

3.2 Transportation

3.2.1 Introduction

This section describes the regulatory setting and the affected environment for transportation, the impacts on transportation that would result from the project, and the mitigation measures that would reduce these impacts.

Growth-inducing impacts and cumulative impacts are discussed in Sections 3.18, Regional Growth, and 3.19, Cumulative Impacts, respectively. Safety and security impacts potentially associated with traffic and circulation are evaluated in Section 3.11, Safety and Security. Additional information about transportation is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

The HST program incorporates several project engineering and design features intended to avoid or reduce the potential impacts of implementing a new transportation system element between Merced and Fresno. The Final Statewide Program EIR/EIS (Authority and FRA 2005) presents those features, which include but are not limited to, where feasible, locating the proposed project parallel to existing transportation features such as freeways and freight railroads. The intent of these engineering and design elements is to maintain the basic integrity of the existing surface transportation system so that the proposed project enhances mobility without causing increased traffic or travel time.

3.2.2 Laws, Regulations, and Orders

Federal, state, and local laws, regulations, and orders that pertain to transportation and traffic resources under the project are presented below.

3.2.2.1 Federal

Procedures for Considering Environmental Impacts (64 Federal Register 101, 28545)

These FRA procedures state that an EIS should consider possible impacts on all modes of transportation, including passenger and freight rail, as well as potential impacts on roadway traffic congestion.

3.2.2.2 State

California Government Code Section 65080

The State of California requires each transportation planning agency to prepare and adopt a regional transportation plan (RTP) directed at achieving a coordinated and balanced regional transportation system.

California Streets and Highways Code (Section 1 et seq.)

The code provides the standards for administering the statewide streets and highways system. Designated State Route and Interstate Highway facilities are under the jurisdiction of the California Department of Transportation (Caltrans), except where facility management has been delegated to the county transportation authority.

3.2.2.3 Regional and Local

Caltrans governs the state highways in the project area; local city or county public works departments or the Congestion Management Agencies (CMA) govern all other roads. In Fresno County, the Council of Fresno County Governments (Fresno COG) serves as the CMA that addresses the impact of local growth on the regional transportation system within the county. Table 3.2-1 lists regional and local plans and policies that were identified and considered in the preparation of this analysis.



Table 3.2-1
 Regional and Local Plans and Policies

Policy Title	Summary
Merced County	
Regional Transportation Plan, Merced County (Merced County Association of Governments Adopted 2007)	Provide a safe and efficient regional roadway system. Provide an efficient, effective, coordinated regional transit system that increases mobility for urban and rural populations. Provide a rail system that provides safe and reliable service. Provide a transportation system that enables safe movement of goods in and through Merced County. Provide a fully functional and integrated air service and airport system. Provide a regional transportation system for bicyclists. Provide a transportation system for pedestrians.
Merced County Year 2000 General Plan (1990)	Maintain an efficient roadway system. Provide safe and efficient circulation system for variety of transportation modes.
City of Merced 2015 General Plan (1997) ^a	Provide an integrated road system that is safe and efficient. Provide a circulation system that is convenient and flexible. Provide an efficient and comprehensive public transit system. Provide a comprehensive system of safe and convenient bicycle routes and pedestrian ways. Provide air and rail systems that are a safe and convenient service to the community.
Madera County	
Regional Transportation Plan, Madera County (Madera County Transportation Commission Adopted 2007)	Provide affordable, accessible, and viable public and private transportation systems. Enhance transportation system, coordination, efficiency, and intermodal connectivity. Maintain a safe and reliable transportation system in a state of good repair.
Madera County General Plan (1995)	Provide for the long-range planning and development of the county's roadway system. Promote a safe and efficient mass transit system, including both rail and bus, to reduce congestion, improve the environment, and provide a viable nonautomotive means of transportation in and through Madera County. Maximize the efficient use of transportation facilities.
City of Madera General Plan Update (2009)	Provide a roadway system that accommodates land uses at the City's desired level of service (LOS), provides multiple options for travel routes, and coexists with other travel modes. Provide a viable transit system that connects all parts of the City and links with regional destinations.
City of Chowchilla 2040 Draft General Plan (2009)	Plan for, create, and maintain an efficient, cost-effective, safe, and coordinated multimodal circulation system serving the needs of a variety of users. Continue to support the development of intercity and intracity transit systems, with special emphasis toward serving the needs of senior citizens, the physically handicapped, and low-income residents.

Policy Title	Summary
Fresno County^b	
Regional Transportation Plan (Fresno COG 2010)	Provide for an integrated multimodal transportation system that serves the needs of a growing and diverse population for transportation access to jobs, housing, and recreation, commercial, and community services. Maintain and improve the safety and efficiency of existing facilities as the basic system that would meet existing and future travel demand.
City of Fresno General Plan (2002)	Provide a complete and continuous street and highway system throughout the Fresno metropolitan area that is safe for vehicle users, bicyclists, and pedestrians. Promote continued growth of rail passenger and freight travel through a safe, efficient, and convenient rail system that is integrated with other modes of travel. Preserve all existing rail lines and railroad alignments to provide for existing and future transportation. Provide quality, convenient, and reliable public transportation service through an efficient and effective public transportation system.
City of Fresno Traffic Impact Study Report Guidelines (2009)	State that all intersections and roadway segments will operate at LOS D or better. Exceptions are made for roadway segments adopted in the Master General Plan EIR (or its Statement of Overriding Considerations) to operate at LOS E or F.
<p>^a The City of Merced 2015 General Plan is currently under revision.</p> <p>^b Fresno COG established LOS D as the minimum systemwide LOS traffic standard for Fresno County.</p>	

3.2.3 Methods for Evaluating Impacts

Information on roadway modifications, crossings, and closures as a result of the proposed HST alternatives is presented in Appendix 2-A, Proposed Roadway Activities Along HST Alternatives. The sections below present data collecting efforts, the evaluation of those impacts, and the results of that evaluation. Both regional and local transportation authorities supplied planned projects and traffic data for existing and forecasted scenarios.

3.2.3.1 Traffic Operational Standards

This section describes transportation operating conditions in terms of level of service (LOS) and delay (full descriptions follow). LOS is the primary unit of measure for stating the operating quality of a roadway or intersection and is qualitative, with a ranking system of "A" through "F," where LOS A signifies the best and LOS F, the worst operating conditions (MCAG 2010). The *Highway Capacity Manual* (HCM) procedures are followed in calculating the LOS. LOS thresholds for roadways, signalized intersections, and unsignalized intersections are described below (Transportation Research Board 2000).

Roadways

The LOS indicators for the roadway system are based on (1) traffic volume for designated roadway sections during a typical day and (2) the practical vehicular capacity of that segment. These two measures for each monitored roadway segment are expressed as a ratio, the volume to capacity (V/C) ratio. The V/C ratio is then converted to a letter and expressed as LOS A through F. LOS A identifies the best operating conditions along a roadway section, with free-flow traffic, low volumes, and little or no restrictions on maneuverability. LOS F represents forced traffic flow with high traffic densities, slow travel speeds, and often stop-and-go conditions. Table 3.2-2 defines and describes the LOS criteria used for analysis in this section.

Table 3.2-2
 Roadway Segment Level of Service

LOS	V/C Ratio	Definition
A	0.00 – 0.60	Free-flow speeds prevail. Vehicles are almost unimpeded in their ability to maneuver within the traffic stream.
B	0.61 – 0.70	Reasonably free-flow speeds are maintained. The ability to maneuver within traffic is only slightly restricted.
C	0.71 – 0.80	Flow with speeds at or near free-flow speed of the roadway. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more care and vigilance on the part of the driver.
D	0.81 – 0.90	Speeds begin to decline slightly with increasing flows. In this range, density begins to increase somewhat more quickly with increasing flow. Freedom to maneuver within the traffic stream is noticeably limited.
E	0.91 – 1.00	Operation at capacity with no usable gaps in the traffic stream. Any disruption to the traffic stream has little or no room to dissipate.
F	>1.00	Breakdown of the traffic flow with long queues of traffic. Unacceptable conditions.

Source: Authority (2010a).

Intersections

Table 3.2-3 quantitatively defines LOS and average vehicular delay times for signalized intersections. A capacity of 1,900 passenger cars per lane per hour of signal green time was used, along with a lost time of 3 seconds per signal phase.¹ In downtown areas, high bus and pedestrian volumes can substantially affect the intersection LOS. Table 3.2-4 presents the LOS and average vehicular delay used for unsignalized intersections.

Table 3.2-3
 Level of Service and Average Vehicular Delay Definitions for Signalized Intersections

LOS	Average Vehicular Delay (seconds)	Definition
A	≤ 10	Very low control delay. Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all.
B	>10 and ≤ 20	Occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A.
C	>20 and ≤ 35	Occurs when a given green phase does not serve queued vehicles and overflow occurs. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	>35 and ≤ 55	The influence of congestion becomes more noticeable. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

¹ A time period during which a particular movement or combination of movements at a traffic signal is allowed to proceed.

LOS	Average Vehicular Delay (seconds)	Definition
E	>55 and ≤ 80	High delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent.
F	> 80	Oversaturation of the intersection often occurs. Arrival flow rates exceed the capacity of the lane groups. Also, high V/C ratios occur with many individual cycle failures.

Source: Transportation Research Board HCM (2000).

Table 3.2-4
 Level of Service and Average Vehicular Delay Definitions
 for Unsignalized Intersections

LOS	Average Vehicular Delay (seconds)
A	<10
B	>10 and <15
C	>15 and <25
D	>25 and <35
E	>35 and <50
F	>50

Source: Transportation Research Board HCM (2000).

3.2.3.2 Baseline Operational Analysis

Per CEQA requirements, an EIR must include a description of the existing physical environmental conditions in the vicinity of the project. Those conditions, in turn, “will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant” (CEQA Guidelines §15125[a]).

For a project such as the HST Project that would not commence operation for almost 10 years and would not reach full operation for almost 25 years, use of only existing conditions as a baseline for traffic LOS impacts would be misleading. It is more likely that existing background traffic volumes (and background roadway changes from other programmed traffic improvement projects) would change between today and 2020/2035 than it is for existing traffic conditions to remain unchanged over the next 10 to 25 years. For example, as stated in Section 3.2.5.1, RTPs include funded transportation projects that are programmed to be constructed by 2035. To ignore that these projects would be in place before the HST Project would reach maturity (i.e., the point/year at which HST-related traffic generation reaches its maximum), and to evaluate the HST Project’s traffic impacts ignoring that these RTP improvements would change the underlying background conditions to which HST Project traffic would be added. It would be misleading because it would represent a hypothetical comparison.

