the overall visual quality of the views.

Table 5-15
 Potential HMF Sites – Visual Quality

Landscape Unit	Key Viewpoint	Vividness	Intactness	Unity	Overall Visual Quality
HMF Sites Landscape Units					
Q St (CCC)	KVP 1	Moderate	Moderate	Moderately high	Moderate
N St (CCC)	KVP 2	Moderate	Moderately low	Moderate	Moderate
R St (CCC)	KVP 3	Moderately low	Moderately low	Moderately low	Moderately low
SR 99 at Martin Luther King Jr. Way	KVP 4A	Moderate	Moderate	Moderate	Moderate
Santa Fe Ave (CCC)	KVP 31	Moderately low	Moderately high	Moderate	Moderate
Franklin Rd	KVP 32 ^a	Moderate	Moderately low	Moderately low	Moderately low
SR 99 (HDJ)	KVP 33	Moderately low	Moderate	Moderately low	Moderate
SR 152 (FGD)	KVP 34	Moderate	Moderate	Moderate	Moderate
Avenue 18½ (GSH)	KVP 35	Moderately low	Moderately high	Moderate	Moderately high
Santa Fe Ave(KJD)	KVP 36	Moderate	Moderately high	High	Moderately high
^a KVP 32 (Franklin Road) is not considered further for project impact evaluation because the view does not include the HST branch line to the Castle Commerce Center HMF site. Notes: CCC = Castle Commerce Center; HDJ = Harris-DeJager; FGD = Fagundes; GSH = Gordon-Shaw; KJD = Kojima Development					

The view from KVP 31 toward the proposed Castle Commerce Center HMF site includes a variety of structures beyond the mostly vacant field east of Santa Fe Avenue. Although the water tower and structures associated with the area’s former use as an airfield are unique, none stand out of the structures along the horizon. The view has little overall cohesion, despite some order to the view in that the structures appear beyond the field, which appears beyond the strong linear appearance of the roadway. Mature vegetation visible from KVP 32 results in a moderately vivid landscape. However, urbanization appears to be encroaching on lands currently in agricultural use. Some orderly suburban development appears imposed on the edges of the more natural appearing agricultural land, which results in a moderately low degree of intactness and overall unity.

The view from KVP 33 toward the Harris-DeJager HMF site contains little internal encroachment among the linear features (roads, railway, and transmission line), but their collective presence in the view toward the site results in an overall lack of cohesion. In the views from KVP 34 (toward the Gordon-Shaw site) and KVP 36 (toward the Kojima Development site), the visible transportation corridors (SR 99 and the BNSF tracks) and transmission lines do not substantially bisect the agricultural land, which is the

predominant visible use. Views toward the Kojima Development HMF site are relatively cohesive. The view from KVP 35, toward the Fagundes HMF site, contains few, if any, discernable features that detract from the unified perception of a landscape dedicated entirely to agricultural production.

5.3.5 Summary of Visual Quality Assessments

Table 5-16 summarizes the visual quality assessments for the viewpoints in landscape units applicable to the UPRR/SR 99, BNSF, and Hybrid alternatives. Table 5-16 also shows the determinations of impacts at each KVP according to NEPA and CEQA. Appendix B provides the numerical scores for visual quality with the project, which are consistent with the rating categories shown in Table 5-16. Appendix B also provides the numerical scores for visual quality under existing conditions, which are consistent with the rating categories shown in Tables 5-1 through 5-15.

Table 5-16
 Summary of Landscape Unit Visual Quality by Key Viewpoints

KVP Location	KVP #	Visual Quality Rating – Existing	Visual Quality Rating – With Project	Viewer Sensitivity	NEPA Intensity	CEQA Impact
Merced Landscape Unit – UPRR/SR 99, BNSF, Hybrid Alternatives						
Martin Luther King Jr. Way and Main St	KVP 4	Moderately low	Moderate	Moderate	Negligible (Beneficial)	Less than significant (Beneficial)
SR 99 at E 15 th	KVP 5	Moderately low	Moderately low	Low	Negligible	Less than significant
Merced-Chowchilla Landscape Unit – UPRR/SR 99, Hybrid Alternatives						
SR 99	KVP 6	Moderately low	Moderately low	Low	Negligible	Less than significant
Chowchilla Landscape Unit – UPRR/SR 99 Alternative						
North Chowchilla	KVP 7	Moderately high	Moderate	Moderate	Moderate	Less than significant
Robertson Blvd	KVP 8	Moderately low	Moderately low	Moderate	Negligible	Less than significant
Chowchilla-Madera Landscape Unit – UPRR/SR 99 Alternative						
Fairmead	KVP 9	Moderately low	Low	High	Substantial	Significant
Madera Landscape Unit – UPRR/SR 99 Alternative						
Rotary Park	KVP 10	Moderately low	Moderately low	High	Negligible	Less than significant
W Yosemite Ave	KVP 11	Moderately low	Low	High	Substantial	Significant
E 11th St	KVP 12	Moderately low	Low	High	Substantial	Significant
Madera-Fresno Landscape Unit – UPRR/SR 99 Alternative						
SR 99	KVP 13	Low	Low	Moderate	Negligible	Less than significant

KVP Location	KVP #	Visual Quality Rating – Existing	Visual Quality Rating – With Project	Viewer Sensitivity	NEPA Intensity	CEQA Impact
Fresno Landscape Unit – UPRR/SR 99, BNSF, Hybrid Alternatives						
San Joaquin River	KVP 14	Low	Low	Low	Negligible	Less than significant
Camp Pashayan	KVP 15	Moderate	Moderately low	Moderate	Moderate	Less than significant
Roeding Park (N Golden State Blvd)	KVP 16A	Moderate	Moderate	High	Negligible	Less than significant
Roeding Park (W Olive Ave)	KVP 16B	Moderate	Moderate	High	Negligible	Less than significant
N Vagedes Ave	KVP 17	Moderately high	Moderately high	Moderate	Negligible	Less than significant
Chukchansi Park	KVP 18	Low	Moderately low	Moderate	Negligible (Beneficial)	Less than significant (Beneficial)
Chukchansi Park	KVP 19	Low	Moderately low	Moderate	Negligible (Beneficial)	Less than significant (Beneficial)
West of SR 99 Landscape Unit – UPRR/SR 99, BNSF, Hybrid Alternatives						
Avenue 21	KVP 20	Moderate	Low	Low	Negligible	Less than significant
Chowchilla Blvd	KVP 21	Moderately low	Low	High	Substantial	Significant
SR 152	KVP 22	Moderately low	Low	High	Substantial	Significant
Merced-Le Grand Landscape Unit – BNSF Alternative						
SR 99	KVP 23	Moderate	Moderately low	High	Substantial	Significant
E Mariposa Way	KVP 24	Moderate	Moderately low	Moderate	Moderate	Less than significant
Le Grand Landscape Unit – BNSF Alternative						
Marshall St	KVP 25	Moderately low	Low	High	Substantial	Significant
Le Grand-Madera Acres Landscape Unit – BNSF Alternative						
Buchanan Hollow Rd	KVP 26	Moderately high	Low	Moderate	Substantial	Significant
Madera Acres Landscape Unit – BNSF, Hybrid Alternatives						
Avenue 18¾	KVP 27	Moderately low	Low	High	Substantial	Significant
Madera Acres-SR 99 Landscape Unit – BNSF, Hybrid Alternatives						
Avenue 7	KVP 28	Moderately high	Moderate	Low	Negligible	Less than significant

KVP Location	KVP #	Visual Quality Rating – Existing	Visual Quality Rating – With Project	Viewer Sensitivity	NEPA Intensity	CEQA Impact
East of SR 99 Landscape Unit – BNSF, Hybrid Alternatives						
Road 19½	KVP 29	Moderately low	Moderately low	High	Negligible	Less than significant
Avenue 19	KVP 30	Moderate	Low	High	Substantial	Significant
Heavy Maintenance Facility Alternative Landscape Units						
Castle Commerce Center (Q St)	KVP 1	Moderate	Moderate	Moderate	Negligible	Less than significant
Castle Commerce Center (N St)	KVP 2	Moderate	Moderate	Moderate	Negligible	Less than significant
Castle Commerce Center (R St)	KVP 3	Moderately low	Moderately low	Moderate	Negligible	Less than significant
Castle Commerce Center (SR 99 at Martin Luther King Jr. Way)	KVP4A	Moderate	Moderately low	Moderate	Moderate	Less than Significant
Castle Commerce Center (Santa Fe Ave)	KVP 31	Moderate	Moderate	Moderate	Negligible	Less than significant
Atwater (Franklin Rd) ^a	KVP 32	Moderately low	NA	NA	NA	NA
Harris-DeJager (SR 99)	KVP 33	Moderate	Moderately low	Moderate	Moderate	Less than significant
Fagundes (SR 152)	KVP 34	Moderate	Moderately low	Low	Negligible	Less than significant
Gordon-Shaw (Avenue 18½)	KVP 35	Moderately high	Moderate	Moderate	Moderate	Less than significant
Kojima Development (Santa Fe Ave)	KVP 36	Moderately high	Moderate	Moderate	Moderate	Less than significant
<p>^a KVP 32 (Atwater – Franklin Road) is not considered further because it does not face the HST branch line to the Castle Commerce Center HMF.</p> <p>Notes: NA = Not applicable</p> <p>In accordance with FHWA methodology, the most sensitive viewer type at each KVP was selected to assist in determining impact.</p>						

6.0 Visual Impact Assessment

This section describes the impact analysis relating to aesthetics and visual resources for the proposed project. The following sections discuss the impact assessment methodology. Method of Visual Resource Analysis

The FHWA visual impact assessment methodology is described in Section 3.0, Assessment Method. The methodology includes conducting an inventory of the visible physical changes for analysis of the visual appearance in the study area. The analysis then characterizes the future visual environment with the project through computer-generated photographic simulations. Table 6-1 lists typical project components that might affect the visual setting.

Table 6-1
 Visual Characteristics of Project Components

Project Component	Characteristics
Elevated Guideways or Structures (piers/columns, straddlebents)	Piers are columns holding up the guideway; straddle bents are supports made of two columns that support a beam on which the guideway sits. These are often the most visible project components. The aboveground height of the elevated guideway box girders range between approximately 30 and 80 feet above-grade. In some locations, elevated guideways and their associated overhead catenary system (OCS) components can intrude on views, although they may not block them completely. Tall HST stations (and guideways to a lesser extent) can create shadows that could have negative impacts on some areas under some conditions. During final design of elevated guideways, the Authority will coordinate with local jurisdictions on the design of these facilities so that they are designed appropriately to fit in with the visual context of the areas near them. The Authority will establish a process with the city or county with jurisdiction over the land along the elevated guideway to advance the final design through a collaborative context-sensitive solutions approach. The working groups will meet on a regular basis to develop a consensus on the urban design elements to be incorporated into the final guideway designs. The process will include activities to solicit community input in the affected neighborhoods. Associated structures would be designed to be attractive architectural elements or features and would add visual interest to the streetscapes near them. Some of these structures along with piers can be targets for graffiti. These structures can incorporate textured surfaces and artistic patterns that discourage graffiti and add visual interest to the landscape; in addition, surface coatings can be applied to them to facilitate cleaning and the removal of graffiti.
Retained Fill Guideways	A pair of retaining walls with the space between filled with compacted earth or rock provides the base for the guideway or roadway. The height of retained fill ranges from below- or at-grade to generally no more than 20 feet high, or up to 30 feet high at roadway overcrossings. Retained fill can be constructed with a wide gap and abutments on both sides that are spanned by a bridge, providing a space for the HST or vehicles to pass underneath. Retained fill can be a less expensive alternative to an elevated guideway on piers. Depending on the height and location of the retained fill, views can be blocked and shadows can create negative impacts on some areas. The walls of retained fill also can be targets for graffiti. The final design process will include coordination with local jurisdictions and consideration of applicable design guidelines as part of a collaborative process related to construction. Retaining walls can incorporate textured surfaces and artistic patterns that discourage graffiti and add visual interest to the landscape; in addition, surface coatings can be applied to facilitate cleaning and the removal of graffiti.
At-Grade Guideways	At-grade guideways are generally located in or adjacent to existing streets and railways (UPRR and BNSF); they would be designed to be compatible with the roadway or adjacent streetscape. The height from ground level to the top of rail will typically be a minimum of 4.5 feet, but would fluctuate up to as much as 8 feet depending upon topography. The at-grade track will be on either compacted soil and ballast material or concrete slab on a low berm. Height will vary when transitioning to retained fill or an elevated structure and to accommodate topography, drainage, etc. When height increases, views of areas beyond the at-grade guideways may be blocked, depending on the location of the track and level of viewers. In addition, shadows can create