Therefore, the LOS traffic analysis in this section uses a dual baseline approach. That is, the HST Project’s LOS traffic impacts are evaluated both against existing conditions and against background (i.e., No Project) conditions as they are expected to be in 2035. This approach complies with CEQA. (See *Woodwork Park Homeowners Ass’n v. City of Fresno* (2007), 150 Cal.App.4th 683, 707 and *Sunnyvale West Neighborhood Assn. v. City of Sunnyvale* (2010), 190 Cal. App. 4th 1351, *Pfeiffer v. City of*

Sunnyvale (2011), 200 Cal.App.4th 1552 and *Madera Oversight Coalition v. County of Madera* (2011), 199 Cal. App.4th 48). Impact results for both baselines (and mitigation where required) are presented in this section in summary format; details (including mitigation) are presented in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

This approach complies with CEQA. It informs the public of potential project impacts (and associated mitigation) under both baselines, reserving extensive detail for the supporting technical report. This approach improves readability for the public of a technically complex subject, traffic modeling analysis. Detailed analysis results, including extensive LOS calculation tables, are contained in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

Mitigation for both baseline scenarios is not required, of course (mitigation for only one is required); the dual-baseline approach represents different analytical ways of evaluating the same potential impact. As stated above, it is substantially more likely that existing background traffic volumes (and background roadway changes due to other programmed traffic improvement projects) will change between today and 2020/2035 than it is for existing traffic conditions to remain unchanged over the next 10 to 25 years. Accordingly, mitigation for the future-plus-project impact scenario would be more appropriate for intersection and segment impacts caused by HST station traffic, for example, given that the stations are likely to be operational (and running close to full passenger capacity) closer to 2035 than to today.

It is important to note in accurately predicting future expected 2035 conditions that Merced, Madera, and Fresno counties have developed transportation travel demand models that define the future (2035) No Project conditions. The individual counties maintain these models, which are used to predict the impact of travel growth and to evaluate potential transportation improvements.

The year 2035 No Project condition volumes for the study area stations and heavy maintenance facilities (HMFs) were determined by using the growth factors obtained from the individual county models. The growth factors were applied to the existing volumes to arrive at the future No Project volumes for the study area intersections. The intersection and roadway segment analysis provides a commonly used evaluation of vehicular traffic impacts from a specific source, such as a station or HMF.

To obtain existing conditions information, traffic analysts conducted traffic counts for existing daily operating conditions for roadways that are outside the range of the regional model along the UPRR/SR 99 Alternative, the BSNF Alternative, the Hybrid Alternative, and the Ave 24 Wye and Ave 21 Wye design options. This helped determine the current adequacy of the roads and to provide a baseline for comparing future roadway segments that may be affected by the project alignment.

Lastly, transportation-related impacts that are not LOS-based—such as temporary project construction impacts caused by road closures—are evaluated only against existing conditions.

3.2.3.3 Operational/Project Impacts

Vehicle Trip Generation at the Stations

The *Station Area Parking Guidance Technical Memorandum* (Authority 2010b) provided the design-day daily (2035) HST boardings for the Merced and Fresno stations, which were used to derive the project daily and peak-hour station-generated trip volumes. For each HST station, ridership data and key ridership factors (such as total maximum daily ridership projections, peak-hour conversion percentages, distribution of trips by mode, vehicle occupancy factors, parking accumulation factors, transfers from other transit percentages, and boardings-to-alightings ratios for the peak hours) were used in arriving at the vehicle trips generated by the project. These estimated generated trips are based on ridership forecasts at the high end of the potential ridership range. This transportation analysis is therefore considered conservative, as it represents a worst case (from a local traffic generation perspective) scenario. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on trip generation.

Table 3.2-5 summarizes the daily, AM peak hour, and PM peak hour vehicle trips generated by the proposed Merced and Fresno stations. For the Merced station, the projected boardings and alightings reflect the Phase 1 HST operations, as that plan yields higher usage at the station than the Full System operation, where HST service is extended to Sacramento.

Table 3.2-5
 Year 2035 Forecast Vehicle Trip Generation at HST Stations

Station	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Merced	5,927	556	277	833	277	556	833
Fresno	4,370	456	196	652	196	456	652

Source: Ridership Forecast Report (Authority and FRA 2011)

Vehicle Trip Generation at the Heavy Maintenance Facility Sites

Trip generation for the HMF sites was based on the estimated number of employees, work shifts, and parking requirements for the proposed facility. The employees were classified based on their operational function as maintenance shop employees, management, crew and support, or maintenance of way employees.

The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on the HMF trip generation. Table 3.2-6 summarizes year 2035 forecast trip generation at the proposed HMF. It shows that the facility would be expected to generate approximately 2,000 daily trips with 729 trips each during the AM and PM peak hours.

Table 3.2-6
 Year 2035 Forecast Vehicle Trip Generation at Heavy Maintenance Facility Sites

Location	Daily Total	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
HMF	2,067	466	263	729	263	466	729

3.2.3.4 Methods for Evaluating Impacts 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, 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, on balance, the impact has negligible intensity, or even if the impact is beneficial.

For transportation, an impact with *negligible* intensity on transportation is defined as a worsening in transportation service levels that is measurable, but not perceptible to the transportation system user. An impact with *moderate* intensity on transportation is defined as a worsening in transportation service levels that is measurable and perceptible to the transportation service user but does not meet the

thresholds for an impact with substantial intensity. An impact with *substantial* intensity on transportation is defined as an adverse effect on transportation service levels.

Operational Phase

A project impact is considered to have substantial intensity under NEPA if the following occurs:

- For roadway segments and intersections (signalized and unsignalized), the addition of project-related traffic results in a reduction in LOS² below D
- For roadway segments that are projected to operate at LOS E or F under baseline conditions, the addition of project-related traffic results in an increase in the V/C ratio of 0.04 or more
- For signalized intersections that are projected to operate at LOS E or F under baseline conditions, the addition of project-related traffic increases average delay at an intersection by 4 seconds or more
- For unsignalized intersections projected to operate at LOS E or F under baseline conditions, the addition of project-related traffic increases delay by 5 seconds or more (measured as average delay for all-way stop and for worst movement for a multi-way stop intersection), and if the intersection satisfies one or more traffic signal warrants³ for more than one hour of the day

Construction Phase

The project would have an impact with substantial intensity on the environment under NEPA if it were to do any of the following:

- Result in inadequate emergency access.
- Substantially increase hazards due to a design feature (such as sharp curves or dangerous intersections) or incompatible uses (such as farm equipment), or create safety risks for pedestrians and bicyclists.

3.2.3.5 CEQA Significance Criteria

Operational Phase

The traffic impact criteria used in evaluating traffic LOS for roadway segments, signalized and unsignalized intersections during the project operation phase are presented below.

For roadway segments, the significance criteria are based on the change in V/C ratio, as follows:

- An impact should be considered to be significant if the addition of project-related traffic results in a reduction in LOS below LOS D.
- For segments that are projected to operate at LOS E or F under baseline conditions, an impact should be considered to be significant if the addition of project-related traffic results in an increase in the V/C ratio of 0.04 or more.

For signalized intersections, the significance criteria are based on an increase in delay based on LOS, as follows:

- An impact is considered to be significant if the addition of project-related traffic results in a reduction in LOS below LOS D.

² LOS analysis is done only for traffic in the study area affected by project operations once the HST commences operation. Traffic congestion from project construction would be temporary, so an LOS analysis would not be appropriate. Impacts from project construction focus on maintaining safety and access during construction.

³ Traffic signal warrants define minimum conditions under which signal installation may be justified.



- For intersections that are projected to operate at LOS E or F under baseline conditions, an impact is considered to be significant if the addition of project-related traffic increases average delay at an intersection by 4 seconds or more.

For unsignalized intersections, the significance criteria are based on an increase in delay for the worst movement for a multi-way stop and the average intersection delay for an all-way stop, as follows:

- An impact is considered to be significant if the addition of project-related traffic results in a reduction in LOS below LOS D.
- For intersections projected to operate at LOS E or F under baseline conditions, an impact is considered to be significant if the addition of project-related traffic increases delay by 5 seconds or more, and if the intersection satisfies one or more traffic signal warrants for more than one hour of the day.

The project also could have a significant effect on the environment if it would do the following:

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.
- Result in inadequate emergency access.
- Substantially increase hazards due to a design feature (such as sharp curves or dangerous intersections) or incompatible uses (such as farm equipment).

Construction Phase

The project would have a significant effect on the environment if it were to do any of the following:

- Result in inadequate emergency access.
- Substantially increase hazards due to a design feature (such as sharp curves or dangerous intersections) or incompatible uses (such as farm equipment), or create safety risks for pedestrians and bicyclists.

3.2.3.6 Study Area for Analysis

The study area for the Merced to Fresno Section of the project starts north of the City of Merced and ends in Downtown Fresno. A description of the study area is provided in Section 3.1, Introduction. The study area for direct impacts includes the area of potential disturbance associated with project construction as well as intersections and transportation facilities within 0.5 mile, particularly around stations. For indirect impacts on transportation, the study area includes the extent of the roadway networks that may reflect change in circulation due to project conditions. Traffic around the HMF sites also could be affected by the project, so the study area also includes the vicinity of the HMFs.

3.2.4 Affected Environment

This section describes the affected environment in terms of the regional system and then the more localized system surrounding the proposed station areas and the circulation system around the HMFs. The existing conditions in the station areas are summarized by transportation mode or facility, including existing traffic volumes and operating conditions, transit facilities and services, air travel, non-motorized facilities, parking, and area freight and goods movement. Applicable plans, primarily RTPs and General Plan Transportation Elements, were reviewed to identify planned and programmed transportation improvements that were considered in the setting, and to identify impacts.

3.2.4.1 Regional Transportation System

Chapter 1, Project Purpose, Need, and Objectives, records many of the existing transportation conditions, including limitations of the connectivity between the Central Valley and other metropolitan areas of the state. The following subsections summarize the transportation network and facilities in the Merced to Fresno Section.

Highways and Roadways

The region contains several state routes as well as other regionally significant roadways that serve as connections to population centers outside of the Merced to Fresno corridor. Figures 3.2-1 through 3.2-4 illustrate state routes and other regionally significant roadways in this corridor.

In Merced and Madera, roadways in the vicinity of the proposed HST alignment operate at LOS D or better under existing conditions. In Fresno, major roadways such as Golden State Boulevard, Shaw Avenue, and McKinley Avenue in the vicinity of the proposed HST alignment generally operate at LOS D or better under existing conditions. More information on the LOS calculation is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

Air Travel

Two commercial airports serve the Merced to Fresno Section: Fresno Yosemite International Airport (FAT) and Merced Municipal/Macready Field (MCE). FAT is a municipally owned facility located northeast of the City of Fresno, east of SR 41. It is the major air carrier airport in the Central San Joaquin Valley. Eight certified carriers provide domestic flights to most major airports in the western United States; the airport also features direct international flights to Guadalajara, Mexico (City of Fresno 2002). Commercial flights connect Merced (MCE) with Las Vegas.

As mentioned in Section 1.2.4.3, Modal Connections; Section 2.4.1, No Project Alternative; and Section 3.2.5, Environmental Consequences, the capacity of FAT is not a limitation. The airport has an adopted Airport Master Plan (AMP) that defines planned improvements to meet future demand in terms of projected enplanements.

Freight Rail

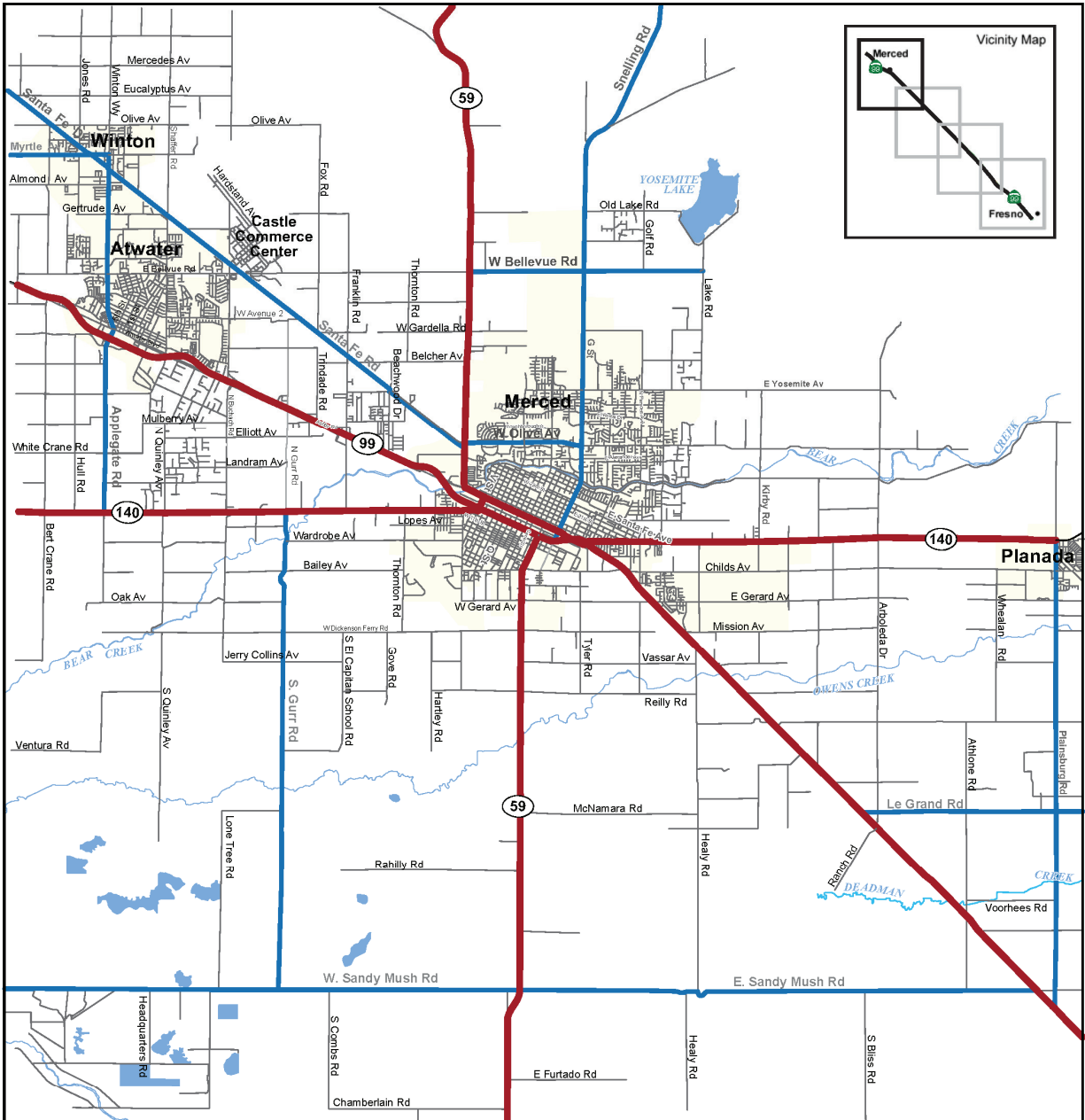
While nationwide freight has been increasing through 2007, freight in the Merced to Fresno Section seems relatively constant; approximately 20 to 24 freight trains per day pass through the Merced to Fresno corridor on each railroad. Two Class 1 freight railroads operate along and serve the Merced to Fresno Section:

- The BNSF Railway operates approximately 58 route miles and 77.2 track miles within the Merced to Fresno Section (Caltrans 2008). The railroad alignment is generally located east of the SR 99 corridor. Top speed for freight operation is 65 miles per hour (mph). The railroad along this corridor is primarily single track, with a few double-track segments.
- The UPRR Railway operates over 60.1 route miles and 69.7 track miles in operation within the Merced to Fresno Section (Caltrans 2008). The alignment runs parallel SR 99 for most of the corridor. Top speed for freight operation is 70 mph. The UPRR Railway along this corridor is also primarily single track. The average number of daily one-way train operations within the corridor is 24 trips.

Route mile versus track mile

Route miles may have 1 or multiple sets of parallel tracks, whereas 'track mile' is used to describe the literal number of miles of single track. A track mile would be double the length for a 2-track section, where as a route mile would not count both tracks. For example, 1 mile of double track operation measures as 1 route mile, but 2 track miles.

Sometimes freight railroads only build single track with short distances of double track where oncoming trains can bypass each other before returning to single track.



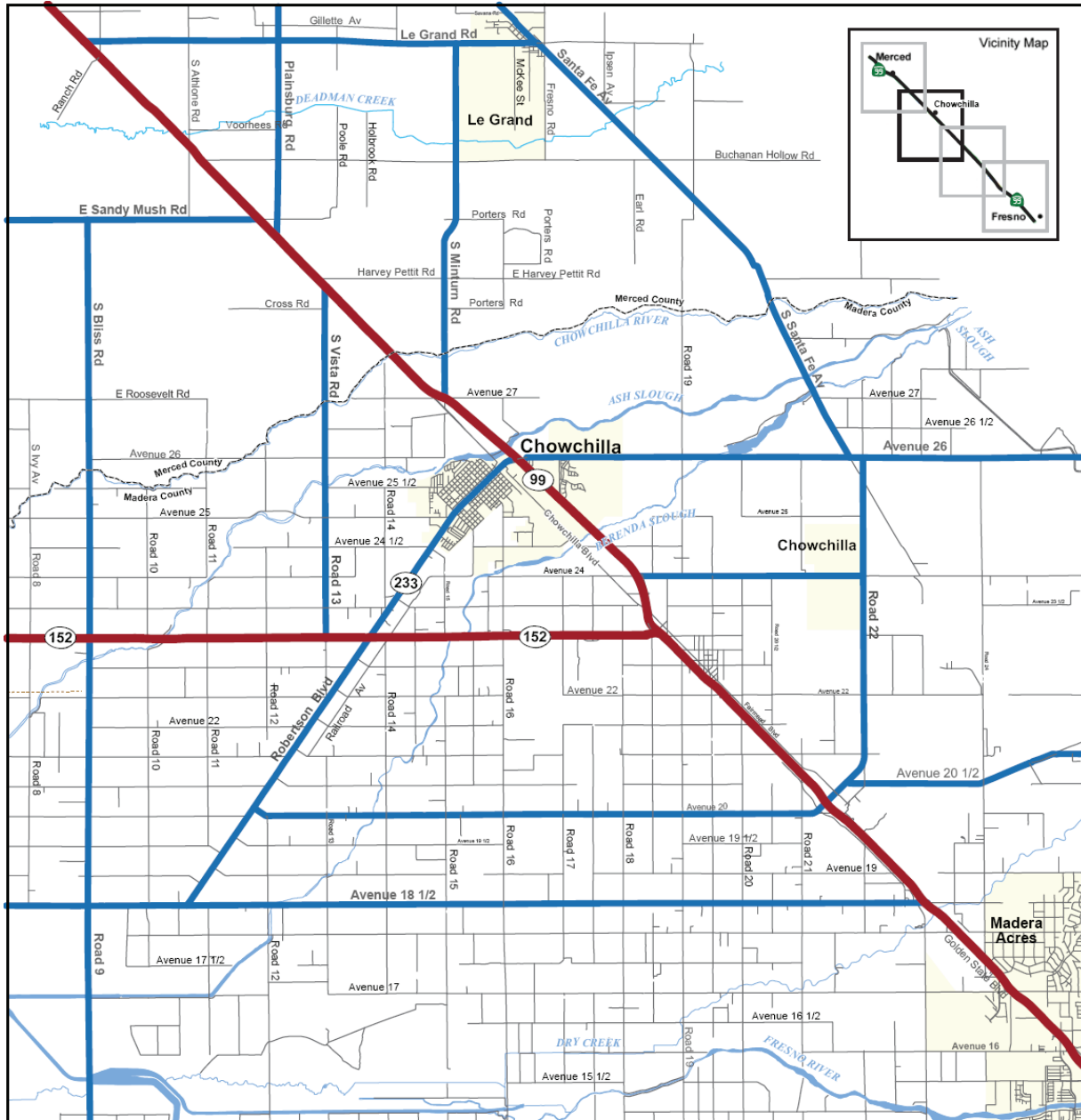
Source: 2007 RTP for Merced County



Regionally Significant Roadways

- State Routes
- Local Roads

Figure 3.2-1
 Regionally Significant
 Roadways in the Merced
 Project Vicinity



Source: Madera County 2007 RTP

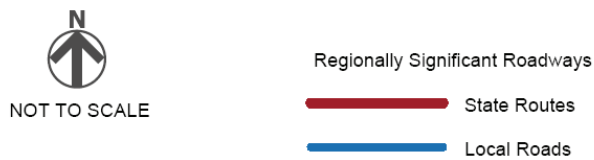
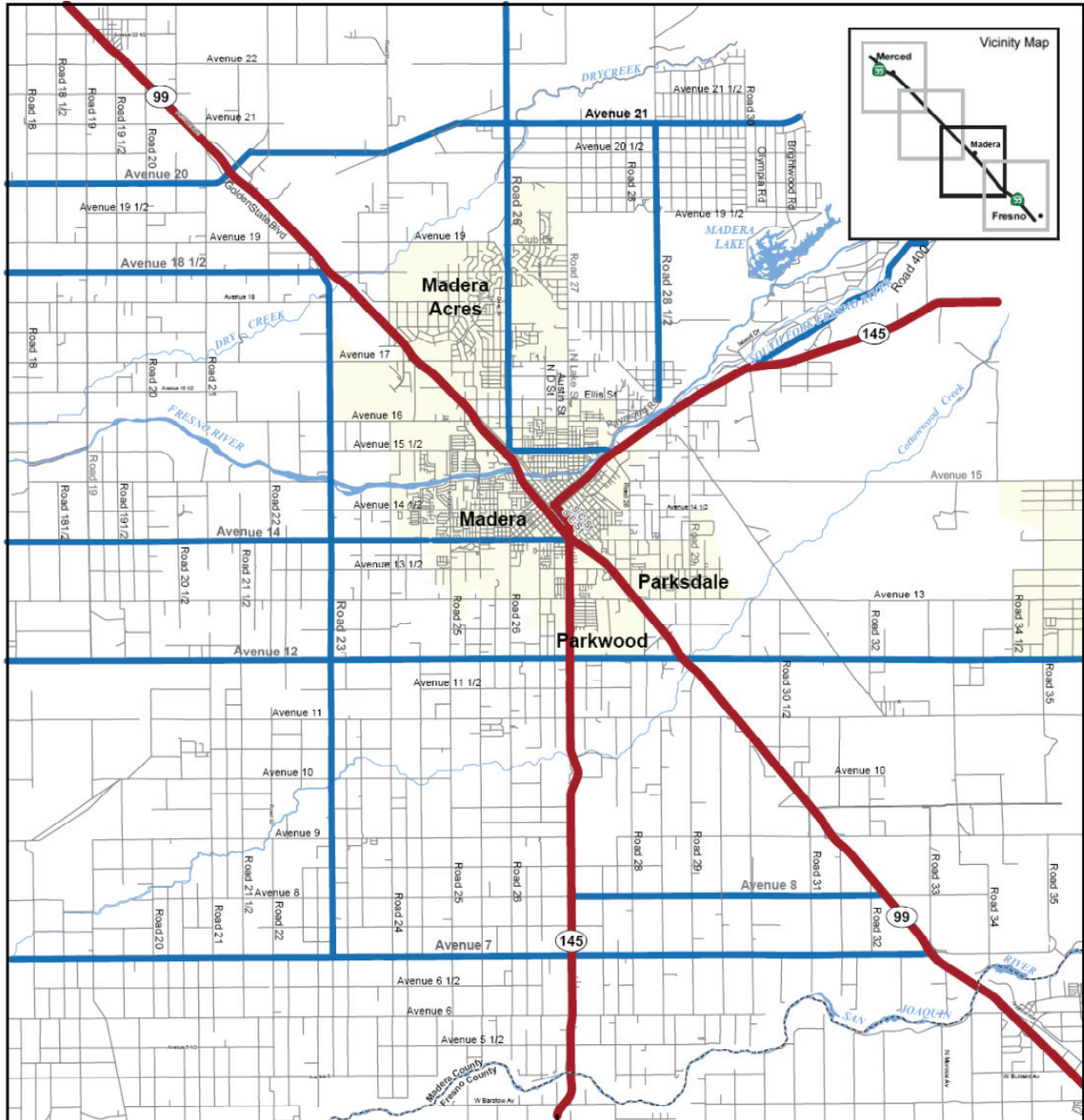