Project Component	Characteristics
	negative impacts on some areas. Chain-link security fencing would not block views.
Overhead Catenary System	The OCS is a highly visible element from close viewing distances. OCS components (wires and mast poles) become less visible as viewing distances increase. The structures may intrude on views but would not block views because of their open and thin profile and cable-like appearance.
Street Modifications	Street widening or relocating could involve removing buildings, trees, and other vegetation. In some locations and situations, trees and other vegetation would be replanted with similar plants that mature quickly enough to become similar in appearance to the removed vegetation.
HST Stations	Depending on the size and bulk, HST stations could block views, cast shadows, and add built features to the landscape. Elevated HST stations generally would be more visible than at-grade stations. HST stations would be designed to be aesthetically and architecturally compatible with their surrounding areas. The final design process would include coordination with local jurisdictions and would consider the applicable design guidelines as part of a collaborative process so that, during design, the HST stations would undergo appropriate design review to incorporate local design elements.
Parking Structures	Depending on size and bulk, parking structures can block existing views. Parking structures would be designed or assigned criteria to match surrounding architecture types to help them aesthetically fit with their surroundings. Local design guidelines would be considered and incorporated as part of a collaborative process with local agencies so that parking structures visually and aesthetically blend into the areas where they would be located.
Lighting	Train lighting would be temporary and directed along the guideway, which should not cause glare impact on nighttime views. If not properly designed and shielded, project-related lighting could create glare impacts, increase the ambient light levels in nearby areas, and increase skyglow, which could adversely affect nighttime star viewing. This would be true during construction and during operation of the HST System. Design-related measures, such as shielding and altering light direction, would be used where appropriate to avoid and minimize potential impacts while providing adequate general illumination and lighting for safety and security.
Building Removal	Removal of existing buildings can improve or detract from visual settings depending on building condition, style, scale, and color. Areas where buildings would be removed would be limited to locations that introduce project components or that would be revegetated to blend in with nearby areas.
Vegetation Removal	Removal of vegetation can open up views that are non-existent or, conversely, expose other non-aesthetic views, such as additional hard surfaces. When possible, the existing vegetation would be preserved, vegetation replanted, trees replaced, and, where appropriate, temporary vegetative screens used to minimize effects of vegetation removal prior to revegetation.
Retaining Walls	A retaining wall can be used to stabilize a steep cut in a hillside or in pairs to hold earth and rock between them (retained fill) or as bridge abutments. Retaining walls are made of hard materials, such as concrete, that might require surface design treatments to reduce aesthetic and visual impacts. Retaining walls can incorporate textured surfaces and artistic patterns that discourage graffiti and add visual interest to the landscape; in addition, surface coatings can be applied to facilitate cleaning and the removal of graffiti.
Sound Barriers	Trains and relocated roadway traffic can induce noise impacts that, by FRA requirements, require mitigation. Typical noise-reduction methods include sound barriers. Although the sound barrier placement is not determined yet, the walls could block views, create places for unwanted graffiti, and become unattractive. Sound barriers can be made from transparent materials or include surface design enhancements to work with the area's visual context. Design decisions would be made during final design stages.
HMF	An HMF is an industrial facility of approximately 154 acres that would include large spans of open rail yard, several buildings, and employee parking. The buildings potentially can block views, similar in scale to large agricultural storage structures. Maintenance facilities would be designed to be aesthetically compatible with the surrounding uses and would include screening fences,

Project Component	Characteristics
	walls, or vegetation to help them blend in with surrounding areas. During facility design, the exterior of the maintenance facilities would undergo appropriate design review to emulate the surrounding rural context.
Traction Power Distribution Stations	The stations would vary in size and spacing, depending on whether they are paralleling stations, switching stations, or traction power substations. Where appropriate, the stations would be screened from public view by landscaping and a wall or fence. Some of the stations would include radio communication towers with an open-truss or solid-pole design and with obstruction warning lights on top, all depending upon the terrain and tower height.

The comparison of existing views with views showing with project simulations illustrates changes in the viewshed and is the basis for assessing visual impacts. Assessment of the visual quality for each KVP with the project uses the same analysis as the views of existing conditions, allowing a comparison of qualitative values. The visual character at a KVP with the project is also considered. Identification of changes in the assessed visual quality and visual character and consideration of viewer group exposure, sensitivity, and potential reaction determine the degree of potential visual effect. The thresholds of significance listed in the following section determine the degree of visual impact.

6.1 Definition of Visual Impact Levels

6.1.1 Evaluation of Effects Under NEPA

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

For aesthetics and visual resources, the level (negligible, moderate, or substantial) of impact intensity under NEPA was determined based on FHWA methodology (see Section 3.16.3 above for detailed methodology). NEPA methods define intensity assessment as a change in existing visual quality, which considers landscape character. The impact assessment evaluated the degree to which the proposed project would change the existing visual quality category of a viewed landscape and considered the viewer sensitivity (high, moderate and low) of people who would view the proposed project in the landscape. An impact with *substantial* intensity is defined as a change in the existing visual quality category by (a) two or more categories (for example, from high to moderate or moderate to low) in an area where people with high or moderate viewing sensitivity would see it; or (b) one category in an area where people with high viewing sensitivity would see it. An impact with *moderate* intensity is defined as a change in the existing visual quality category by one category (for example, high to moderately high, or moderately low to low) in an area where people with moderate viewer sensitivity would see it. An impact with *negligible* intensity is defined as (a) a change in the existing visual quality category by one or more visual quality categories in an area where people with low viewer sensitivity would see it; or (b) areas where the proposed project would not change the existing visual quality categories and would be seen by viewers with high, medium, or low viewing sensitivity.

6.1.2 CEQA Significance Criteria

Appendix G of the CEQA Guidelines indicates that the project would result in a significant impact on aesthetics and visual quality in the following instances:

- The project would have a substantial adverse impact on a scenic vista.
- The project would substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historical buildings within a state scenic highway.
- The project would substantially degrade the existing visual character or quality of the site and its surroundings
- The project would create a new source of substantial light or glare that would adversely affect day or nighttime area views.

A significant impact also would occur if the project (1) introduces elements that conflict with the visual character of a historic district or a state- or federal-listed or eligible historical property, or (2) substantially affects a feature or area identified as an important visual resource in a local plan, policy, or regulation. By contrast, the project would result in a beneficial visual impact if it eliminates a dominant feature in the landscape that currently detracts from scenic qualities or blocks scenic vistas. In addition, a significant impact would occur when the visual quality of the landscape changes by two or more categories and the viewers have moderate to high sensitivity, or the landscape changes by one category and the viewers have high sensitivity.

6.2 Analysis of Landscape Units and Key Views

The following sections describe changes in visual quality and character within each landscape unit and for each KVP within the various landscape units. Appendix A contains figures with the images of simulated views and existing views; the figures in Appendix A correspond with the discussion for each KVP in the following sections. Simulated views include the proposed HST alternative(s) that would be visible from the KVP, proposed roadway redesign in the vicinity of the HST alternative(s), and, where applicable, the absence of structures that would be acquired and removed as part of the proposed project.

The determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit would necessarily have the same determinations of impacts. The landscape unit determination was based on the KVPs as important viewing locations and representative samples of visual quality with and without the HST Project, tempered by the existing predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

6.2.1 UPRR/SR 99 Alternative

The UPRR/SR 99 Alternative would pass through eight landscape units. In the Merced, Merced-Chowchilla, Chowchilla, Madera-Fresno, and Fresno landscape units, impacts would be of negligible or moderate intensity under NEPA and less than significant under CEQA. However, with the Chowchilla-Madera, Madera, and West of SR 99 landscape units, impacts on aesthetics and visual resources would be of substantial intensity under NEPA and significant under CEQA. There would be some increase in visual quality in the Merced and Fresno station areas.

6.2.1.1 Merced Landscape Unit

In views toward the proposed Downtown Merced Station from SR 99 and from throughout the downtown area, the station's presence would change the visual character of this area and would increase visual quality. Viewer sensitivity from pedestrians and drivers in the downtown area is assumed to be moderate to low. The station and HST guideway would be at-grade through this landscape unit. The HST in the rail corridor would slightly degrade the existing overall visual quality of moderately low to low in the landscape unit, but not enough to lower the category. In this landscape unit generally, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in an impact with negligible intensity under NEPA and a less than significant impact under CEQA for the Merced Landscape Unit.

There are two KVPs within the Merced Landscape Unit. KVP 4 is a view from Martin Luther King Jr. Way and W Main Street looking south toward SR 99. Figure A-4 shows the existing view, a simulation, and a rendering of the Downtown Merced Station complex from approximately the same orientation as the existing view. Because the station would enhance the visual quality of the area, the impact on aesthetics and visual resources from the HST at KVP 4 would be a negligible (beneficial) intensity of impact under NEPA and less than significant (beneficial) under CEQA.

KVP 5 lies within the northbound lane of SR 99, south of Downtown Merced. The number of viewers experiencing this view from the elevated highway is high, but viewer sensitivity is assumed to be low. This is because most viewers are likely to be traveling at relatively high speeds. The duration of view would be brief and not typically directed toward the shoulder of the road and the HST. Figure A-5 shows that the UPRR tracks are the dominant linear feature in the existing view. In the simulated view from KVP 5, the at-grade guideway would appear as a consistent linear feature alongside the UPRR tracks. The proposed G Street overcrossing would be obstructed by the highway's bridge rail. In the distance, the Downtown Merced Station concourse and platform would be visible and prominent. The HST would be similar to the existing overall visual character of the area and would not lower the existing moderately low visual quality. From this KVP, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a negligible intensity of impact under NEPA and a less than significant impact under CEQA.

The indirect effects of the project occur mostly at the Downtown Merced HST station and would result in an overall increase of visual quality. The economic incentives of a large project would contribute increased development incentives, creating a new destination attraction and drawing more people to the station area. Over time, these changes could influence urban design to include treatments establishing vividness, highly engaging designs, and uniformity.

6.2.1.2 Merced-Chowchilla Landscape Unit

The proposed HST alignment would be near the existing UPRR and SR 99 transportation corridors and would be elevated in the southern half of this landscape unit. Because viewers are primarily travelers and commuters along SR 99, viewer sensitivity is assumed low. In general, with the HST Project in place, the visual quality of views within the landscape unit would remain as it is. The HST Project would not substantially alter the landscape unit's existing visual character. Therefore, the UPRR/SR 99 Alternative would result in a negligible intensity of impact under NEPA and a less than significant impact under CEQA within this landscape unit.

The view from KVP 6 (Figure A-6) approximates the view from the southbound lane of SR 99, south of Le Grand Avenue. There would be a relatively large number of viewers from this viewpoint, but views would be from vehicles traveling at highway speeds, and viewer sensitivity is assumed to be low. In the simulated view from KVP 6, the linear and horizontal aspects of the at-grade HST guideway (guideway and OCS) would appear consistent with existing, similar features (UPRR tracks and transmission poles/lines). With the project, the visual quality of the view would remain moderately low. The project would not substantially obstruct long-distance views or substantially alter the existing visual character. y.

Therefore, the impact on aesthetics and visual resources from this location would be an impact of negligible intensity under NEPA and less than significant under CEQA.

6.2.1.3 Chowchilla Landscape Unit

With the project in place, the existing visual quality range of moderately high to moderately low would change to moderate to moderately low. Viewer sensitivity ranges from low to high in this landscape unit, which includes views from local roads and SR 99 (generally low sensitivity), the northern extent of the SR 233 and Robertson Boulevard Scenic Corridor (moderate sensitivity), and the residential neighborhood on the northern edge of town (high sensitivity). Where seen in middleground views from residential areas, such as that shown in the view from KVP 7, the project would appear out-of-character with the existing conditions, but would not be close enough to sensitive viewers to result in significant impacts. Therefore, the UPRR/SR 99 Alternative would result in an impact of moderate intensity under NEPA and a less-than-significant impact under CEQA within this landscape unit.

In the view from KVP 7 (Figure A-7), the HST guideway would appear in the same general location as the UPRR/SR 99 transportation corridor, elevated to the extent that it partly would block views toward the Sierra Nevada Mountains. The resulting effect of the elevated guideway on vividness, intactness, and unity would change the visual quality from moderately high to moderate. The elevated guideway would not alter the more natural setting closest to the viewpoint, which would appear above the UPRR/SR 99 transportation corridor. The assumed sensitivity of the residential viewers in the area would be offset by the distance from the HST alignment. The impact on aesthetics and visual resources would be moderate under NEPA and less than significant under CEQA. The elevated HST alignment would pass through mostly commercial and industrial areas where impacts would be less than significant (KVP 8). In the view from KVP 8 (Figure A-8), part of the HST alignment would be visible above the western ramp of the SR 233 overpass of SR 99; this view would not be visually out of character with the existing transportation corridor. The view's visual quality with the project would remain moderately low, and viewer sensitivity is moderate; therefore, the impact of the project on aesthetics and visual resources from KVP 8 would be a negligible intensity of impact under NEPA and less than significant under CEQA.

6.2.1.4 Chowchilla-Madera Landscape Unit

The HST guideway would be elevated through the entire landscape unit, from the southern part of Chowchilla to the north city limits of Madera. The project would substantially change the existing visual character in much of this landscape unit. It would have greater impacts on residential areas where visual quality in many locations would be lowered from moderately low to low and viewer sensitivity is assumed to be high. In this landscape unit generally, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a substantial intensity of impact under NEPA and a significant impact under CEQA.

The elevated HST guideway would be a dominant visual feature in the view from KVP 9 (Figure A-9), and it would be closer than the existing UPRR/SR 99 transportation corridor. Realignment of Fairmead Boulevard (the road that appears parallel to the UPRR tracks in the existing view) would be necessary to accommodate the guideway, and the road would appear closer to the viewpoint. Compared with the existing view, the transportation corridor with the HST guideway appears within the edge of the community and adjacent to a church, rather than on the periphery. The simulated view also includes the Ave 24 Wye, which, if part of the project, would appear along the horizon. The encroachment of the HST alternative and alteration of overall cohesion in the view would reduce visual quality from moderately low to low. Because of the effects this would have on the existing visual character in the vicinity and the visual sensitivity of this mainly residential area, the elevated guideway would result in a substantial intensity of impact under NEPA and a significant impact under CEQA.

6.2.1.5 Madera Landscape Unit

The elevated guideway in this landscape unit would be noticeable in views from throughout the landscape unit. Where the elevated guideway encroaches on residential neighborhoods and the

downtown core, it would appear out of scale in some locations and substantially alter the visual character. However, in other views, the elevated guideway would appear as part of a wider transportation corridor and would not substantially alter the existing visual character. The existing visual quality of much of the landscape unit is moderately low. With the project, visual quality would range from moderately low to low. Viewer sensitivity by residents is assumed to be high. In this landscape unit generally, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in an impact of substantial intensity under NEPA and a significant impact under CEQA. This determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit would necessarily have the same determinations of impacts. The landscape unit determination is based on the three KVPs in the landscape unit as representative samples of visual quality with and without the HST Project, tempered by the existing predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

In the view from KVP 10 (Figure A-10), the elevated HST guideway occupies the upper portion of the view to the northeast, but the entire structure would appear within and above the relatively wide existing transportation corridor. The corridor includes the UPRR tracks, N Gateway Drive, Sharon Boulevard, and the Rotary Park access drive. To the northeast, the elevated guideway would partially obscure views of the horizon. Trees along the eastern edge of the park and the roadway median would partially obstruct views of the elevated guideway and piers. There would be no substantial change in visual quality in this view; it would remain moderately low with the proposed project. Despite the assumed high visual sensitivity of views from the park, the presence of the HST within the existing transportation corridor would not largely alter the visual character in the area. As such, the impact on aesthetics and visual resources from this location would be of negligible intensity under NEPA and less than significant under CEQA.

From KVP 11, shown in Figure A-11, the elevated guideway's support piers would partially obstruct views of buildings toward downtown from the sidewalks and streets of the downtown commercial area of Madera. The elevated guideway would be in an existing transportation corridor including the UPRR tracks and E Street. It would remove several structures along the corridor as it went through downtown, and substantially alter the visual character. Most notably, the guideway would be the tallest structure in the downtown core area and of a different scale. The existing moderately low visual quality of this view would be reduced to low. From this viewpoint at the corner of W Yosemite Avenue and S Gateway Drive, near the entrance to Courthouse Park, the guideway would appear prominent with the sky as a backdrop, creating a uniform horizontal skyline in all such unobstructed views toward the HST from the streets and businesses in the downtown area. However, the canopy of trees in Courthouse Park would obstruct views of the elevated guideway, and the HST would not substantially alter the viewshed from the park. The elevated guideway is prominent in the view from downtown streets and sidewalks, and sensitivity by downtown patrons is assumed to be moderate to high. For this KVP, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a substantial intensity of impact under NEPA and a significant impact under CEQA.

The analysis for KVP 12 found that the relatively wide streets in the adjacent Madera neighborhood would allow unobstructed views toward the elevated guideway. The existing visual quality is moderately low because of the general lack of intactness and unity in the view. The elevated guideway would add a large structural component to a viewshed where viewer sensitivity by residents is assumed high. The presence of the elevated guideway would substantially alter the area's existing visual character. The existing visual quality category is moderately low and would change to low with the HST. For this KVP, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a substantial intensity of impact under NEPA and a significant impact under CEQA.

6.2.1.6 Madera-Fresno Landscape Unit

The HST alternative would be located alongside the UPRR tracks throughout most of the Madera-Fresno Landscape Unit. Even where it is elevated, the guideway would appear as part of a transportation corridor that already includes the UPRR tracks and SR 99. Because most project viewers would be either motorists traveling at relatively high speeds or agricultural workers, visual sensitivity is assumed low.

Nighttime light sources in this landscape unit are few. In general, the visual quality in views within the landscape unit would remain low. The project would not cause a large alteration in the landscape unit's visual character. Therefore, aesthetics and visual resources impacts would be of negligible intensity under NEPA and less than significant under CEQA within this landscape unit.

The Madera-Fresno Landscape Unit contains one KVP. From KVP 13, shown in Figure A-13, the HST alternative would run parallel to the existing UPRR tracks. There is an industrial facility located along the railroad in the vicinity. Viewer sensitivity is assumed to be low by workers in industrial areas. Sensitivity by motorists on SR 99 is assumed to be moderate in such an expansive landscape, where any unusual feature would stand out. The intactness and unity of the view with the project would not change, and the overall visual quality and character of the landscape would not change. For this KVP, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a negligible intensity of impact under NEPA and a less than significant impact under CEQA.

6.2.1.7 Fresno Landscape Unit

Within the Fresno Landscape Unit, the proposed UPRR/SR 99 Alternative would be visible from industrial and commercial areas between the San Joaquin River and downtown and would be mostly aligned with the existing UPRR tracks. A variety of land uses in this landscape unit (i.e., parks, industrial uses, residential neighborhoods, and the downtown and other commercial districts) results in the assumption that visual sensitivity ranges from low to high. Portions of the landscape unit are well lighted, but other areas have little or no evening light sources. In general, the visual quality in views within the landscape unit with the project would range from moderate to low; the visual quality under existing conditions ranges from moderately high to low. Because of its location within an established corridor containing rail and other transportation facilities, the elevated HST alignment would not be out of character with most of the landscape unit. The station area development in Downtown Fresno would result in slight improvements in visual quality. Therefore, the impact on aesthetics and visual resources would be of negligible intensity under NEPA and less than significant under CEQA within the Fresno Landscape Unit.

The HST alternative would be visible beyond the SR 99 bridge barrier and UPRR bridge in the view from KVP 14 (Figure A-14), although these two existing features mostly would obscure it. Where visible, the HST bridge would appear within the river corridor amid other structures (transmission lines in front of and beyond the bridge, water tanks, and hillside residences on the opposite side of the river). Fresno County identifies the San Joaquin River as an aesthetic resource. However, in views from KVP 14, the river area includes numerous structures, and the addition of the HST bridge would not block a larger portion of the area visible from SR 99, where viewer sensitivity is assumed to be low. The visual quality in the area would remain low and there would be no large alteration of the existing visual character. Therefore, the impact on aesthetics and visual resources from this location would be of negligible intensity under NEPA and less than significant under CEQA.

KVP 15 is located on a trail in an ecological reserve (Camp Pashayan) and represents what viewers outside of the main part of the camp would see of the HST structure (Figure A-15). When viewed from this location, the HST structure would appear in front of and seem taller than either of the two existing bridges (UPRR and SR 99). Much of the vegetation that obstructs views of portions of the existing bridges would also obstruct portions of the HST bridge, although the new structure would appear more dominant in views from this location than the existing bridges. The HST guideway and bridge over the river would be consistent with the visual character of this area. The HST would reduce the existing visual quality from moderate to moderately low. Because viewers from this location already see two existing bridges and recreational activities of viewers would be focused away from the HST, viewer sensitivity is assumed to be moderate. For this KVP, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a moderate intensity of impact under NEPA and a less than significant impact under CEQA.

Two KVPs were selected in the northeast area of Roeding Park. KVP 16A provides a view to the east from inside Roeding Park. It is located approximately 300 feet from Golden State Boulevard along the east edge of the park, where the HST alignment would replace the roadway. Viewer sensitivity by park users

is assumed to be high. Trees near KVP 16A would partially block views of the HST at-grade guideway and potential sound barrier (see simulated view in Figure A-16 in Appendix A). Because the HST would not be easy to see from this location and would follow an existing wide transportation corridor, the visual character and visual quality category of the area viewed from this location would not change. As a result, there would be an impact with negligible intensity under NEPA and a less than significant impact under CEQA.

KVP 16B is located along the edge of Roeding Park near the park entrance and W Olive Avenue. This view is to the north towards W Olive Avenue and the back of a commercial center and its parking lot. With the HST Project, W Olive Avenue would become an overcrossing that would be supported by retained fill until it reaches the abutment of the clear-span overcrossing of the UPRR and HST. The retained fill wall would introduce a large-scale element into the view from KVP 16B that would change the character of the area viewed beyond the park. However, the retained fill wall would provide a uniform backdrop to the park that would block views from KVP 16B into the commercial complex and parking lot. Existing trees in the park would partially screen views of the retained fill wall from KVP 16B (see simulated view in Figure A-16 in Appendix A).. The Authority will work with the City of Fresno during final design to develop appropriate visual/aesthetic treatments to the retained fill wall (and span) so that they are compatible with the context of this part of Roeding Park. The retained fill wall would not reduce the existing visual quality category of the view from KVP 16B and would result in an impact with negligible intensity under NEPA and a less than significant impact under CEQA.

KVP 17 is the view (Figure A-17) south along N Vagedes Avenue toward the HST, approximately 650 feet away. Trees along Golden State Boulevard and in the residential neighborhood partially obscure the view to the south. The HST guideway essentially would not be visible from this viewpoint, as it would be below-grade in a retained cut to pass under the new E Belmont Avenue overcrossing farther south. The closing of Golden State Boulevard and the new overcrossing would eliminate a roundabout that is visible from the southeast corner of Roeding Park. Open space adjacent to the park would be created, and the overcrossing would be supported by a landscaped embankment or retaining wall or both. Viewer sensitivity is assumed to be moderate from the residential area because of the distance away. Neighborhood trees obscure views to the south towards the HST. The visual character of this area would not be altered. The existing moderately high visual quality category of the area would remain the same. The impact on aesthetics and visual resources from the HST on KVP 17 would be of negligible intensity under NEPA and less than significant under CEQA.

There are two HST station alternatives being considered for Downtown Fresno: the Kern Street Station Alternative and the Mariposa Street Station Alternative. The Downtown Fresno Station would have an at-grade guideway for loading passengers and would be similar in size and design to the Downtown Merced Station. Through collaboration with the City of Fresno, the station design may be refined to incorporate additional aesthetic features that would result in a more iconic or architecturally distinct design. Appendix C includes images of existing European and Asian functional stations and conceptual images of iconic stations. The visual assessment for KVPs 18 and 19 is for a functional station at the pedestrian level. KVP 18 is of the station area and the Southern Pacific Railroad Depot (see Figures A-18 and A-19). KVP 19 is the view to the south from the ticket office at Chukchansi Park, near the intersection of H and Kern Streets in Fresno. The effects on aesthetics and visual resources under both station alternatives would be similar. With either station, the vividness, intactness, and unity of the area near the stations would increase from low to moderately low, as would overall visual quality. The scale of the HST station would change but would not substantially alter the visual character of the area, which includes other large structures. Viewer sensitivity would be high because the station would be located in the downtown area where there are many pedestrians and shoppers. The HST station would have beneficial impacts on the visual quality of this area of Downtown Fresno, as seen from KVPs 18 and 19. For these two KVPs, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in an impact with negligible (beneficial) intensity under NEPA and a less than significant (beneficial) impact under CEQA.

6.2.1.8 West of SR 99 Landscape Unit

The West of SR 99 Landscape Unit includes areas where the UPRR/SR 99 Alternative would be at-grade. The required construction of roadway overpasses could cause long-term adverse visual effects because the sloped fill structures required to support the elevated roadway would occupy larger view areas than a pier-supported guideway. Viewer sensitivity is assumed to be mostly moderately low to low, although it would be higher in residential views toward the proposed alignment. In particular, an overpass within the SR 233 and Robertson Boulevard Scenic Corridor would substantially alter views and existing visual character in an area where viewer sensitivity is high. In general, the visual quality in views within the landscape unit would be low. The visual quality under existing conditions ranges from moderate to moderately low. Therefore, the UPRR/SR 99 Alternative would result in a substantial intensity of adverse impact under NEPA and a significant impact under CEQA within this landscape unit. This determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit would necessarily have the same determinations of impacts. The landscape unit determination was based on the KVPs as important viewing locations and representative samples of visual quality with and without the HST Project, tempered by the existing predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

Three KVPs were included in this landscape unit. KVP 20 is representative of the West of SR 99 Landscape Unit where there would be the HST guideway at-grade and a sloped-fill overpass. The Ave 21 Wye design option would pass through the area visible from KVP 20, requiring several north/south oriented roads to pass over the HST guideway. Replacing the orchards with the large, sloped-fill overpass would alter the agricultural character of the area that the overpass would be built on. It would reduce existing visual quality from moderate to low. Viewer sensitivity and exposure is low and the road is not heavily used. For this KVP, the level of change in visual quality from the project, combined with the level of viewer sensitivity, would result in a negligible intensity of impact under NEPA and a less than significant impact under CEQA.

The intersection of the Ave 21 Wye and the UPRR/SR 99 Alternative is visible in the left of the view from KVP 21, and the wye is visible passing over SR 99 in the right extent of the view, after passing through the residential cluster in the center of the view. Taken as a whole, the elevated HST guideways would appear mostly within the existing UPRR/SR 99 transportation corridor, but would result in making the corridor the primary visual feature in views from the surrounding area. The encroachment of the HST Alternative and Ave 21 Wye and the alteration of overall cohesion in the view would reduce visual quality from moderately low to low. Travelers on the road and nearby residents are assumed to have moderate and high viewer sensitivity, respectively. Therefore, impacts on aesthetics and visual resources would be of substantial intensity under NEPA and significant under CEQA.