Figure 3.2-2
 Regionally Significant Roadways in
 the Chowchilla Project Vicinity

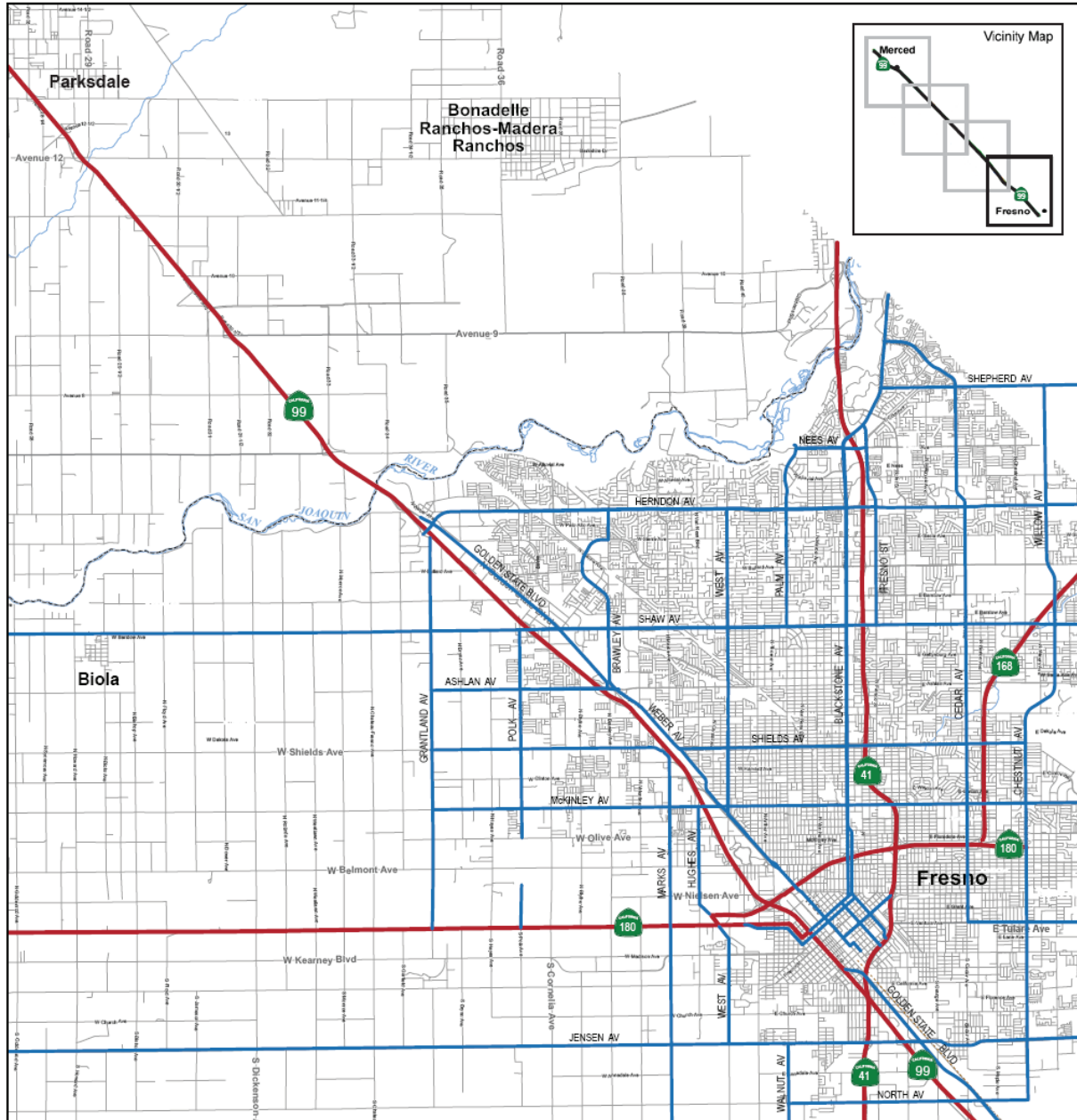


Source: Madera County 2007 RTP

February 9, 2010



Figure 3.2-3
 Regionally Significant Roadways in
 the Madera Project Vicinity



Source: 2007 RTP, Council of Fresno Governments


 NOT TO SCALE

Regionally Significant Roadways
 State Routes
 Local Roads

Figure 3.2-4
 Regionally Significant Roadways in
 the Fresno Project Vicinity

Passenger Rail Service

Connecting the Bay Area and the Central Valley, the Amtrak San Joaquin route provides conventional passenger rail service to Merced and Fresno via the BNSF tracks. Currently, the San Joaquin route operates four trips daily in each direction from Oakland to Bakersfield and two trips daily in each direction from Sacramento to Bakersfield, providing a total of six daily round trips serving Merced and Fresno. Existing stations in Merced, Madera, and Fresno are located east of the respective downtowns, on the BNSF rail line.

Intercity Passenger Bus Service

Regional bus service in the study area is provided by Greyhound and Amtrak. Greyhound-Trailways Bus Lines provides scheduled bus service through the San Joaquin Valley, with bus terminals located in the cities of Merced and Fresno. Greyhound-Trailways also provides charter service to Yosemite Valley. Amtrak augments the San Joaquin trains with an extensive system of Thruway buses with connections at the train stations. From Merced, Amtrak buses provide connections to Yosemite and Monterey.

Transportes InterCalifornias provides additional regional bus service in the Fresno area. This service provides daily round trip service from Fresno to Los Angeles with connecting services onward to Santa Ana, San Ysidro, and Tijuana (City of Fresno 2002), as well as Stockton and San Jose.

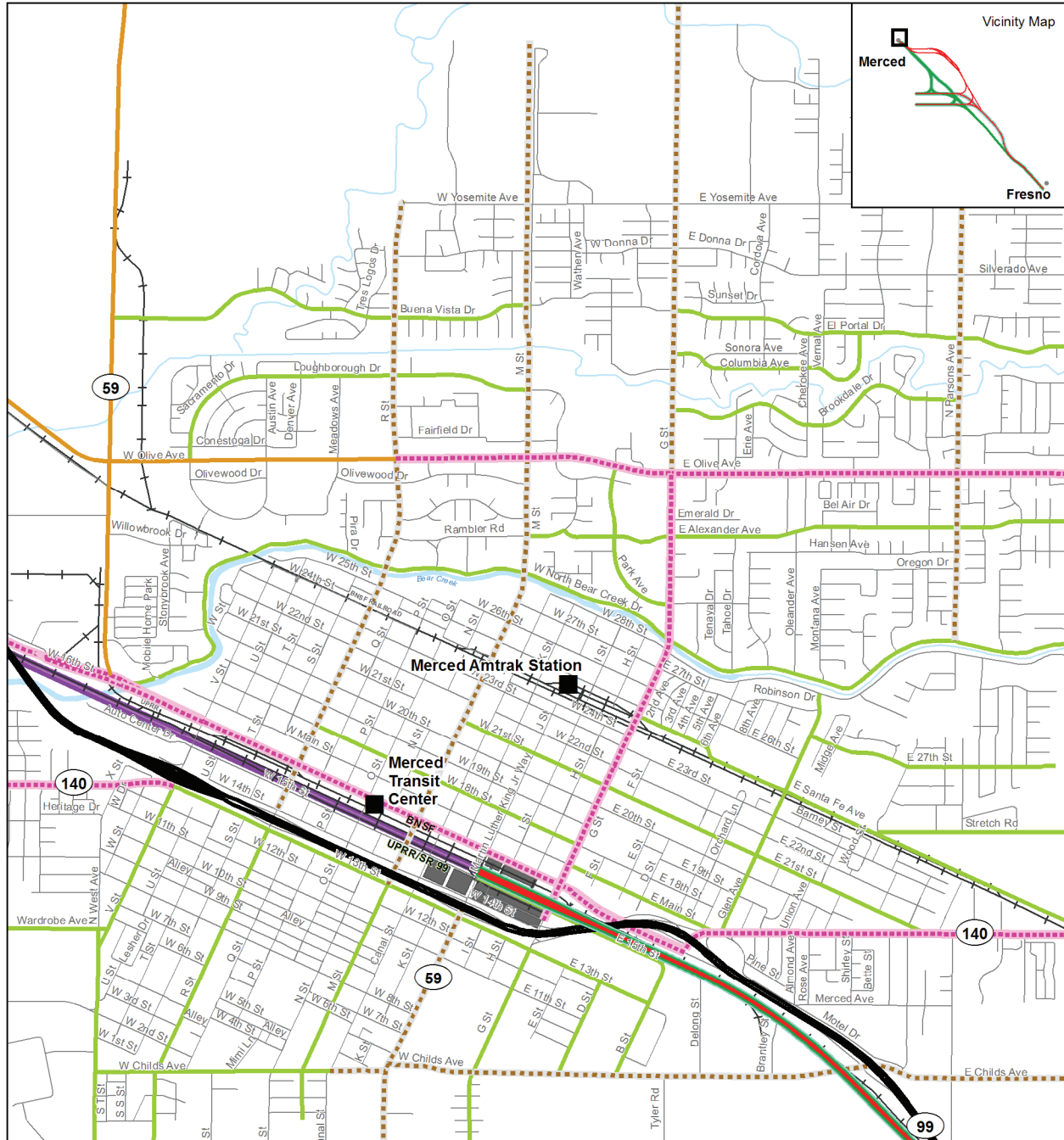
In the Merced area, additional regional bus service is provided by Yosemite Area Regional Transportation System (YARTS) and countywide transportation is provided by The Bus. YARTS provides bus service into Yosemite National Park and connections with all intercity transportation providers in Merced (i.e., with Amtrak and Greyhound and with Great Lakes Airlines at MCE) (City of Merced 1997).

3.2.4.2 Downtown Merced Station

This section discusses existing transportation conditions around the proposed Downtown Merced Station in more detail than the previous regional discussion because of the potential changes in local traffic conditions related to a downtown HST station. The proposed Downtown Merced Station would be located between Martin Luther King Jr. Way and G Street, along 15th Street.

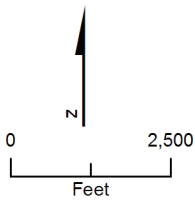
Highways and Roadways

The area around the proposed station is a network of arterials, collectors, and local streets (Figure 3.2-5), following a grid pattern. SR 99, SR 59, and SR 140 provide regional station access. Local station access would be provided along both 15th and 16th Streets. Roadway segment analysis was performed on Main Street (three segments between M Street and SR 140), 16th Street (five segments between SR 59 and SR 140), 15th Street (three segments between R Street and G Street), V Street (three segments west of 13th Street to Main Street), R Street (three segments west of 13th Street to east of 16th Street), M Street (three segments west of 13th Street to east of 16th Street), Martin Luther King Jr. Way (four segments west of Childs Avenue to east of 16th Street), and G Street (three segments west of 13th Street to east of 16th Street). All the analysis roadway segments operate at LOS D or better under existing AM and PM peak hour conditions except the roadway segments on R Street west of 13th Street, which operate at LOS E under PM peak hour. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides additional information regarding the surrounding roadway network and roadway segment analysis.



Source: City of Merced (1997).

MF_EIS_TR_03 Apr 04, 2012



- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Footprint
- Potential Heavy Maintenance Facility Trackway
- City Limit
- Railroad
- Freeway
- Major Arterial Street
- Divided Arterial Street
- Minor Arterial Street
- Collector Street
- Local Street

Figure 3.2-5
 Roadway Classifications in
 Downtown Merced

Intersections

City of Merced staff provided input on the study limits for the proposed HST station; the limits were designated to capture all potential impacts. Figure 3.2-6 presents the 49 intersections identified for analysis. Intersection analysis was performed for the AM and PM peak hours, based on the traffic counts collected between 2009 and 2011 at these intersections. Table 3.2-7 summarizes LOS and delay for those intersections that are currently operating at LOS E or F under AM and/or PM peak hours.

Table 3.2-7
 Intersections Operating at LOS E or F near the Proposed Downtown Merced Station

No.	Intersection	Control	Existing Conditions			
			AM Peak		PM Peak	
			LOS	Delay (sec)	LOS	Delay (sec)
1	16th St/SR 59	Unsignalized ^a	C	16.3	F	>50.0
11	Olive Ave/R St	Signalized	D	50.9	E	56.2
16	Olive Ave/M St	Signalized	D	54.5	E	58.6
30	SR 99 SB Off-Ramp/SR 140	Unsignalized ^a	E	43.9	F	>50.0
31	SR 99 NB Off-Ramp/SR 140	Unsignalized ^a	F	>50.0	F	>50.0
39	16th St/Canal St	Unsignalized ^a	C	22.2	E	36.7

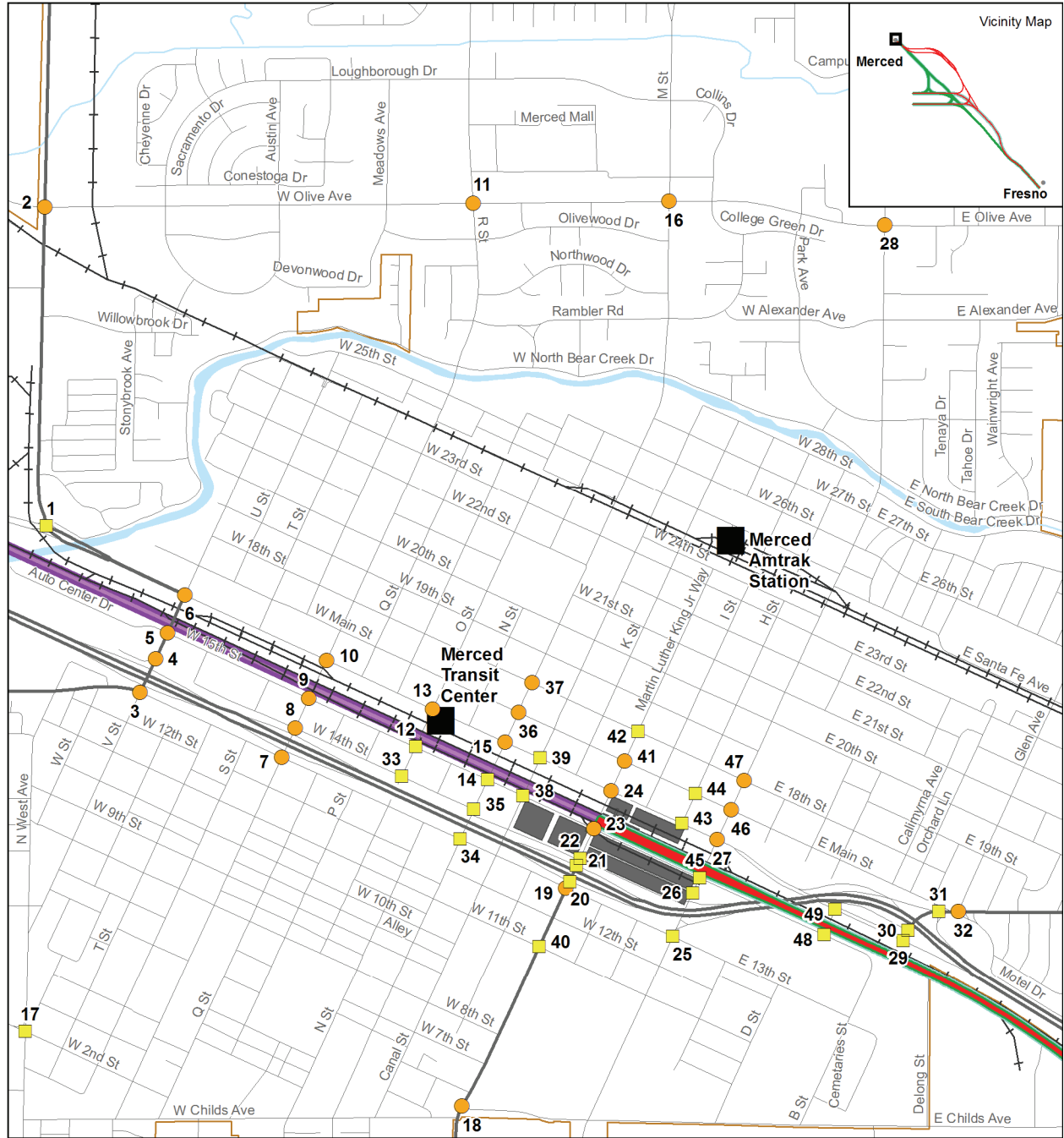
^a One-way or two-way stop-controlled intersection. LOS and delay reported for the worst movement.

During the AM peak hour, Intersection 30, SR 99 Southbound Off-ramp/SR 140, operates at LOS E and Intersection 31, SR 99 Northbound Off-ramp/SR 140, operates at LOS F. All remaining study intersections operate at LOS D or better in the AM peak hour.

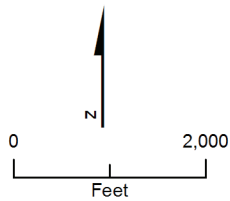
During the PM peak hour, two signalized intersections operate at LOS E or F: Intersection 11, Olive Avenue/R Street, and Intersection 16, Olive Avenue/M Street. In addition, four unsignalized intersections operate at LOS E or F: Intersection 1, 16th Street/SR 59; Intersection 30, SR 99 southbound off-ramp/SR 140; Intersection 31, SR 99 northbound off-ramp/SR 140; and Intersection 39, 16th Street/Canal Street. All remaining intersections operate at LOS D or better during the PM peak hour.

Transit

The Public Transportation Services of the Transit Joint Powers Board Authority for Merced County (The Bus) governs bus service within the county. The Bus serves Merced County, its 6 incorporated cities, and 13 unincorporated communities and townships. Currently, this service has 27 buses operating on 16 fixed routes and another 16 buses providing demand response (Dial-A-Ride) service (Merced County Transit 2008).



MF_EIS_TR_01 Jan 26, 2012



- UPRR/SR 99 Alternative
 - BNSF Alternative
 - Hybrid Alternative
 - Station Footprint
 - Potential Heavy Maintenance Facility Trackway
 - City Limit
 - Railroad
-
- Signalized
 - Unsignalized
 - 18** Intersection Number

Figure 3.2-6
 Study Intersections in Downtown Merced

Table 3.2-8 presents the bus routes and the weekday service frequency in the City of Merced. Routes 1, 2, 4, 9, and 10 would directly serve the proposed Merced HST station along 16th Street.

Table 3.2-8
 Merced Bus Routes and Weekday Service Frequency

Route	Weekday Service Frequency
Route 1 City Shopper	30 to 60 minutes
Route 2 City Shopper 2	30 to 60 minutes
Route 3 M Street Shuttle	30 minutes
Route 4 G Street Shuttle	30 minutes
Route 5 South East Merced – Downtown	45 minutes
Route 5X Amtrak – Downtown Merced HAS	40 minutes
Route 7 Turlock – Merced	90 minutes ^a
Route 8 Winton – Atwater – Merced	60 minutes ^b
Route 9 Le Grand – Planada – Merced	45 minutes ^c
Routes 10 & 10a Los Banos – Dos Palos – Merced Shuttle	Varies
Route 11 Crosstown Shuttle	30 minutes
Route 12 The R Street Shuttle	30 minutes
Route 14 Los Banos Bus Route	30 minutes
Route 15 Sierra Gardens – Mall – Wal-Mart	45 minutes
Route 16 Atwater – Winton	60 minutes
^a 8 round trips/day ^b 9 round trips/day ^c 7 round trips/day Source: Merced County Transit (2008).	

Non-Motorized Facilities

Pedestrian facilities in the vicinity of the proposed Merced station include a sidewalk system on most adjacent streets; however, no separated pedestrian paths or trails lie nearby. Near the station site, sidewalks are available along both sides of 16th Street. The city provides pedestrian crosswalks at most intersections along 16th Street. The city has constructed sidewalks on other major streets, including 15th Street, R Street, M Street, O Street, and G Street.

The City of Merced has a comprehensive bikeway system consisting of Class I, Class II, and Class III bicycle facilities. Class I bicycle facilities are paved, off-street bicycle paths; Class II bicycle facilities are on-street, marked bicycle lanes; and Class III bicycle facilities are on-street, shared-use bicycle routes.

Existing Class I bicycle paths lie along Bear Creek, Black Rascal Creek, Cottonwood Creek, and Fahrens Creek. Existing Class II bicycle lanes run along major sections of the arterial streets, including G Street, M Street, Yosemite Avenue, and McKee Road. Class II bicycle lanes are also provided on shorter sections of R Street, V Street, West Avenue, 17th Street, 18th Street, and 21st Street. Existing Class III bicycle

routes run on sections of collector and arterial streets, including V Street, 26th Street, Glen Avenue, and Childs Avenue (City of Merced 1997). More information on the pedestrian and bicycle facilities is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

Parking Facilities

The City of Merced provides approximately 2,100 public parking spaces within a walking distance of 0.5 mile from the proposed downtown station. They include on-street parking, surface parking lots, and two garages. The City of Merced manages these parking facilities through its Downtown Parking District. Parking is generally free, with time restrictions based on time of day or day of the week. More information on parking facilities is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

3.2.4.3 Downtown Fresno Station

As with the Merced station, this section discusses the Downtown Fresno Station study area in detail because of potential changes to local traffic conditions.