In the view from KVP 22, the elevated Ave 24 Wye would pass above SR 152 en route to the point where it would connect with the UPRR/SR 99 alignment. This elevated guideway would add a prominent elevated linear element to a view that would be incongruous with other linear elements in the area. The overall visual character in the area would be substantially altered. The existing visual quality of the view would be reduced from moderately low to low. Although viewer sensitivity from drivers along the highway is assumed to be moderate, viewer sensitivity of nearby residents is assumed to be moderate to high. Therefore, impacts would be of substantial intensity under NEPA and significant under CEQA.

6.2.2 BNSF Alternative

The BNSF Alternative would pass through nine landscape units, of which only three would be the same as the UPRR/SR 99 Alternative: the Merced, West of SR 99, and Fresno landscape units. Impacts on aesthetics and visual resources would be of substantial intensity under NEPA and significant under CEQA in the Merced-Le Grand, Le Grand, Le Grand-Madera Acres, Madera Acres-SR 99, and West of SR 99 landscape units. Impacts within all other landscape units under the BNSF Alternative would be of negligible intensity or less than significant intensity, except in the East of SR 99 landscape unit, where there would be moderate intensity of impacts under NEPA. In the Merced and the Fresno landscape units,

there would be an increase in visual quality in the station area. Viewer sensitivity in the landscape units would be the same as under the UPRR/SR 99 Alternative.

6.2.2.1 Merced-Le Grand Landscape Unit

Typically, views within the Merced-Le Grand Landscape Unit are either expansive over low-growing agricultural crops or are constrained adjacent orchards. Most of the HST guideway in this landscape unit would be at-grade, with local roads overcrossing the guideway. Closer to the Merced city limits, portions of the HST guideway would be constructed on retained fill. The retained fill structures would be prominently visible from SR 99 and nearby residences (high viewer sensitivity). The existing visual quality category for much of the landscape unit is moderate. With the HST, the visual quality category of much of the landscape unit would be reduced to moderately low. Therefore, the BNSF Alternative would result in a substantial intensity of impact under NEPA and a significant impact under CEQA within this landscape unit. This determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit would necessarily have the same determinations of impacts. The landscape unit determination was based on the KVPs as important viewing locations and representative samples of visual quality with and without the HST Project, tempered by the existing predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

The elevated guideway under the BNSF Alternative with the Mission Ave design option would appear as a dominant new feature across the view from KVP 23. Views of the Sierra Nevada Mountains would be partially obstructed by the guideway piers, and the guideway would replace the mountain range in forming the skyline. The HST guideway would reduce visual quality from moderate to moderately low and would alter the existing visual character. The guideway structures would partially obstruct the distant views of the Sierra Nevada Mountains. Although this KVP is from the northbound lane of SR 99 between Merced and Chowchilla, it is similar to views towards the mountains from areas throughout this landscape unit, including views from residences. Existing views of the Sierra Nevada Mountains would be somewhat obscured by the HST. Although viewer sensitivity of drivers would be low to moderate, viewer sensitivity of nearby residents is assumed to be high. Impacts on aesthetic and visual resources would be of substantial intensity under NEPA and significant under CEQA.

The HST alignment would be at-grade in the area visible from KVP 24, and an elevated T-intersection would be necessary. The amount of land required for the sloped fill overpass and the HST alignment would be large. The project would require removal of an orchard north of E Mariposa Way, and the overpass would appear as a wall along approximately half of the horizon. The project would reduce the visual quality in this view from moderate to moderately low and would not substantially alter the visual character in the area. Furthermore, removal of the orchard would alter the existing view. The number of viewers in this area is low because the area has large agricultural parcels with few residents or local drivers. However, the mix of orchards with open field crop areas is a visual and aesthetic resource identified in the *Merced County Year 2000 General Plan* (Merced County 1990); therefore, viewer sensitivity in the area is assumed to be moderate. The impact on aesthetics and visual resources from this location would be of moderate intensity under NEPA and less than significant under CEQA.

6.2.2.2 Le Grand Landscape Unit

The Le Grand Landscape Unit includes the Mission Ave and the Mariposa Way design options, which would pass east of town. As discussed below, if the HST alternative were to pass through Le Grand, it would adversely affect the existing residential character in the viewshed. However, if the HST alternative were to extend east of Le Grand (i.e., Mission Ave East of Le Grand and Mariposa Way East of Le Grand design options), it would result in permanent disruption, either partially or fully, of views toward the Sierra Nevada and toward the diverse agricultural lands identified as scenic resources in Merced County by the General Plan. The BNSF Alternative would require roadway overcrossings with retaining walls that would remove orchards and block views in a scenic corridor. Residents are assumed to have high viewer sensitivity. In general, the landscape unit's visual quality with the project would be low; the visual quality under existing conditions is moderately low. The impact on visual resources resulting from such effects also would be adverse in the construction of any design option. Therefore, the impact on aesthetics and

visual resources would be of substantial intensity under NEPA and significant under CEQA within this landscape unit.

The elevated HST alignment, as seen from KVP 25, would remove three homes, views beneath the guideway would be toward the industrial facility on the opposite side of the BNSF tracks. There would be a large change in visual character. The overall visual quality of the view would change from moderately low to low. There would be a large change in visual character. Viewer sensitivity is assumed to be high. Therefore, the impact on aesthetics and visual resources would be of substantial intensity under NEPA and significant under CEQA.

6.2.2.3 Le Grand-Madera Acres Landscape Unit

The Le Grand-Madera Acres Landscape Unit includes locations where road crossings would be required, as shown in the view from KVP 26. In general, the visual quality in views within the landscape unit would be low; the visual quality under existing conditions is moderately high. Elevated intersections would result in a large adverse effect on the visual character. Therefore, the impact on aesthetics and visual resources would be of substantial intensity under NEPA and significant under CEQA.

Except for the Mariposa Way East of Le Grand design option, the BNSF Alignment design options would pass through the intersection of Buchanan Hollow Road and Santa Fe Avenue, which is visible from KVP 26. The alignment would be at-grade in this area, requiring overpasses for existing roadways with retained throughways. The elevated intersection of Buchanan Hollow Road and Santa Fe Avenue would occupy the majority of the view from KVP 26, removing a portion of the orchard and fields currently visible and largely blocking the scenic vistas of the Sierra Nevada Mountains to the east. These changes would reduce the visual quality in the view from moderately high to low, and would be a major change to the area's visual character; that is, the most scenic features in the view would be removed or otherwise obscured. Viewer sensitivity by drivers, including local residents using the road, is moderate. Viewer sensitivity by residents is high. Therefore, the impact on aesthetics and visual resources from this location would be of substantial intensity under NEPA and significant under CEQA.

6.2.2.4 Madera Acres Landscape Unit

The Madera Acres Landscape Unit includes land along the HST alternative within the community of Madera Acres. The visual quality under existing conditions is generally moderately low within the landscape unit. The elevated guideway and expanded rail corridor of the three elevated wye design options would be a substantial change of the visual character of this landscape unit, which contains residential areas with high viewer sensitivity. They would also change the existing moderately low visual quality to low and would result in an impact of substantial intensity under NEPA and a significant impact under CEQA. The at-grade BNSF and the Hybrid alternatives would both expand the rail corridor and somewhat change the visual character in the Madera Acres Landscape Unit. A design option associated with these alternatives would raise the HST 8 feet when crossing SR 145 to avoid modifications to the roadway underpass. This would affect the visual quality of the nearby surrounding area. However, this area is zoned industrial, and the visual sensitivity is low. The at-grade BNSF and Hybrid alternatives and design options would not lower the existing moderately low visual quality of this landscape unit to low. The alternatives would result in an impact of moderate intensity under NEPA and less than significant impact under CEQA.

The Madera Acres Landscape Unit includes one KVP. As seen from KVP 27, shown in Figure A-27, the at-grade BNSF and Hybrid alternatives (which would have the same appearance from this location) and one of the three elevated wye design options would be located near the existing BNSF tracks. The HST Project would enlarge the existing rail corridor to the extent that it would expand into adjacent residential areas. The elevated wye design option would introduce an elevated structure into the view from this KVP. It would alter the edge of the community and substantially alter the area's visual character, where viewer sensitivity is assumed high. The existing moderately low visual quality would be reduced to low, which would result in an impact of substantial intensity under NEPA and a significant impact under CEQA. The at-grade BNSF or Hybrid alternatives would somewhat change the visual character of the area but would

not reduce the moderately low visual quality to low. These alternatives would result in an impact of moderate intensity under NEPA and less than significant impact under CEQA.

6.2.2.5 Madera Acres-SR 99 Landscape Unit

The Madera Acres–SR 99 Landscape Unit includes land along the BNSF Alternative between Madera Acres and SR 99, where the guideway would rejoin the UPRR corridor. There would be several new road overcrossings of the at-grade HST guideway, about 1 mile apart. Although these would both be visible amid lands that are primarily agricultural in character, as represented by the view from KVP 28 shown in Figure 3.16-23, the area has a very low population. Visual quality under existing conditions ranges from moderately high to low within the landscape unit. The HST would be seen in some areas by drivers on rural roads, but as with the rural residents, their numbers would be low and infrequent; therefore, viewer sensitivity is assumed to be low. Visual quality would be reduced to moderate with the project. Under the BNSF Alternative, impacts on aesthetics and visual resources within this landscape unit would be of negligible intensity under NEPA and less significant under CEQA.

The landscape unit includes one KVP at the southern end of the landscape unit that is representative of several overcrossing locations to the north. The visual quality at KVP 28 under existing conditions is moderately high; however, with the project, the visual quality would change to moderate. With the BNSF Alternative, the new Avenue 7 overcrossing with the at-grade guideway and its catenary would somewhat change the visual character of this view, and the intactness and unity of views to the east from SR 99. Long-distance views toward the horizon, where the foothills are a backdrop in a diverse agricultural landscape, would be partially blocked by the overcrossing. Viewer sensitivity is assumed to be low by the small number of drivers and residents. The impact on aesthetics and visual resources from this location would be of negligible intensity under NEPA and less than significant under CEQA.

6.2.2.6 East of SR 99 Landscape Unit

The Ave 24 Wye and the Ave 21 Wye traverse the East of SR 99 Landscape Unit. Except where these wyes cross the UPRR or BNSF, or Dry Creek (approaching Madera Acres), the HST guideway is at-grade. Throughout the East of SR 99 Landscape Unit, the existing network of roads and transmission lines is such that the addition of a prominently visible linear feature, such as the at-grade guideway of the wyes, would not appear out of character with the existing visual setting. However, the relatively short lengths of elevated guideway would appear out of character as a dominant feature of the landscape. In general, the visual quality under existing conditions ranges from moderate to moderately low; with the project, the visual quality of views within the landscape unit would range from moderately low to low. Most areas through which the HST would pass are sparsely populated and agricultural, except at the north and south boundaries of the landscape unit that terminate near residential areas in Fairmead and north Madera. Therefore, in the large majority of these areas east of SR 99, the BNSF Alternative and Hybrid Alternative, including the wyes, would result in a moderate intensity of impact under NEPA and a less than significant impact under CEQA. This determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit would necessarily have the same determinations of impacts. The landscape unit determination was based on the KVPs as important viewing locations and representative samples of visual quality with and without the HST Project, tempered by the existing predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

There are two KVPs in this landscape unit. From KVP 29 (which is in the vicinity of Fairmead), the northern extent of the Ave 24 Wye would be visible approximately 250 feet south of Avenue 24 as the HST crosses Road 19½, which would be closed. Visual quality would remain moderately low with the project. Neither the piers nor the OCS poles associated with the elevated guideway would be out of character with the landscape's vertical features (electric transmission towers, telephone poles, wires, and isolated palm trees). Viewer sensitivity is assumed to be moderate to high due to scattered residences that are somewhat distant from these two roads and cross-country from the HST; the few residents closer to the HST would have high sensitivity. The impact on aesthetics and visual resources from the HST at KVP 29 would be of negligible intensity under NEPA and less than significant under CEQA.

KVP 30 was selected to represent one of the few short sections of elevated guideway from the wye connection (seen in the foreground) in this landscape unit. KVP 30 also includes a view of the more prevalent at-grade guideway (seen behind the simulation of the elevated guideway) of the north-south BNSF Alternative. There are residences in the vicinity of this viewpoint, so viewer sensitivity would be high. The at-grade guideway of the BNSF Alternative would be somewhat in character with the flat terrain and other nearby linear features such as the existing railroad and a canal. From this KVP, the level of change in visual quality from the BNSF Alternative, combined with the level of viewer sensitivity, would result in an impact of negligible intensity under NEPA and a less than significant impact under CEQA. The elevated guideway of the Ave 24 Wye and Ave 21 Wye, however, would be out of character with the viewed landscape. The elevated guideway would be the tallest feature in the viewed landscape and would intrude on views of tall trees in the background of the view. Because of the presence of the elevated guideway and obscured view of trees, visual quality would be reduced from moderate to low. For this KVP, the level of change in visual quality from the project, combined with level of viewer sensitivity, would result in an impact of substantial intensity under NEPA and a significant impact under CEQA.

6.2.3 Hybrid Alternative

The Hybrid Alternative would pass through seven landscape units: Merced Landscape Unit, Merced-Chowchilla Landscape Unit, West of SR 99 Landscape Unit (where the UPRR/SR 99 Alternative uses the West Chowchilla design option with the Ave 24 Wye), East of SR 99 Landscape Unit, Madera Acres Landscape Unit, Madera Acres-SR 99 Landscape Unit, and Fresno Landscape Unit. The visual quality evaluations for those landscape units would be the same as those previously discussed for the UPRR/SR 99 and BNSF alternatives. There also would be an increase in visual quality in areas around the Downtown Merced Station, as with all alternatives.

In the Merced, Merced-Chowchilla, Madera Acres-SR 99, and Fresno landscape units, impacts would be negligible under NEPA and less than significant under CEQA. In the East of SR 99 Landscape Unit, impacts would be moderate under NEPA and less than significant under CEQA (the same as under the BNSF Alternative). In the West of SR 99 and Madera Acres landscape units, impacts would be of substantial intensity under NEPA and significant under CEQA.

The Madera Acres Landscape Unit includes land along the HST alternative within Madera Acres. The visual quality in views within the landscape unit generally would be low with the project; the visual quality under existing conditions is moderately low. The elevated guideway and expanded rail corridor in Madera Acres would substantially affect the visual character in the area, where viewer sensitivity is high. Therefore, the impact on aesthetics and visual resources from this location would be of substantial intensity under NEPA and significant under CEQA.

As seen in the view from KVP 27, the Hybrid Alternative would be near the existing BNSF tracks and would expand the existing rail corridor into adjacent residential areas. Visual quality in views toward the study area would change from moderately low to low. It also would alter the edge of the community and adversely affect the area's visual character, where viewer sensitivity is assumed to be high. Therefore, the impact on aesthetics and visual resources from this location would be of substantial intensity under NEPA and significant under CEQA.

6.2.4 Heavy Maintenance Facilities

The proposed HMF sites are in areas that are agricultural and rural, or in the case of the proposed Castle Commerce Center site, industrial. Figure 5-2 shows the locations of the HMF sites. The Castle Commerce Center HMF site would be similar in character with nearby land uses. Typically, the HMF would include one large building of almost 730,000 square feet, smaller support buildings, maintenance shops, and storage areas, all on approximately 150 acres. Parking areas, rail lines, and internal circulation are all at-grade improvements that would have low visual impacts. Night lighting of parking lots and building surrounds for security would consist of downward-directed, full cutoff light fixtures, which would avoid or minimize night impacts from illumination. Additionally, the HMF would require strict access controls

around its borders and internally. Security fencing, berms, and landscaping would provide screening of the trains and facilities from viewers on adjacent highways and from nearby businesses or farms. However, the size and various facilities of the complex would present challenges to designing the HMF so that they would be compatible with nearby areas. The impact on aesthetics and visual resources from the HMF alternatives would be of moderate intensity under NEPA and less than significant under CEQA. The following sections describe the HMF sites and discuss their effects on aesthetics and visual resources.

6.2.4.1 Castle Commerce Center HMF Site and Key Viewpoints

There are five key viewpoints for the Castle Commerce Center HMF site: four are in Merced north of the Downtown Merced Station along the HST alignment, and one is on the HMF site. Locations of the KVPs are shown in Figure 5-2. If the Castle Commerce Center HMF site is selected, the HST guideway would be on an approximately 8-mile-long branch line along Santa Fe Avenue (County Road 37) that would lead to the HMF site. The length of this HST branch line is different from the other HMF sites. This branch line would extend from the Downtown Merced Station and layover area to the northwest and Atwater. The guideway north of the downtown station would parallel the UPRR and be on retained fill to Bear Creek. Street undercrossings, overcrossings, or closures would be required at as-yet unidentified locations in Merced, except as known for Martin Luther King Jr. Way adjacent to the station. Over and beyond Bear Creek, a stretch of elevated pier structure would be required for an overcrossing of the UPRR tracks, then going to at-grade, then elevated again to cross the BNSF tracks, then paralleling Santa Fe Avenue at-grade until returning to at-grade to the HMF site. The guideway would be consistent with the character of the existing railroad corridor that it would share, and the linear elevated element would be consistent with SR 99 on an embankment. The addition of overcrossings or undercrossings of the HST guideway in Merced would lower the visual quality of some views near the HST. The HST guideway would not substantially alter views from within designated historical areas. The guideway on retained fill of up to 20 feet through west of the Downtown Merced Station would block views of other parts of the city landscape, as does the existing SR 99 embankment. Shadow would be constant on the north side of the retained fill. The range of visual quality under existing conditions is moderate to moderately low, not only in Merced but also near the HMF site in Atwater. Viewer sensitivity in Merced is mostly moderate, but higher in residential areas (although they are away from the HST). Outside the city, viewer sensitivity is moderate to low. With the project, the visual quality of views within the landscape unit would range from moderate to low. The HMF site itself would not decrease visual quality for this landscape unit, and the portions through northwestern Merced would slightly decrease visual quality in that area. Therefore, the impact on aesthetics and visual resources from the Castle Commerce Center HMF Landscape Unit would be of negligible intensity under NEPA and less than significant under CEQA.

The lead tracks from the Downtown Merced Station to the HMF site would bisect residential neighborhoods along the way, but they are separated already by the railroad corridor and SR 99. From neighborhoods south of the HST and SR 99, some viewer sensitivity may be high, but overall is considered to be moderate. KVP 1 represents a typical neighborhood view (location is shown in Figure A-1). Looking north on Q Street, the guideway on retained fill would be partially obscured but visibly small above and beyond the SR 99 embankment. Trees along streets in the neighborhood also would partially obscure views. Visual quality would slightly decrease, but would remain moderate. Therefore, the impact on aesthetics and visual resources from the HST at KVP 1 would be of negligible intensity under NEPA and less than significant under CEQA.

KVP 2 of the Castle Commerce Center HMF site is a view of the grand boulevard of N Street, which provides a vista toward the HST alignment. The project simulation at KVP 2 (Figure A-2) illustrates the proposed HST guideway on retained fill. It would add a large-scale, linear feature to the portion of the view beyond the historic district and within the UPRR corridor. From this location, the Tioga Building and palm trees in the boulevard block a substantial portion of the HST guideway. The presence of the HST in this view would result in a less unified view. Overall visual quality would remain moderate. With the project, the existing features of the area would remain dominant in views, where viewer sensitivity is assumed to be moderate. The HST would be partially visible from the historic district; however, the HST does not pass through the historic district and follows an existing railroad corridor with adjacent new developments (general commercial, strip malls, etc.). Because the City of Merced has designated N Street

from 16th Street to the Merced County Courthouse, and M Street from 18th Street to Bear Creek, as scenic routes, CEQA significance criteria apply in this case specifically with respect to state scenic highways. The HST alignment, being in an established railroad corridor, would not substantially damage scenic resources or vistas. Therefore, the impact on aesthetics and visual resources from the HST at KVP 2 would be of negligible intensity under NEPA and less than significant under CEQA.

The visual simulation for KVP 3 depicts a retained fill alignment and undercrossing at R Street and W 16th Street. KVP 3 is approximately 1.75 miles northwest of the proposed Downtown Merced Station. R Street is one of several at-grade crossings that would be considered for an undercrossing of the HST on retained fill through Merced. Existing visual quality is moderately low at this location due to the rail corridor, strip development, parking lots, and low density of businesses along both cross streets. Street trees are sparse. With the HST Project, visual quality would slightly decrease, but would remain moderately low. The addition of the guideway on retained fill approximately 20 feet high at this location would visually separate the businesses on either side of the rail corridor, which already decreases the continuity of the landscape. The retained fill would block more distant views, but they are not of scenic value or interest. Shadow on the north side of the retained fill would be constant, but would not extend beyond the rail corridor or reduce visual quality in the view. The retained fill would add an element of larger and taller scale than the mostly low buildings and parking lots in the area, although its linearity would be consistent with the rail corridor. Viewer sensitivity ranges from moderate for business patrons and drivers on R Street to low for drivers along W 16th Street. Therefore, the impact on aesthetics and visual resources from the HST at KVP 3 would be of negligible intensity under NEPA and less than significant under CEQA.

KVP 4A is a view from SR 99 looking north along Martin Luther King Jr. Way. The simulation (Figure A-4A) shows the proposed Martin Luther King Jr. overcrossing (Phase 2) next to the proposed Downtown Merced Station and parking garage. The overcrossing would allow the HST to pass underneath and proceed through Merced to the Castle Commerce Center HMF at Atwater. The overcrossing would extend from Main Street to W 14th Street at a maximum height of approximately 38 feet. The overcrossing structure would partially obstruct the view of the Merced Cinema tower. The width of the new roadway would remove mature street trees as well as existing vegetation in the turn pockets on Martin Luther King Jr. Way. The overcrossing would be larger in scale than some existing nearby buildings, but not the HST station and parking garage. The overcrossing would dominate views along the nearby parts of Martin Luther King Jr. Way, especially north of W 16th Street. Visual quality in areas near the overcrossing would decrease from moderate to moderately low. Viewer sensitivity is assumed to be low to moderate (low for motorists, moderate for pedestrians), the impact on aesthetic and visual resources from the HST at KVP 4A would be of moderate intensity under NEPA and less than significant under CEQA.

KVP 31 is the representative view from Santa Fe Avenue (County Road 37) toward the Castle Commerce Center HMF site. The site is vacant and partially screened from land uses across the street. Because the site is near developed industrial and business properties, the facility would not be out of character with surrounding land uses and low-density development. Viewer sensitivity of drivers on the roadway and employees of nearby businesses is low. The HMF would not affect the moderate to moderately low visual quality in the vicinity of the Castle Commerce Center. Therefore, the impact on aesthetics and visual resources from the HST at KVP 31 would be of negligible intensity under NEPA and less than significant under CEQA.

6.2.4.2 Harris-DeJager HMF Site and Key Viewpoints

KVP 33 is the representative view of the Harris-DeJager HMF site. The HMF would be a new visual feature of industrial character, which would be somewhat consistent with the character of the surrounding agricultural landscape with large agricultural facilities. The site is adjacent to SR 99 and is surrounded by large parcels of agricultural lands. The site is removed from farm residences. Visual quality would decrease from moderate to moderately low. Viewer sensitivity is assumed to be low due to the low density of the population nearby and low driver awareness; however, some rural residents are assumed to have moderate sensitivity to such a change in land use. Therefore, the impact on aesthetics and visual

resources from this HMF would be of moderate intensity under NEPA and less than significant under CEQA.

6.2.4.3 Fagundes HMF Site and Key Viewpoints

KVP 34 is the representative view toward the Fagundes HMF site. The HMF would be a large visual feature of industrial character, which would be somewhat consistent with the surrounding agricultural landscape. In particular, there are some large-scale agricultural buildings nearby, across Ave 24 from the HMF, which moderates the degree of change to the landscape. Visual quality would decrease from moderate to moderately low. Viewer sensitivity is low due to the low density of the population nearby and viewing distance for drivers toward the facility from Ave 23 (SR 152). Ave 24, which the HMF would front, is a local road with less traffic volume than Ave 23 (SR 152). Therefore, the impact on aesthetics and visual resources from this HMF would be of negligible intensity under NEPA and less than significant under CEQA.

6.2.4.4 Gordon-Shaw HMF Site and Key Viewpoints

KVP 35 is the representative view toward the Gordon-Shaw HMF site. The HMF would be a large visual feature of industrial character, which would be somewhat consistent with the visual character of the surrounding landscape. The landscape nearby includes a small commercial strip surrounded by agricultural lands. The moderately high visual quality would decrease to moderate with the project. Viewer sensitivity is assumed to be moderate because of the businesses opposite the proposed facility, and moderate driver awareness upon entering a commercial zone. Few residents are in the vicinity of the project. The low-density habitation of the surrounding area is assumed to have residents with low sensitivity. Therefore, the impact on aesthetics and visual resources from this HMF would be of moderate intensity under NEPA and less than significant under CEQA.

6.2.4.5 Kojima Development HMF Site and Key Viewpoints

KVP 36 is the representative view from the Kojima Development HMF site. The HMF would be a large visual feature of industrial character, which would be somewhat consistent with the surrounding agricultural landscape and large agricultural facilities. Visual quality would decrease from moderately high to moderate. This area is sparsely populated. Drivers on SR 99 through an agricultural area would have moderate sensitivity to the abrupt change in visual character, and the few rural residents in the area are assumed to have high sensitivity. Therefore, the impact on aesthetics and visual resources from this HMF would be of moderate intensity under NEPA and less than significant under CEQA.

6.2.5 Summary of Visual Quality Changes with Project

Table 6-2 compares the visual quality assessments for KVPs under existing conditions with visual quality assessments for KVPs with the project. Appendix B provides the visual quality ratings (i.e., the scores for each KVP that were assessed and aggregated to evaluate visual quality under existing and proposed conditions).