Highways and Roadways

The roadway network around the proposed Downtown Fresno Station consists of expressways, arterials, collectors, and local streets (Figure 3.2-7). The roadway network follows a grid pattern. In addition, three freeways pass through the study area. Forty-one roadway segments near the proposed Downtown Fresno Station were analyzed. All the analysis segments operate at LOS D or better under existing AM and PM peak hour conditions, except the segment on Tulare Street between SR 41 Ramps and N 1st Street, which operates at LOS F. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides additional information regarding the surrounding roadway network and roadway segment analysis.

Intersections

Figures 3.2-8 and 3.2-9 present the 119 intersections identified for analysis, where analysis was performed for the AM and PM peak hours. Table 3.2-9 summarizes LOS and delay for those intersections that are currently operating at LOS E or F under AM and/or PM peak hours. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides additional information on intersection analysis.

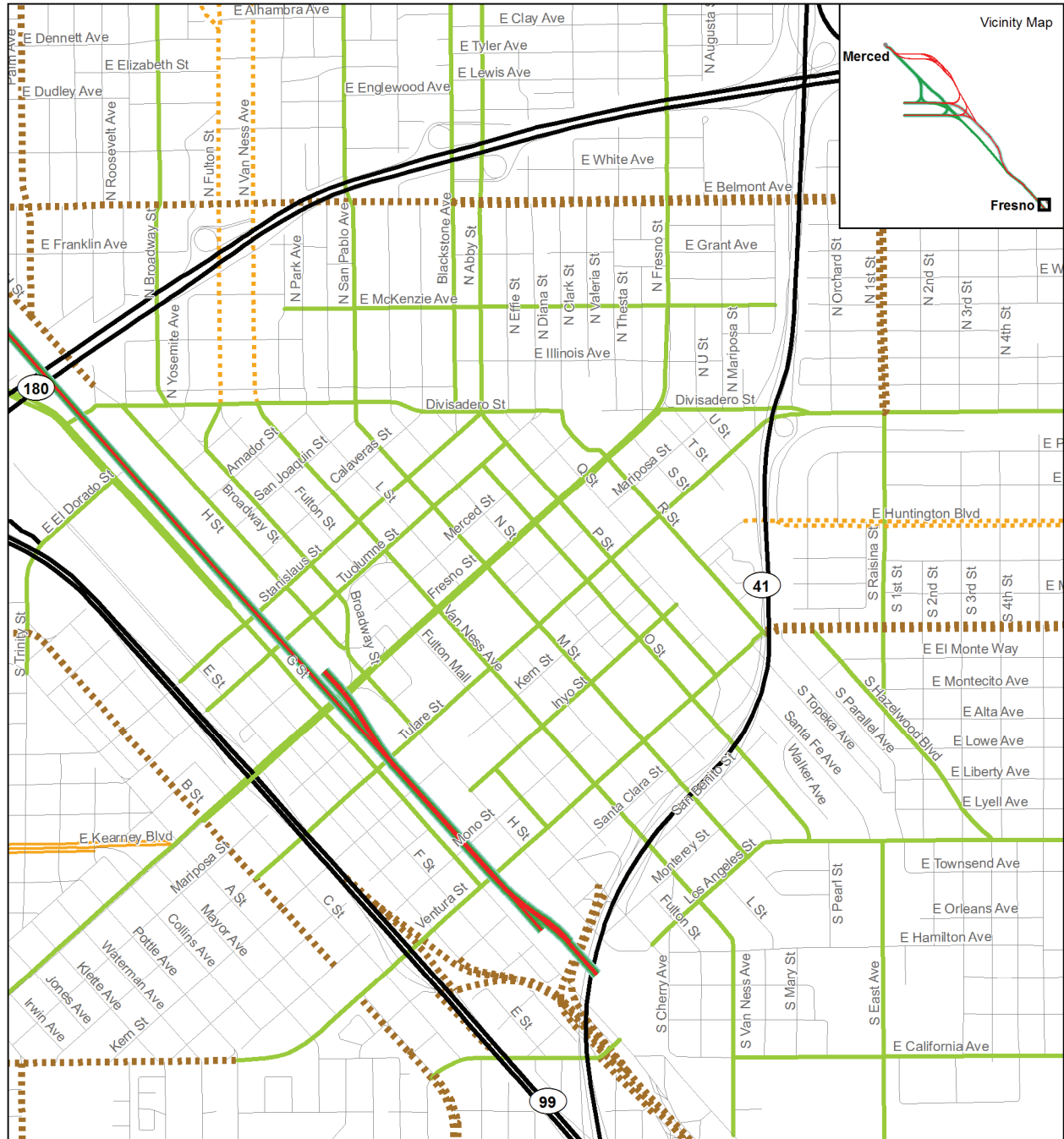
Transit

The Fresno Area Express (FAX) is Fresno's transit service; it has 13 routes that serve the proposed HST station area. FAX serves the greater Fresno Metropolitan Area with a fleet of over 100 buses. Service includes 20 fixed-route bus lines and paratransit service (City of Fresno 2002). The existing routes that would serve the proposed Downtown Fresno Station are summarized in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) and the weekday service frequencies are listed in Table 3.2-10.

Non-Motorized Facilities

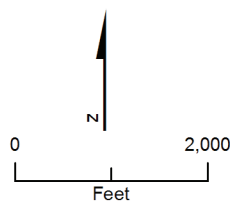
The objective of the City of Fresno's Bicycle Transportation Plan is to establish and maintain a continuous, safe, and easily accessible bikeway system to facilitate bicycling as a viable transportation alternative and a recreational activity that would reduce vehicle use, improve air quality, improve the quality of life, and provide public health benefits (City of Fresno 2010). Two bikeways exist within a 1-mile radius of the station, along Huntington Boulevard and B Street. There are no existing bike lanes or routes connecting to or located in the immediate vicinity of the station locations. Sidewalks are present on most of the streets in the vicinity of the station alternatives (City of Fresno 2002). The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides additional information and detailed descriptions of these facilities.





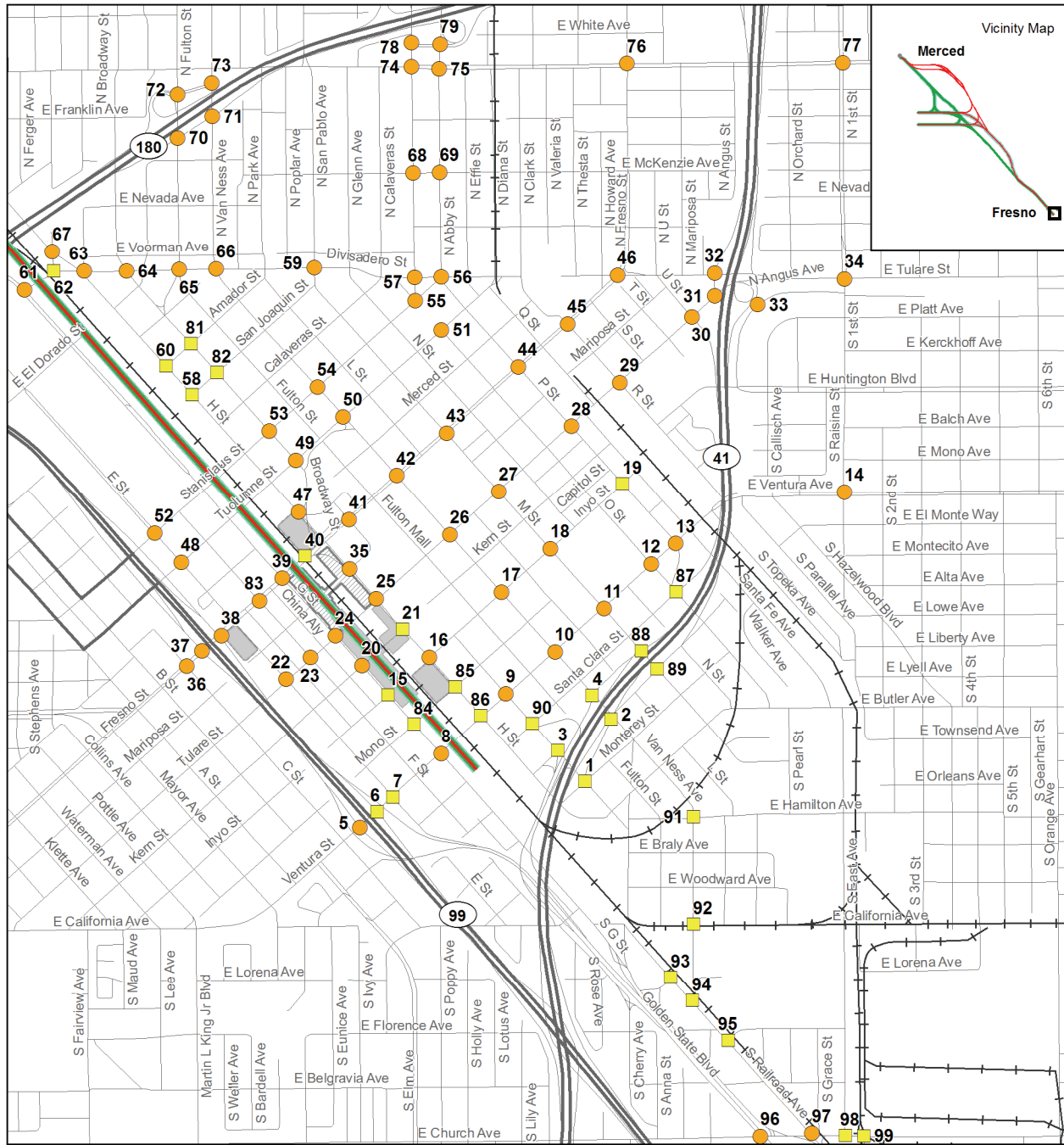
Source: City of Fresno (2002).

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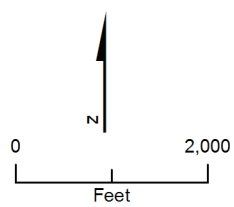


- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Footprint
- Kern Station
- Mariposa Station
- Railroad
- Freeway
- Arterial
- Collector Street
- Scenic Collector
- Scenic Drive
- Local Street

Figure 3.2-7
 Roadway Classifications
 in Downtown Fresno

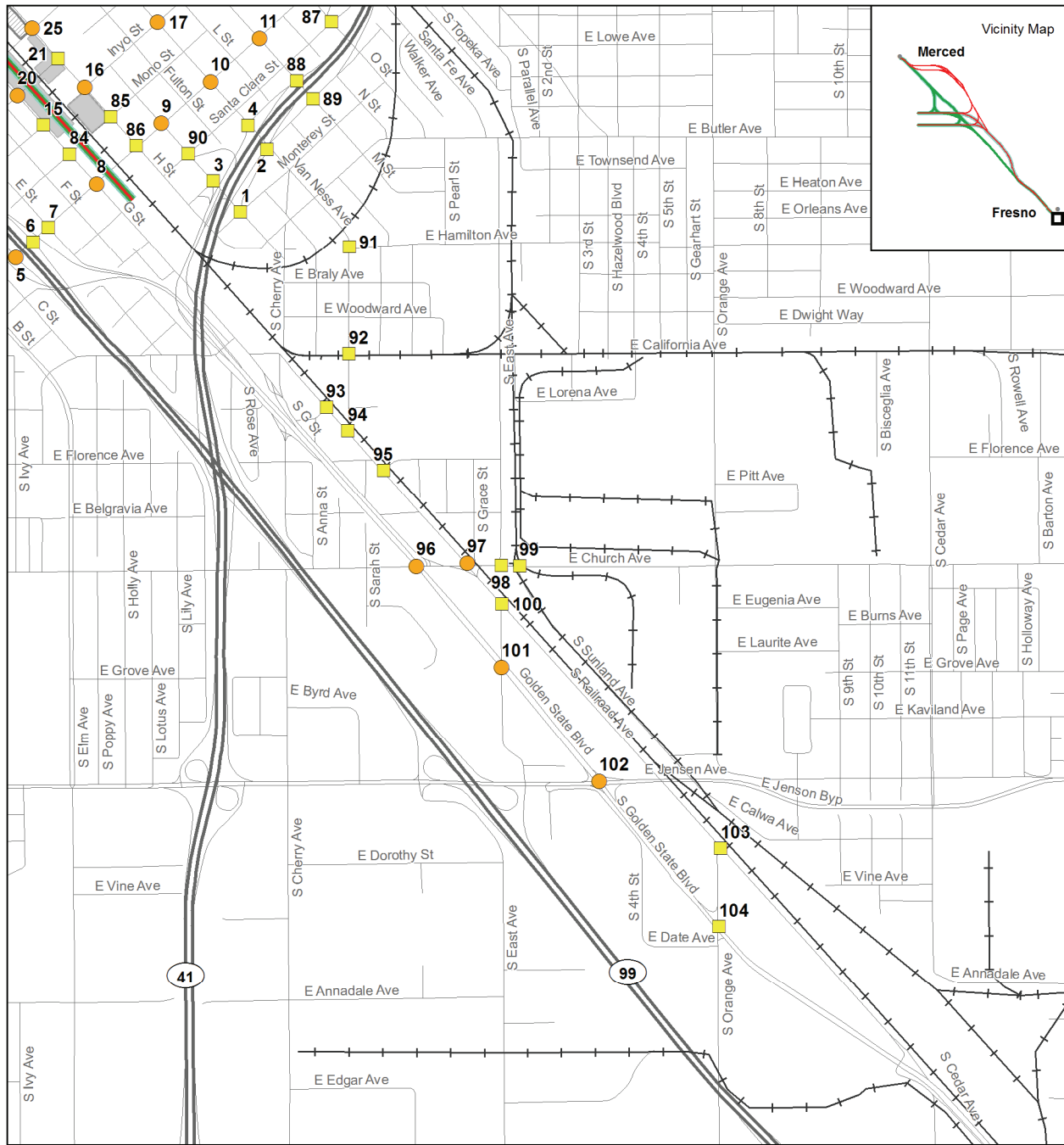


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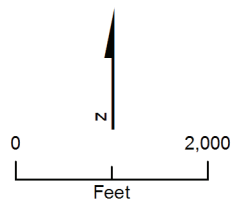


- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Footprint
- Kern Station
- Mariposa Station
- Railroad
- Signalized
- Unsignalized
- 96** Intersection Number

Figure 3.2-8
 Study Intersections in Northern Portion
 of Downtown Fresno



MF_EIS_TR_02a Jan 26, 2012



- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Footprint
- Kern Station
- Mariposa Station
- Railroad
- Signalized
- Unsignalized
- 104** Intersection Number

Figure 3.2-9
 Study Intersections in Southern
 Portion of Downtown Fresno

Table 3.2-9
 Intersections Operating at LOS E or F near the Proposed Downtown Fresno Station

No.	Intersection	Control	Existing Conditions			
			AM Peak		PM Peak	
			LOS	Delay (sec)	LOS	Delay (sec)
6	SR 99 Northbound Ramps/Ventura Ave	One-Way Stop	F	>50.0	D	34.5
7	E St/Ventura Ave	Two-Way Stop	D	32.1	E	35.7
33-0	Divisadero St/SR 41 NB Ramps/Tulare St	Signalized	F	>80.0	F	>80.0
63	H St/Divisadero St	Signalized	E	74.7	C	33.7
80	N Blackstone Ave/SR 180 WB Ramps	Signalized	F	>80.0	B	17.4
89	M St/San Benito - SR 41 NB On-Ramp	Two-Way Stop	B	11.7	F	>50.0

Notes:
 Delay represented is average delay at signalized intersections, and all-way stop-controlled intersection and worst movement delay on controlled approaches at one-way or two-way stop-controlled intersections. Delay is measured in seconds per vehicle.

Table 3.2-10
 Fresno Bus Routes and Weekday Service Frequency

Route	Weekday Service Frequency (minutes)
Route 20 - N Hughes/N Marks/E Olive	30
Route 22 - N West Ave/E Tulare Ave	30
Route 26 - N Palm/Peach Ave	30
Route 28 - CSUF/Manchester Center/W Fresno	15
Route 30 - Pinedale/N Blackstone/W Fresno	15
Route 32 - N Fresno/Manchester Center/W Fresno	30
Route 33 - Olive/Belmont Crosstown	30
Route 34 - Northeast Fresno/N 1st/W Fresno	15
Route 35 - Olive Crosstown	30
Route 38 - N Cedar/Jensen/Hinton Center	15
Route 39 - Clinton Ave Crosstown	30
Route 41 - N Marks Ave/Shields Ave/VMC	30
Route 45 - Ashlan Crosstown	60

Source: Authority and FRA (2012).

Parking Facilities

The City of Fresno owns and operates 10 parking lots and garages that provide event, monthly, and/or daily parking in Downtown Fresno. The combined parking lots and garages provide approximately 4,700 parking stalls, not including the underground parking garage near Tulare Avenue and Van Ness Avenue that runs several city blocks. More information on parking is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

3.2.4.4 Heavy Maintenance Facility Alternatives

Intersection turning-movement volumes were collected at the study intersections around each of the five proposed HMF sites in May 2010. Based on these traffic volumes, LOS was calculated for AM and PM peak hours. More information is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012).

The results of the analysis indicated that eight intersections operate at LOS E or F under existing conditions. Of these, seven intersections are in the vicinity of the proposed Castle Commerce Center HMF and one intersection is in the vicinity of the proposed Harris-DeJager HMF (Intersection 3). Table 3.2-11 summarizes the LOS and delay information for these locations. All other intersections in the vicinity of the proposed HMF locations operate at LOS D or better conditions.

Table 3.2-11
 Intersections Operating at LOS E or F around the Proposed HMF Locations under Existing Conditions

No.	Intersection	Intersection Control	Existing Conditions			
			AM Peak Hour		PM Peak Hour	
			LOS	Delay (sec)	LOS	Delay (sec)
Castle Commerce HMF						
11	Ashby Rd/Buhach Rd	Unsignalized ^a	F	>50.0	F	>50.0
25	16th St/SR 59	Unsignalized ^a	C	16.3	F	>50.0
34	Olive Ave/R St	Signalized	D	50.9	E	56.2
39	Olive Ave/M St	Signalized	D	54.5	E	58.6
53	SR 99 SB Off-Ramp/SR 140	Unsignalized ^a	E	43.9	F	>50.0
54	SR 99 NB Off-Ramp/SR 140	Unsignalized ^a	F	>50.0	F	>50.0
62	16th St/Canal St	Unsignalized ^a	C	22.2	E	36.7
Harris-DeJager HMF						
3	SR 99/E Sandy Mush Rd	Unsignalized ^a	F	>50.0	F	>50.0

^a One-way or two-way stop-controlled intersection. LOS and delay reported for the worst movement.

3.2.5 Environmental Consequences

3.2.5.1 Overview

This section describes the impacts related to transportation for the proposed project and alternatives. Chapter 1, Project Purpose, Need, and Objectives, provides information regarding the status of the No Project Alternative, including the regional transportation system (which has been determined to under-

serve the Central Valley). As demonstrated in Chapter 2, Alternatives, the No Project Alternative would lead to inevitable congestion on regional roadways, despite planned improvements, because anticipated growth would outpace roadway expansion. By contrast, all HST alternatives would provide beneficial transportation impacts beyond additional modal connectivity. The change from vehicles to HST would reduce daily auto trips and corresponding vehicle delay and congestion. A substantial amount of intercity auto travel (primarily using SR 99) would divert to HST service, relieving projected future congestion on SR 99. The reduction in future intercity trips would also improve the ability of SR 99 to accommodate freight traffic and would improve projected travel speeds on the freeway.

Construction of the project would result in temporary, short-term impacts on traffic flow, circulation, and access. These impacts would not substantially increase hazards or incompatible uses or result in inadequate emergency access. The Authority and FRA incorporated avoidance measures into the project that have been developed/refined from the mitigation strategies listed in the Program EIR. During project design and construction, the Authority would implement measures to reduce any temporary delays, including but not limited to traffic control/maintenance-of-traffic plans and maintenance of pedestrian access, which would cause construction impacts to be moderate under NEPA and less than significant under CEQA.

Some localized effects would result from implementation/operation of the project, such as local road closures. All HST alternatives would shift SR 99 in a 2-mile-long portion of the corridor in Fresno and would have intersection impacts at the Merced and Fresno HST station areas. The freeway shift would improve safety and provide for needed improvements in this area of SR 99. Differences in transportation impacts among the three alternatives are largely related to the number of roads or highways that would be crossed by each and the number of local roads that would be recommended for closure under each alternative. For example, the UPRR/SR 99 Alternative would require the closure of between 19 and 28 local roadways, the BNSF Alternative would require the closure of between 28 and 42 local roadways, and the Hybrid Alternative would require closure of between 30 and 36 local roadways.

All HST alternatives would also have the same potential to affect local commercial airport traffic, the existing commuter and local transit system, freight traffic, parking facilities, and pedestrian and bicycle facilities, particularly around stations. The connectivity that all project alternatives would provide between local and regional transit and the statewide HST system would result in beneficial impacts for commuters and local residents.

All the proposed HMF sites would have similar impacts; however, there is some differentiation with regard to each site's impact on surrounding intersections. The Harris-DeJager HMF would affect one intersection, the fewest of all HMF sites. The Fagundes HMF site would affect 4 intersections, while the Gordon-Shaw HMF would affect 5 intersections, the Kojima Development HMF would affect 6 intersections, and the Castle Commerce Center HMF would affect 25 intersections under Option A and 22 intersections under Option B.

Along with the permanent project impacts discussed above, there could be potential impacts during construction. These impacts may be generally reduced through avoidance and minimization measures and any impacts are expected to be short term and temporary.

3.2.5.2 No Project Alternative

The No Project Alternative provides a basis for comparing the HST Project alternatives. The No Project Alternative represents the state's transportation system (highway, transit, air, and conventional rail) as it is currently and as it would be after implementation of programs or projects that are currently identified in RTPs, have identified funds for implementation, and are expected to be in place by 2035, the study's planning horizon year. The No Project Alternative was developed from the following sources of information:

- State Transportation Implementation Program (STIP).
- RTPs, financially constrained projects for all modes of travel.

- AMPs.
- Intercity passenger rail plans.

The following is an analysis of the No Project Alternative for transportation movements; the description of anticipated projects and capacity are outlined in Section 2.4 of Chapter 2, Alternatives. The transportation facility analysis incorporated the anticipated increase in travel patterns for the projected increase in population and employment. As stated in Chapter 2, between 2010 and 2035, vehicle miles traveled (VMT) is projected to increase 80%, 90%, and 20% in Merced, Madera, and Fresno counties, respectively. According to a statewide transportation projection conducted by Cambridge Systematics, the three-county region is projected to increase from 35 million to almost 50 million miles traveled per year in 2035 (Cambridge Systematics 2007). This establishes the background for the following assessment of the transportation infrastructure.