Table 6-2
 Comparison of Visual Quality between Existing and Simulated Views from Key Viewpoints

Landscape Unit, KVP Location	KVP	View	Vividness	Intactness	Unity	Overall Visual Quality
Merced Landscape Unit – UPRR/SR 99, BNSF, Hybrid Alternatives						
Martin Luther King Jr. Ave. and W Main St	KVP 4	Existing	Moderately low	Moderately low	Moderately low	Moderately low
		With Project	Moderately low	Moderate	Moderate	Moderate
SR 99 at E 15th St	KVP 5	Existing	Moderately low	Moderate	Moderately low	Moderately low
		With Project	Moderately low	Moderately low	Moderately low	Moderately low
Merced-Chowchilla Landscape Unit – UPRR/SR 99, Hybrid Alternatives						
SR 99	KVP 6	Existing	Moderate	Low	Moderate	Moderately low
		With Project	Moderately low	Low	Moderate	Moderately low
Chowchilla Landscape Unit – UPRR/SR 99 Alternative						
Ash Slough	KVP 7	Existing	Moderately high	Moderately high	Moderately high	Moderately high
		With Project	Moderately low	Moderately low	Moderate	Moderate
Robertson Blvd	KVP 8	Existing	Moderately low	Moderately low	Moderate	Moderately low
		With Project	Moderately low	Moderately low	Moderate	Moderately low
Chowchilla-Madera Landscape Unit – UPRR/SR 99 Alternative						
Fairmead	KVP 9	Existing	Moderately low	Low	Moderately low	Moderately low
		With Project	Moderately low	Low	Low	Low
Madera Landscape Unit – UPRR/SR 99 Alternative						
Rotary Park	KVP 10	Existing	Moderately low	Low	Moderate	Moderately low
		With Project	Moderately low	Low	Moderate	Moderately low
W Yosemite Avenue	KVP 11	Existing	Moderately low	Low	Moderate	Moderately low
		With Project	Moderately low	Low	Moderately low	Low

Landscape Unit, KVP Location	KVP	View	Vividness	Intactness	Unity	Overall Visual Quality
E 11th Street	KVP 12	Existing	Moderately low	Low	Moderately low	Moderately low
		With Project	Moderately low	Low	Low	Low
Madera-Fresno Landscape Unit – UPRR/SR 99 Alternative						
SR 99	KVP 13	Existing	Low	Moderately low	Low	Low
		With Project	Low	Moderate	Moderate	Low
Fresno Landscape Unit – UPRR/SR 99, BNSF, Hybrid Alternatives						
San Joaquin River	KVP 14	Existing	Moderate	Low	Low	Low
		With Project	Moderate	Very Low	Low	Low
Camp Pashayan	KVP 15	Existing	Moderate	Moderately low	Moderate	Moderate
		With Project	Moderate	Moderately low	Moderately low	Moderately low
Roeding Park (N Golden State Blvd)	KVP 16A	Existing	Moderately high	Moderate	Moderately high	Moderate
		With Project	Moderately high	Moderate	Moderate	Moderate
Roeding Park (W Olive Ave)	KVP 16B	Existing	Moderately high	Moderate	Moderately low	Moderate
		With Project	Moderately high	Moderate	Moderate	Moderate
N Vagedes Ave	KVP 17	Existing	Moderate	Moderately high	High	Moderately high
		With Project	Moderate	Moderately high	High	Moderately high
Chukchansi Park	KVP 18	Existing	Low	Low	Low	Low
		With Project (East)	Moderate	Moderately low	Moderately low	Moderately low
Chukchansi Park	KVP 19	Existing	Low	Low	Low	Low
		With Project (West)	Moderate	Moderately low	Moderately low	Moderately low
West of SR 99 Landscape Unit – UPRR/SR 99, BNSF, Hybrid Alternatives						
Avenue 21	KVP 20	Existing	Moderate	Moderately low	Moderate	Moderate
		With Project	Moderately low	Low	Low	Low
Chowchilla Blvd	KVP 21	Existing	Moderately low	Moderately low	Moderately low	Moderately low
		With Project	Moderately low	Moderately low	Low	Low

Landscape Unit, KVP Location	KVP	View	Vividness	Intactness	Unity	Overall Visual Quality
SR 152	KVP 22	Existing	Low	Moderately low	Moderately low	Moderately low
		With Project	Low	Very Low	Moderately low	Low
Merced-Le Grand Landscape Unit – BNSF Alternative						
SR 99	KVP 23	Existing	Moderately high	Moderately low	Moderate	Moderate
		With Project	Moderate	Low	Low	Moderately low
E Mariposa Way	KVP 24	Existing	Moderate	Moderate	Moderately high	Moderate
		With Project	Low	Moderate	Moderately low	Moderately low
Le Grand Landscape Unit – BNSF Alternative						
Marshall St	KVP 25	Existing	Moderately low	Moderate	Moderately low	Moderately low
		With Project	Low	Low	Low	Low
Le Grand-Madera Acres Landscape Unit – BNSF Alternative						
Buchanan Hollow Rd	KVP 26	Existing	Moderately high	Moderate	Moderately high	Moderately high
		With Project	Very low	Low	Moderate	Low
Madera Acres Landscape Unit – BNSF, Hybrid Alternatives						
Avenue 18¾	KVP 27	Existing	Moderately low	Moderately low	Moderate	Moderately low
		With Project	Low	Low	Low	Low
Madera Acres-SR 99 Landscape Unit – BNSF, Hybrid Alternatives						
Avenue 7	KVP 28	Existing	Moderately high	Moderately high	High	Moderately high
		With Project	Moderate	Moderately Low	Moderately high	Moderate
East of SR 99 Landscape Unit – BNSF, Hybrid Alternatives						
Road 19½	KVP 29	Existing	Moderately low	Moderate	Moderately low	Moderately low
		With Project	Moderately low	Low	Moderately low	Moderately low
Avenue 19	KVP 30	Existing	Moderate	Moderately high	Moderate	Moderate
		With Project	Moderately low	Low	Low	Low
HMF Sites Landscape Unit						
Q St	KVP 1	Existing	Moderate	Moderate	Moderately high	Moderate
		With Project	Moderate	Moderately low	Moderately high	Moderate

Landscape Unit, KVP Location	KVP	View	Vividness	Intactness	Unity	Overall Visual Quality
N St	KVP 2	Existing	Moderate	Moderately low	Moderate	Moderate
		With Project	Moderate	Moderately low	Moderately high	Moderate
R St	KVP 3	Existing	Moderately low	Moderately low	Moderately low	Moderately low
		With Project	Moderately low	Moderately low	Moderately low	Moderately low
SR 99 at Martin Luther King Jr. Way	KVP 4A	Existing	Moderate	Moderate	Moderate	Moderate
		With Project	Moderately low	Moderately low	Moderately low	Moderately low
Santa Fe Ave	KVP 31	Existing	Moderately low	Moderately high	Moderate	Moderate
		With Project	Moderately low	Moderate	Moderate	Moderate
Franklin Road	KVP 32	Existing	Moderate	Moderately low	Moderately low	Moderately low
		With Project ^a	N/A	N/A	N/A	N/A
SR 99	KVP 33	Existing	Moderately low	Moderate	Moderately low	Moderate
		With Project	Moderately low	Moderately low	Moderately low	Moderately low
SR 152	KVP 34	Existing	Moderate	Moderate	Moderate	Moderate
		With Project	Moderately low	Moderately low	Moderately low	Moderately low
Avenue 18½	KVP 35	Existing	Moderately low	Moderately high	Moderate	Moderately high
		With Project	Moderately low	Moderately high	Moderate	Moderate
Santa Fe Ave	KVP 36	Existing	Moderate	Moderately high	High	Moderately high
		With Project	Moderate	Moderately low	Moderate	Moderate

^a Not applicable because the view does not include the HST branch line to the Castle Commerce Center HMF site.

N/A = Not applicable

6.3 Impacts Summary

Impact discussions in this technical report are by alternative for the construction and project phases of the project. This section discusses impacts common to the UPRR/SR 99, BNSF, and Hybrid alternatives, followed by impacts specific to each HST alternative. This section also discusses impacts related to station areas and HMF sites. The determination of impacts for the landscape unit recognizes that not all KVPs in the landscape unit necessarily would have the same determinations of impacts. The landscape unit determination and assessment were based on the KVPs as important viewing locations and representative samples of visual quality with and without the HST Project, tempered by the existing

predominant landscape character and range of visual quality and viewer sensitivity throughout the landscape unit.

6.3.1 No Project Alternative

Much of the growth in the study area is anticipated to be suburban in nature (see Section 3.18, Regional Growth). This growth would add additional residential and commercial developments and associated infrastructure to the viewed landscape. A number of proposed projects would influence the future visual character of the study area. These projects would also increase sources of evening light and glare that could degrade nighttime views. It is assumed that these developments will be suburban in character and given existing design guidelines, will likely have at least moderate visual quality. Such developments tend to offer relatively high degrees of internal unity and intactness. In some locations, views toward open spaces, agricultural fields, and the Sierra Nevada Mountains may be reduced or blocked entirely by new structures associated with the new developments. In addition to new greenfield development (which occurs on undeveloped or agricultural lands, thus changing the area's character), redevelopment activities may result in the alteration of historical structures that add interest and contribute a unique character to the urban fabric of parts of the study area and could change these viewed landscapes.

The No Project Alternative would include the widening and expansion of SR 99 and development patterns associated with projected growth. Widening transportation corridors does not necessarily degrade a corridor's visual quality, but the indirect effects of opening adjacent lands to freeway-oriented commercial development, to the extent permitted by local agencies, and increasing the number of billboard-type signage could include the incremental degradation of expansive views toward the existing agricultural landscape.

Although some redevelopment may occur in the Merced and Fresno downtown areas, based on recent past development patterns, the No Project Alternative would not include an economic incentive to concentrate urban growth in the downtown areas. Therefore, the No Project Alternative does not represent improvements to the generally moderate to moderately low visual quality in these areas.

6.3.2 HST Alternatives

6.3.2.1 Construction Period Impacts

Temporary construction activities would include pile driving, partial or total road and lane closures, detours (vehicular and pedestrian), partial/limited vehicle access on nearby roads, materials and equipment deliveries, and potentially establishing one or more concrete batch plants, where concrete would be prepared for use in nearby project construction. Most of the staging sites would be located adjacent to the proposed HST alignment, in areas that are generally rural or industrial in nature. Equipment and earthmoving activities are not visually intrusive in these types of settings. In urban areas, staging areas would be largest at the HST stations. Both HST stations would be adjacent to the UPRR right-of-way, where adjacent land uses are accustomed to freight and industrial movements.

The construction mitigation measures listed below for aesthetics and visual resources are consistent with mitigation measures for similar scale transportation projects, and have proven to be effective in minimizing impacts noted above.

VQ-MM#1: Minimize Visual Disruption During Construction and from Construction Activities.

Adhere to local jurisdiction construction requirements (if applicable) regarding construction-related visual/aesthetic disruption. In order to minimize visual disruption, construction will employ the following activities:

- Minimize pre-construction clearing to that necessary for construction.
- Limit the removal of buildings to those that would obstruct project components.

- When possible, preserve existing vegetation, particularly vegetation along the edge of construction areas that may help screen views.
- After construction, regrade areas disturbed by construction, staging, and storage to original contours and revegetate with plant material similar (in replacement numbers and types) to that which was removed upon completion of construction based upon local jurisdictional requirements. If there are no local jurisdictional requirements, replace removed vegetation at a 1:1 replacement ratio for shrubs and small trees, and 2:1 replacement ratio for mature trees. For example, if 10 mature trees in an area are removed, replant 20 younger trees that would provide similar cover prior to construction, and which may be thinned as they mature.
- To the extent feasible, do not locate construction staging sites within immediate foreground distance (0 to 500 feet) of existing residential, recreational, or other high-sensitivity receptors. Where such siting is unavoidable, staging sites will be screened from sensitive receptors using appropriate solid screening materials such as temporary fencing and walls. Any graffiti or visual defacement of temporary fencing and walls will be painted over or removed within 5 business days.

VQ-MM#2: Minimize Light Disturbance During Construction. Where construction lighting will be required during nighttime construction, shield such lighting and direct it downward in such a manner that the light source is not visible offsite, and so that the light does not fall outside the boundaries of the project site to avoid light spillage offsite.

Because these effects would be temporary, they are considered of negligible intensity under NEPA and less than significant under CEQA. Although the construction period effects would be similar under all HST alternatives, the visual degradation would be more noticeable in urban areas adjacent to residences and parks. Each HST alternative would substantially affect the Merced and Fresno downtown areas during construction. The UPRR/SR 99 Alternative would also affect Downtown Madera, Chowchilla, and Fairmead; and the BNSF Alternative would affect Le Grand and Madera Acres. The Hybrid Alternative would affect only the Merced and Fresno downtown areas, Fairmead, and Madera Acres. The HMF sites, whether in industrial, urban, or rural areas, would have temporary construction impacts similar to those of the HST alternatives.

6.3.2.2 Project Impacts

This analysis focuses on common components of the HST alternatives (see Table 6-1) that can have direct impacts by changing the character of the landscape and lowering existing visual quality categories. Because no officially designated state scenic highways exist near the HST alternatives, no impacts on such resources exist, and this technical report does not discuss them further. Similarly, impacts related to new light and glare sources, such as general illumination and flashing warning lights, are not discussed further because project design features would avoid and minimize impacts. The proposed HST stations in Merced and Fresno would be designed to direct lighting downward. No overhead lights on the HST guideway would exist, and train lights would shine toward the guideway. Section 7 discusses these measures. Shadows manifest from tall and planar components of the HST, particularly piers, retaining walls, and sound barriers. However, the duration and size of shadows vary throughout the day as do their effects. Sound barriers required to mitigate impacts from noise could be visual barriers, depending on their design. These visual impacts would be common to the HST alternatives, and mitigation measures are discussed below.

Sound barriers are required to mitigate impacts from noise. Sound barriers, as well as retaining walls, can be visual barriers that can contribute to visual degradation, especially when installed at-grade and in proximity to moderately to highly sensitive viewers. Their impact will vary depending upon their design, height, and location. However, sound barriers at ground level are typically installed in urban areas containing features in the landscape such as buildings, trees, signs, vehicles, overpasses, etc., that already block or intrude on scenic views (which, when present, are often distant views). Existing features also can block views of the ground-level sound barriers. Visual quality impacts from ground-level sound barriers can be avoided or minimized by incorporating aesthetic design features and vegetative screening.

Sound barriers may be entirely solid or transparent or a combination of the two. When sound barriers are required on elevated guideways, they are installed on top of guideway walls, and are not of such additional height as to block views of ground-based features from the vicinity of the guideway that are already blocked by the other guideway structures. The visual simulations in Appendix A show sound barriers as solid walls in some cases, and as tinted transparent barriers in others. The final locations, materials, and physical appearance of the sound barriers have not yet been determined, but could be colored and textured to be sensitive to context. The simulations provide an example of how the barriers may appear, but their actual appearance will not be determined until final design.

The HST stations in Merced and Fresno would create a beneficial change in visual character when viewed from adjacent downtown locations. The indirect effects of the project would be most noticeable at the HST stations and are expected to result in an overall increase in visual quality. The HST Project would also increase the potential for economic incentives through new development and redevelopment in areas near the HST stations. This is because the HST Project would create a new destination attraction and would energize nearby areas because of people either using the HST or being drawn to the HST station areas. This would likely influence development patterns near the stations and could result in new projects and urban design improvements that would increase the appeal of these areas over time. In residential, railroad, highway, and industrial areas, no indirect effects are anticipated.

None of the HMF landscape units would have substantial or significant adverse impacts on aesthetic and visual resources because none meet the threshold for such impacts determined by viewer sensitivity and reductions in visual quality. Indirect impacts of the HMFs would be remote, far into the future, and highly speculative based upon actions by local governments and adjacent landowners.

Table 6-3 lists the impacts during operation for the HST alternatives.

Table 6-3
 Impacts during Operation of the HST Alternatives

Impact	Alternative		
	UPRR/ SR 99	BNSF	Hybrid
VQ#3: Lower Visual Quality in the Chowchilla-Madera Landscape Unit. The UPRR/SR 99 Alternative would create a permanent elevated guideway in front of a church and a residential neighborhood in Fairmead. No other alternative would have this effect.	X		
VQ#4: Lower Visual Quality in the Madera Landscape Unit. The UPRR/SR 99 Alternative would create a permanent elevated guideway as the tallest structure in the downtown historical core. No other alternative would have this effect.	X		
VQ#5: Lower Visual Quality in the West of SR 99 Landscape Unit. Each alternative using the Ave 24 Wye would degrade the visual quality with a large overcrossing of SR 233, a locally designated scenic and historical corridor.	X	X	X
VQ#6: Lower Visual Quality in the West of SR 99 Landscape Unit. Each alternative using the Ave 21 Wye would degrade the visual quality with a large road overcrossing of the HST that would remove orchards and fields and block views.	X	X	X
VQ#7: Lower Visual Quality in the Merced-Le Grand Landscape Unit. The BNSF Alternative would require roadway overcrossings, which would be supported by relatively large mounds of earth retained by walls. Construction of the overcrossings would remove orchards and block views in a locally designated scenic corridor. No other alternative has this effect at this location.		X	

Impact	Alternative		
	UPRR/ SR 99	BNSF	Hybrid
VQ#8: Lower Visual Quality in the Le Grand Landscape Unit. Visual quality would degrade from any of the BNSF Alternative design options through or east of Le Grand. This effect does not occur under other alternatives.		X	
VQ#9: Lower Visual Quality in the Le Grand-Madera Landscape Unit. The BNSF Alternative would require an overcrossing at Buchanan Hollow Road and Santa Fe Avenue, which would block panoramic views toward the Sierra Nevada Mountains. This effect does not occur under the UPRR/SR 99 and Hybrid alternatives.		X	
VQ#10: Lower Visual Quality in the Madera Acres Landscape Unit. The BNSF and Hybrid alternatives would degrade residential neighborhoods and require a large overcrossing of the HST alignment and existing BNSF tracks. This effect does not occur under the UPRR/SR 99 Alternative.		X	X
VQ#11: Sound Barriers and Retaining Walls Would Block Views (all landscape units). All the alternatives would equally require the use of sound barriers along the guideway and retaining walls with overcrossings in urbanized areas, potentially blocking existing views, depending on the wall height, location, and materials of the barrier.	X	X	X
VQ#12: Traction Power Distribution Stations Would Alter Visual Character or Block Views in the Merced-Le Grand, Le Grand-Madera Area, Merced-Chowchilla, Madera Area, and Madera-Fresno Landscape Units. All of the alternatives would require the placement of stations at approximately 30-mile intervals along the alignment, which would potentially alter the visual character of adjacent land and/or block views toward areas beyond the alignment, depending on the size and location of the stations.	X	X	X

6.4 Mitigation Measures

The project will include avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program. Along with a number of more specific design guidelines and solutions, a general mitigation strategy will include design of the proposed facilities so that they are attractive and appropriately integrated into their settings, reduce potential view blockage and blight (such as in residential neighborhoods or downtown core areas), and minimize light/shadow impacts. The time it will take to establish these mitigation measures and the effort it will require to maintain them are two performance criteria that will be considered in selecting the site-specific mitigation measures. For example, mitigation will be achieved more quickly when fast-growing species of vegetation are selected and irrigation is applied; mitigation will be maintained longer when the durability and ease of cleaning is factored into the construction materials. The selection of native vegetation and use of surface coatings that are resistant to weather and graffiti are specific examples of addressing performance criteria. Some visual impact mitigation measures are already addressed in the Parks, Recreation, and Open Space section of the Final Project EIR/EIS (Authority and FRA 2012); therefore, those measures are already assumed and not repeated. In addition, Caltrans’ policy encourages landscaping within the state right-of-way to mitigate visual impacts. These mitigation strategies will be refined and applied in coordination and collaboration with interested parties and local jurisdictions. The mitigation measures below will be further reviewed, refined, and applied as design progresses and permits are obtained.

The Authority will work with local jurisdictions to develop appropriate visual/aesthetic treatments. These treatments will need to reflect reasonable costs and meet engineering design parameters. Appropriate

treatments will vary by location, but will be compatible with the context of areas adjacent to them. Treatments may include some or all of the following:

- Fencing or screening.
- Vegetation around guideway structures, columns, and other project components, such as HMFs and traction power distribution stations.
- Colors, patterns, and textures on guideway structures, columns, and noise barriers.
- Pavement treatments at stations.

The following sections describe mitigation measures that will further lessen the impacts on aesthetics and visual resources that have been identified above.

6.4.1 Construction Period Mitigation Measures

The construction mitigation measures listed below for aesthetics and visual resources are consistent with mitigation measures for similar scale transportation projects, and have proven to be effective in minimizing impacts noted in Section 6.3 above.

VQ-MM#1: Minimize Visual Disruption During Construction and from Construction Activities.

Adhere to local jurisdiction construction requirements (if applicable) regarding construction-related visual/aesthetic disruption. In order to minimize visual disruption, construction will employ the following activities:

- Minimize pre-construction clearing to that necessary for construction.
- Limit the removal of buildings to those that would obstruct project components.
- When possible, preserve existing vegetation, particularly vegetation along the edge of construction areas that may help screen views.
- After construction, regrade areas disturbed by construction, staging, and storage to original contours and revegetate with plant material similar (in replacement numbers and types) to that which was removed upon completion of construction based upon local jurisdictional requirements. If there are no local jurisdictional requirements, replace removed vegetation at a 1:1 replacement ratio for shrubs and small trees, and 2:1 replacement ratio for mature trees. For example, if 10 mature trees in an area are removed, replant 20 younger trees that would provide similar cover prior to construction, and which may be thinned as they mature.
- To the extent feasible, do not locate construction staging sites within immediate foreground distance (0 to 500 feet) of existing residential, recreational, or other high-sensitivity receptors. Where such siting is unavoidable, staging sites will be screened from sensitive receptors using appropriate solid screening materials such as temporary fencing and walls. Any graffiti or visual defacement of temporary fencing and walls will be painted over or removed within 5 business days.

VQ-MM#2: Minimize Light Disturbance During Construction. Where construction lighting will be required during nighttime construction, shield such lighting and direct it downward in such a manner that the light source is not visible offsite, and so that the light does not fall outside the boundaries of the project site to avoid light spillage offsite.

6.4.2 Project Mitigation Measures

Mitigation measures for operational impacts on aesthetics and visual resources are consistent with those approaches discussed in Chapter 7 of the FHWA (1988) visual impacts guidance manual. That manual discusses various landscapes and elements of the built and natural environments associated with similar

scale transportation projects. The manual indicates (page 101) that highway agencies must coordinate environmental assessment activities with subsequent design, construction, and maintenance phases of the project to ensure the full realization of any mitigation actions. The mitigation measures have proven to be effective in minimizing the impacts noted above.

VQ-MM#3: Incorporate Design Criteria for Elevated and Station Elements That Can Adapt to Local Context. The Authority's Urban Design Guidelines for the California High Speed Train Project (Authority 2011) briefly discusses the principles of context-sensitive solutions to guide the design of stations. This approach is equally applicable to elevated guideways and will be employed to mitigate visual impacts through context-sensitive design. *Aesthetic Guidelines for Non-Station Structures* (TM 200-06; Authority 2012) will also guide design of the HST components.

During final design of elevated guideways and the Merced and Fresno stations, the Authority will coordinate with local jurisdictions on the design of these facilities so that they are designed appropriately to fit in with the visual context of the areas near them. This will include the following activities:

- For stations: During the station design process, establish a local consultation process with the City of Merced and the City of Fresno to identify and integrate local design features into the station design through a collaborative context-sensitive solutions approach. The process will include activities to solicit community input in their respective station areas. This effort will be coordinated with the station area planning process that will be undertaken by those cities under their station area planning grants.
- For elevated guideways in cities or unincorporated communities: During the elevated guideway design process, establish a process with the city or county with jurisdiction over the land along the elevated guideway to advance the final design through a collaborative context-sensitive solutions approach. The participants in the consultation process (working groups) will meet on a regular basis to develop a consensus on the urban design elements to be incorporated into the final guideway designs. The process will include activities to solicit community input in the affected neighborhoods.

Actions taken to help achieve integration with the local design context during the context-sensitive solutions process will include the following:

- Design HST stations and associated structures such as elevators, escalators, and walkways to be attractive architectural elements or features that add visual interest to the streetscapes near them.
- Design HST station parking structures and adjacent areas to integrate visually into the areas where they would be located. Where the city has adopted applicable downtown design guidelines, the parking structures and adjacent areas will be designed to be compatible with the policies and principles of those guidelines.
- For the elevated guideways and columns, incorporate architectural elements, such as graceful curved or tapered sculptural forms and decorative surfaces, to provide visual interest. Include decorative texture treatments on large-scale concrete surfaces such as parapets and other portions of elevated guideways. Include a variety of texture, shadow lines, and other surface articulation to add visual and thematic interest. Closely coordinate the design of guideway columns and parapets with station and platform architecture to promote unity and coherence where guideways lie adjacent to stations. The designs within cities and unincorporated communities will reflect the results of the context-sensitive solutions design process.
- Integrate trees and landscaping into the station streetscape and plaza plans where possible to soften and buffer the appearance of guideways, columns, and elevated stations. This will be consistent with the principles of crime prevention through environmental design.
- For the stations, structures, and related open spaces, incorporate design features that provide interest and reflect the local design context. These features could include landscaping, lighting, and public art.

During the context-sensitive solutions design process, the HST Project's obligations and constraints related to planning, mitigation, engineering, performance, funding, and operational requirements will be taken into consideration.

VQ-MM#3a: Integrate the Elevated Guideways with Affected City Parks, Trails, and Urban Core Design Guidelines. During development of the final design, the Authority will work with the affected cities and counties to develop a project site and landscape design plan for the areas disturbed by the project. These plans will implement the design features as a result of VQ-MM#3. Where park properties will be acquired for the HST Project, the Authority will provide financial compensation to the city or county within which the park property is located for the purchase and development of equivalent park property within the city or unincorporated area. Where appropriate, and as consistent with the design features, the Authority will work with the applicable city or county to develop pedestrian trails or paths under the elevated guideways.

In urbanized areas, the Authority will work with the affected cities and counties (for unincorporated communities) to determine the appropriate and allowable development or use of areas within the HST right-of-way under the guideways. The city or county will be responsible for amending its zoning ordinance, if necessary, to provide for these uses. This zoning would include provisions to implement the design features developed under VQ-MM#3.

VQ-MM#3b: Screen Elevated Guideways Adjacent to Residential Areas. Consistent with the design features developed under VQ-MM#3, the Authority will plant trees along the edges of the rights-of-way in locations adjacent to residential areas. This will help reduce the visual contrast between the elevated guideway and the residential area. The species of trees to be installed will be selected on the basis of their mature size and shape, growth rate, hardiness, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The crowns of trees used should ultimately be tall enough so that, upon maturity, they will partially or fully block or screen views of the elevated guideway from adjacent at-grade areas. Trees should allow ground-level views under the crowns (with pruning if necessary), while not interfering with the 15-foot clearance requirement for the guideway. The trees will be continuously maintained, and appropriate irrigation systems will be installed within the tree planting areas.

VQ-MM#4: Replant Unused Portions of Lands Acquired for the HST. After construction is complete, the Authority will plant vegetation within lands acquired for the project (e.g., shifting roadways) that are not used for the HST or related supporting infrastructure. Plantings will allow adequate space between the vegetation and the HST alignment and catenary lines. All street trees and other visually important vegetation removed in these areas during construction will be replaced with similar vegetation that, upon maturity, will be similar in size and character to the removed vegetation. The vegetation will be continuously maintained, and appropriate irrigation systems will be installed within the planting areas. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaped areas will be continuously maintained, and appropriate irrigation systems will be installed.

VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST. Upon the completion of construction, the Authority will plant the surface of the ground supporting the overpasses (slope-fill overpasses) and retained fill elements with vegetation consistent with the surrounding landscape in terms of vegetative type, color, texture, and form. During final design, the Authority will consult with the affected cities and counties regarding the landscaping program for planting the slopes of the overcrossings and retained fill. Plant species will be selected on the basis of their mature size and shape, growth rate, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained, and appropriate irrigation systems will be installed, if needed. Where wall structures supporting the overpasses or retained fill are proposed, the structure will employ architectural details and low-maintenance trees and other vegetation to screen the structure, minimize graffiti, and reduce the effects of large walls. Surface coatings will be used on wood and concrete to facilitate

cleaning and the removal of graffiti. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable time after notification.

VQ-MM#6: Provide Sound Barrier Treatments. The Authority will design a range of sound barrier treatments for visually sensitive areas, such as areas where residential views of open landscaped areas would change or in urban areas where sound barriers would adversely affect the existing character and setting. The Authority will develop the treatments during final design and integrate them into the final project design. The treatments will include, but are not limited to, the following:

- Sound barriers along elevated guideways may incorporate transparent materials where sensitive views would be adversely affected by solid sound barriers.
- Sound barriers will use non-reflective materials and will be of a neutral color.

Surface design enhancements and vegetation appropriate to the visual context of the area will be installed with the sound barriers. Vegetation will be installed consistent with the provisions of VQ-MM#5. Surface enhancements will be consistent with the design features developed under VQ-MM#3, and will include architectural elements (i.e., stamped pattern, surface articulation, and decorative texture treatment) as determined acceptable to the local jurisdiction. Surface coatings will be used on wood and concrete sound barriers to facilitate cleaning and the removal of graffiti.

VQ-MM#7: Screen Traction Power Distribution Stations and HMF. Upon completion of station or HMF construction, the Authority will screen the traction power substations (which are located at approximately 30-mile intervals along any of the HST alternatives) and HMF from public view through the use of landscaping or solid walls/fences. This will consist of context-appropriate landscaping of a type and scale that does not draw attention to the station. Plant species will be selected on the basis of their mature size and shape, growth rate, hardiness, and drought tolerance. No species that is listed on the Invasive Species Council of California's list of invasive species will be planted. The landscaping will be continuously maintained, and appropriate irrigation systems will be installed within the landscaped areas. Walls will be constructed of cinder-block or similar material and will be painted a neutral color to blend in with the surrounding context. If a chain-link or cyclone fence is used, it will include wood slats in the fencing. Any graffiti or visual defacement or damage of fencing and walls will be painted over or repaired within a reasonable period as agreed between the Authority and local jurisdiction.

None of the mitigation measure options are anticipated to result in secondary effects. The mitigation measures are typical of those elements of visual treatments applied on linear transportation facilities; they have been defined to be specific in range and implementable according to the context, and in coordination with local jurisdictions.

6.5 NEPA Impacts Summary

The No Project Alternative would include changes unrelated to the project, such as SR 99 expansion, additional roadways, and additional development, which could also affect aesthetics and visual resources. Widening transportation corridors does not necessarily degrade a corridor's visual quality, but the indirect effects of opening adjacent lands to freeway-oriented commercial development, to the extent permitted by local agencies, and increasing the number of billboard-type signage could include the incremental degradation of expansive views toward the existing agricultural landscape. Collectively, these changes result in an impact of moderate intensity in areas that generally do not include high visual quality and along corridors with few sensitive viewers; therefore, the incremental changes would be significant under NEPA.

All HST alternatives would have temporary impacts related to new sources of light and glare during construction. These impacts are of negligible intensity and since they are localized, temporary, and with appropriate mitigation, minimized; they are not significant under NEPA.

The evaluation takes into account the context of the existing visual quality (whether it has a high, medium or low visual quality), the presence of sensitive viewers and the duration of the impact. The project effects on a landscape unit are permanent infrastructure, particularly the portions with elevated structures (because of their size) which can be seen from many view corridors affecting the local environment and views. A contributing component to the visual effects is placement of sound barriers. Impacts from sound barriers due to view blockage could be mitigated somewhat by the use of transparent materials for those on elevated structures; for those along an at-grade portion, various surface treatments and vegetative screening would be applied as necessary. Regardless, these components contribute to the visual blockage and overall impact on the visual quality for an effect of moderate and substantial intensity. An at-grade profile tends to result in a negligible or moderate intensity depending on surrounding visual quality.

The summary of effects of negligible, moderate, and substantial visual changes and viewer sensitivity is recorded in Table 5-16. Based on the context of existing visual quality and presence of sensitive viewers (as recorded in Table 5-16), a visual effect of substantial intensity in the following landscape units would result in a significant effect under NEPA:

- Chowchilla-Madera Landscape Unit for the UPRR/SR 99 Alternative.
- Madera Landscape Unit for the UPRR/SR 99 Alternative.
- West of SR 99 Landscape Unit for all alternatives.
- Merced-Le Grand Landscape Unit for the BNSF Alternative.
- Le Grand Landscape Unit for the BNSF Alternative.
- Le Grand-Madera Acres Landscape Unit for the BNSF Alternative.
- Madera Acres Landscape Unit for the BNSF Alternative.
- East of SR 99 Landscape Unit for the BNSF and Hybrid alternatives.

At the stations, all alternatives possess the ability to improve the visual quality in the Merced and Fresno downtown urban centers for an effect of substantial intensity. These are also areas of high viewer sensitivity and the change would be long in duration and may result in contributing to other aesthetic improvement by being a catalyst for new development. Together, this results in a significant beneficial effect under NEPA.

The architecture of the HST stations and landscape improvements in Merced and Fresno proximate to the stations would enhance the visual quality to a level of significant beneficial impacts under NEPA. Furthermore, the indirect impacts of the HST stations could reach beyond the immediate station area and increase the overall visual quality of the larger downtown area. The HST Project would increase the potential for economic incentives through new development and redevelopment in the HST station areas. This is because the HST Project would create a new destination attraction and energize areas near it from people either using the HST or being drawn to the HST station areas. This would likely influence urban design to include treatments establishing vividness, highly engaging designs, and uniformity over time. In residential, railroad, highway, and industrial areas, the train would pass through non-stop, and no indirect effects would be anticipated. Land use and visual character are already consistent with these types of linear infrastructure.

The HMF sites would result in changes of negligible intensity on aesthetic and visual resources. Physical and vegetative screening could reduce visual impacts. Land use regulations could avoid or minimize the potential for any indirect effects to the visual character and quality of rural areas from other types of industrial development that might be encouraged by location of an HMF. These facilities are proposed in rural areas where large agricultural distribution facilities are common. They would not result in blocking views; lighting would be downward in direction, so changes to the landscape would be of negligible intensity and would not be significant under NEPA.

With the traction power substations, there could be impacts with substantial, moderate, or negligible intensity on aesthetics and visual resources, depending on the size and location of the stations. However, these facilities are located distant from sensitive viewers or can be screened such that over time they become integrated into the landscape. Mitigation with physical or vegetative screening and location

selection will be effective methods to avoid or minimize impacts to moderate or negligible intensity and would not be significant under NEPA.

6.6 CEQA Significance Conclusions

Under CEQA, the project would have significant impacts on the same landscape units as those listed under Section 6.5, NEPA Impacts Summary. Conclusions of significant or less than significant impacts under CEQA are based on the same rationale and preponderance of degradation as stated for impacts under NEPA (above). Similarly, all HST alternatives would have the same temporary impacts during construction. Regarding adverse impacts on aesthetics and visual resources from HST stations and HMFs, there would be less than significant impacts from any of these facilities. The traction power distribution substations have potential significance depending on the size and location. Significant impacts that cannot be mitigated by various methods (as listed in Section 6.4) result from vertical elements of the HST (particularly when it would be elevated) that block views of visual resources, change the landscape character and/or change visual quality. Where significant impacts cannot be avoided, the mitigation measures would reduce impacts, but they would not reduce the level of significance, except possibly by using physical or vegetative screening, as listed in Table 6-4. Similarly, and related to VQ#11 (Table 6-4), the effectiveness of sound barrier mitigation depends on location, type and extent of treatment, and viewer sensitivity. Because those factors are not yet known, the conclusion for this document is that the impacts of VQ#11 mitigated by VQ-MM#6 would be significant.

Table 6-4
 Summary of Significant Aesthetics and Visual Resources Impacts and Mitigation Measures

Impact	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
VQ#1: Visual Disturbance during Construction. For all alternatives, construction activities would cause temporary visual impacts in urban areas.	Significant	VQ-MM#1: Minimize Visual Disruption during Construction and from Construction Activities.	Less than Significant
VQ#2: Nighttime Lighting during Construction. Nighttime lighting would be more frequent under the UPRR/SR 99 Alternative; however, all alternatives would affect Merced and Fresno urban areas.	Significant	VQ-MM#2: Minimize Light Disturbance from Construction.	Less than Significant
VQ#3: Lower Visual Quality in the Chowchilla-Madera Landscape Unit. The UPRR/SR 99 Alternative would create a permanent elevated guideway in front of a church and a residential neighborhood in Fairmead. No other alternative would have this effect.	Significant	VQ-MM#3: Incorporate Design Criteria for Elevated and Station Elements that can Adapt to Local Context; VQ-MM#3a: Integrate the Elevated Guideways with Affected Parks, Trails, and Urban Core Design Guidelines.	Significant

Impact	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
<p>VQ#4: Lower Visual Quality in the Madera Landscape Unit. The UPRR/SR 99 Alternative would create a permanent elevated guideway as the tallest structure in the downtown historical core. No other alternative would have this effect.</p>	Significant	<p>VQ-MM#3: Incorporate Design Criteria for Elevated and Station Elements that can Adapt to Local Context;</p> <p>VQ-MM#3b: Screen Elevated Guideways Adjacent to Residential Areas.</p>	Significant
<p>VQ#5: Lower Visual Quality in the West of SR 99 Landscape Unit. Each alternative using the Ave 24 Wye design option would degrade the visual quality with a large overcrossing of SR 233, which is a locally designated scenic and historical corridor.</p>	Significant	<p>VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST</p>	Significant
<p>VQ#6: Lower Visual Quality in the West of SR 99 Landscape Unit. HST alternatives using the Ave 21 Wye would degrade visual quality because of a large road overcrossing of the HST that would remove orchards and fields and block views.</p>	Significant	<p>VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST.</p>	Significant
<p>VQ#7: Lower Visual Quality in the Merced-Le Grand Landscape unit. The BNSF Alternative would require roadway overcrossings, which would be supported by relatively large mounds of earth retained by walls. Construction of the overcrossings would remove orchards and block views in a locally designated scenic corridor. No other HST alternative has this effect at this location.</p>	Significant	<p>VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST.</p>	Significant
<p>VQ#8: Lower Visual Quality in the Le Grand Landscape Unit. Visual quality would degrade from any of the BNSF Alternative design options through or east of Le Grand. This effect does not occur under other HST alternatives.</p>	Significant	<p>VQ-MM#3: Incorporate Design Criteria for Elevated and Station Elements that can Adapt to Local Context;</p> <p>VQ-MM#4: Replant Unused Portions of Lands Acquired for the HST.</p>	Significant

Impact	Level of Significance before Mitigation	Mitigation Measure	Level of Significance after Mitigation
<p>VQ#9: Lower Visual Quality in the Le Grand-Madera Acres Landscape Unit. The BNSF Alternative would require an undercrossing at Buchanan Hollow Road and Santa Fe Avenue, which would block panoramic views toward the Sierra Nevada Mountains. This effect does not occur under the UPRR/SR 99 and Hybrid alternatives.</p>	Significant	<p>VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST.</p>	Significant
<p>VQ#10: Lower Visual Quality in the Madera Acres Landscape Unit. The BNSF and the Hybrid alternatives would degrade residential neighborhoods and would require a large overcrossing of the HST alignment and the existing BNSF tracks. This effect does not occur under the UPRR/SR 99 Alternative.</p>	Significant	<p>VQ-MM#4: Replant Unused Portions of Lands Acquired for the HST; VQ-MM#5: Provide Landscape Treatments along the HST Project Overcrossings and Retained Fill Elements of the HST.</p>	Significant
<p>VQ#11: Sound Barrier would Lower Visual Quality and Block Views. All HST alternatives would require the use of sound barriers along the guideway through urbanized areas, potentially lowering visual quality and potentially blocking existing views, depending on the location and materials of the barrier.</p>	Significant	<p>VQ-MM#6: Provide Sound Barrier Treatments.</p>	Significant
<p>VQ#12: Traction Power Distribution Stations would Alter Visual Character or Block Views. All HST alternatives would require the placement of traction power stations at approximately 30-mile intervals along the alignment. This would potentially alter the visual character of adjacent lands or block views toward areas beyond the alignment, depending on the size and location of the stations.</p>	Significant	<p>VQ-MM#7: Screen Traction Power Distribution Station.</p>	Less than Significant

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APPENDIX A

Existing Conditions and Visual Simulations

APPENDIX B

FHWA Visual Quality Scoring Sheet

APPENDIX C

Functional and Iconic High-Speed Train Station Examples