Highway Element

The updated *Route 99 Corridor Business Plan* (Caltrans 2009) indicates that safety and capacity improvements of a minimum 6-lane facility for the entire SR 99 corridor would result in congested conditions (exemplified by stop-and-go conditions) by 2030. Outside of SR 99 plans, the planned highway improvements in the No Project Alternative would partially address the growth in travel, but would not add substantial intercity travel capacity to the system. The region's residents would experience congested travel conditions that would persist for longer periods of time, as more drivers adjust their time of travel to avoid the most heavily congested commute hours. These improvements represent incremental solutions to capacity constraints on the regional road network, but would not provide the needed capacity to address anticipated regional growth and meet Caltrans' traffic movement minimum standards. The specific levels of service for the No Project Alternative are reported as a point of comparison for the HST alternatives at key locations with respect to the project corridor.

Aviation Element

As discussed in the Chapter 2 summary of airport existing condition and previous trends for FAT and MCE, there has been relatively little growth in enplanements in the previous 9 years. However, the 2006 Fresno AMP does project growth in airport usage as an increased population moves to the area. The AMP estimates 852,000 enplanements by 2025 (a 40% increase). Total aircraft operations are estimated to increase 20%.

As population within the six-county service area increases, operations at FAT would increase. As stated in Chapter 1, Project Purpose, Need, and Objectives, passenger usage of FAT is low because of market forces of air fares, automobile use, and alternative airports in the Bay Area, Sacramento, and Los Angeles (Fresno COG 2010). Possibly as many as 300,000 passengers a year who might use intrastate air service, if available and competitively priced, instead are using auto mobiles to reach their destination or another state airport. These market forces would influence the growth in future operations at these airports, but neither MCE nor FAT (per the AMP) has any physical constraints to meet future demand expectations.

Intercity Common Carrier Element

Conventional Passenger Rail

Planned improvements to the San Joaquin Amtrak Route are anticipated to reduce travel time to under 6 hours between Bakersfield and Oakland at an average speed of 51.2 mph with the potential to reach speeds of upwards of 70 mph (Caltrans 2008). The trends in intercity commuter trains in northern California show that reliable train service, cost effective prices, and additional train frequencies between business centers has resulted in increased ridership. This is well exemplified by the Capital Corridor (Sacramento to Oakland and San Jose service), where ridership has increased from approximately 300,000 in 1994 to 1.6 million passengers in 2009 due to increased reliability in on-time performance and an increased number of trains (3 roundtrip/day to 16 roundtrips today) (Hicks 1994, CCJPA 2010). In addition, the San Joaquin service ridership increased from approximately 559,000 in 1994 to



approximately 930,000 in 2009 and just over 1 million in 2011, while being limited by track capacity constraints on the number of trains operated.

Intercity Passenger Bus Service

Greyhound-Trailways Bus Lines provides scheduled bus service through the San Joaquin Valley along SR 99. While intercity bus service is likely to increase in the future, there are no documented plans for service expansion. Continued service is an element of the No Project Alternative, though these bus lines serve only a very small portion of the intercity travel market. Without changes, it is expected that demand would remain steady and incremental growth of ridership would occur; however, some service reliability would be sacrificed due to increased congestion anticipated on SR 99.

Freight Rail Element

While the national trend for freight rail traffic has been growing, with a 31.4% increase in ton-miles of freight activity between 1997 and 2007 (Bureau of Transportation 2010), the local lines between Merced to Fresno have not fluctuated greatly.

Both railroads are currently operating near capacity; according to the 2009 Goods Movement Study (MCAG 2010), without major improvements (such as additional sections of double track), freight activity may exceed capacity by 2035, with the addition of a limited number of train movements. UPRR and BNSF railroads have historically added capacity when needed to meet market demands in other regions and UPRR has conveyed a desire to do so in areas of California. These future improvements are expected to continue to provide sufficient capacity for interstate needs.

The freight railroads would also gain capacity from planned improvements for the expansion of Amtrak San Joaquin service, as defined in the State Rail Plan. Additionally, they would benefit from the grade separations currently programmed by the counties (see the Highway Element section of the No Project Alternative in Chapter 2, Alternatives), such as the Atwater-Merced Expressway and the Shaw Avenue BNSF overcrossing in Fresno.

Future improvements that are part of the No Project Alternative are also included in the HST alternatives as part of the future 2035 baseline. The No Project Alternative, described in more detail in Chapter 2, Alternatives, includes roadways and other modes of transportation, including aviation, freight rail, and conventional passenger rail elements.

No Project Alternative Intersection and Roadway Segment Analysis

No Project Alternative intersection analysis was performed for the alignment in Fresno, for the Merced and Fresno stations, and for the HMF locations, incorporating the transportation improvements identified in this section in the vicinity of each location. The No Project condition traffic volumes were determined by using the growth factors obtained from the individual county models. The results of the analysis compared to the existing conditions are summarized here and detailed analysis and results for the same are presented in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012). Generally, operations at more intersections deteriorated to LOS E or F compared to the existing conditions because of forecast growth.

Fresno HST Alignment

In Fresno, major roadways such as Golden State Boulevard, Shaw Avenue, and McKinley Avenue in the vicinity of the proposed HST alignment would generally operate at LOS D or better under future No Project conditions.

Between Herndon Avenue and Shaw Avenue, 12 of the 15 analyzed intersections would operate at LOS E or F during the AM and/or PM peak hours under No Project conditions, while only 5 operate at LOS E or F under existing conditions. In this study area, two of the five roadway segments analyzed would operate

at LOS F under No Project conditions, while all segments operate at LOS D or better under existing conditions.

In the vicinity of the SR 99 freeway shift, 11 of the 18 analyzed intersections would operate at LOS E or F during the AM and/or PM peak hours under No Project conditions, while only 4 intersections operate at LOS E or F under existing conditions.

Between McKinley Avenue and SR 180, 12 of the 13 analyzed intersections would operate at LOS E or F during the AM and/or PM peak hours under No Project conditions, while only 2 operate at LOS E or F under existing conditions. In this study area, 10 of the 13 analyzed roadway segments operate at LOS E or F under No Project conditions, while all the segments operate at LOS D or better under existing conditions.

Downtown Merced Station

In the vicinity of the Merced station, 25 of the 49 analyzed intersections would operate at LOS E or F during the AM and/or PM peak hours under No Project conditions, while only 6 intersections operate at LOS E or F under existing conditions. Sixteen of the 27 analyzed roadway segments would operate at LOS E or F under No Project conditions, while only one segment operates at LOS E or F under existing conditions.

Downtown Fresno Station

In the vicinity of the Fresno station, 59 of the 119 analyzed intersections would operate at LOS E or F during the AM and/or PM peak hours under No Project conditions, while only 7 intersections operate at LOS E or F under existing conditions. Sixteen of the 58 analyzed roadway segments would operate at LOS E or F under No Project conditions, while only one segment operates at LOS E or F under existing conditions.

Heavy Maintenance Facility Sites

Under No Project conditions, 30 intersections near Castle Commerce Center HMF, 3 intersections near Harris-DeJager HMF, 5 intersection near Fagundes HMF, 3 intersections near Gordon-Shaw HMF, and 4 intersections near Kojima Development HMF operate at LOS E or F conditions, while only 8 intersections operate at LOS E or F conditions under existing conditions (7 near Castle Commerce Center HMF and 1 near Harris-DeJager HMF).

3.2.5.3 High-Speed Train Alternatives

This section presents the impacts of the proposed HST alternatives on transportation facilities and conditions. Construction impacts represent temporary effects limited to the construction period of any one portion or segment of the project. Project operation impacts describe effects once the HST System is open for use. Section 3.2.7, Mitigation Measures, describes construction and operation mitigation measures.

The construction schedule is presented in Chapter 2, Alternatives. A Construction Management Plan would be prepared during final design that outlines transportation detours, plans to accommodate emergency service routes, and outreach activities to manage expectations and traffic constraints, among other items. Preparation of this type of plan is a standard practice and incorporates local review and comment.

The HST system would provide a new regional surface transportation system that complements and connects with existing transportation modes. At a regional level, HST service would reduce VMT by providing motorists an alternative to relying on existing interregional and intercity freeways and highways. The HST system would be grade-separated from freeways, highways, and roads, allowing vehicular traffic to pass unimpeded under or over the rail corridor.

Throughout the design and implementation of the proposed project, the Authority would continue to work with local and regional transportation agencies to do the following:

- Develop and implement transit-oriented development strategies around the HST stations.
- Coordinate transit services and increase service and/or add routes, as necessary, to serve the HST station areas.

Consistency with Regional Plans and Policies

The Authority would comply with federal and state laws and regulations regarding transportation facilities. The HST Project is generally consistent with the plans and policies in Table 3.2-1, although the proposed HST routes identified in the plans and policies may vary from what is proposed in this EIR/EIS. The HST Project is consistent with the RTPs for Merced, Madera, and Fresno counties, which call for development of an integrated multimodal transportation system and expanded transit service, including further development of passenger rail and HST service. The HST Project is also consistent with the Fresno County Congestion Management Program, which is managed by the Fresno COG and is integrated with the Fresno County RTP. The Congestion Management Program objectives, which are supported by the HST Project, include the development of a multimodal transportation system and the reduction in VMT by encouraging alternative modes of transportation.

Construction Period Impacts

The common construction impacts on all HST alternatives are impacts on local circulation and emergency access, which are organized in the discussion below by the location in which they occur, as follows:

- Urban areas where stations and some mainline construction would occur
- HMF alternatives
- Areas adjacent to freeways and/or existing rail lines where existing overcrossings would be modified or relocated, and in some instances, where the freeway would be relocated
- Rural areas where mainline roadbed and minor road overcrossings would be built

Urban Area Construction Impacts on Circulation and Emergency Access

In urban areas, including Merced, Chowchilla, Le Grand, Fairmead, Madera, Madera Acres, and Fresno, project-related construction traffic could contribute to interference with pedestrians, bicyclists, and transit. Also, construction traffic may create an operational hazard or loss of access to community facilities, although emergency access would be maintained. This includes heavy truck traffic, as materials are brought to the project site and demolished or excavated materials are hauled out. Construction activities could require temporary lane or road closures and underground utility work. Construction activities could also lead to both temporary disruption of transportation system operations and possible damage to elements of the roadway system such as pavement and bridges. Most of the HMFs would be located in less urban areas. Because project construction traffic would be temporary, any associated congestion traffic effects would not be considered as impacts.

All truck traffic, either for excavation or for transporting construction materials to the site, would use the designated truck routes within each city. A detailed Construction Transportation Plan would be developed for the project prior to beginning any construction activities. The Construction Transportation Plan would be reviewed by the cities.

Trips for construction workers would generally occur outside of the peak hours for freeway and street traffic. The proposed project may involve building remote parking areas for these workers, with shuttles to bring them to and from the construction area if the remote parking areas are distant from the project

site. Early construction of the remote parking lots as the first phase of construction would make them available for construction workers to use for the remainder of the project.

The movement of heavy construction equipment such as cranes, bulldozers, and dump trucks to and from the site would generally occur during off-peak hours on designated truck routes. Once onsite, heavy construction equipment would remain there until its use for that job was completed; such equipment would not be moved repeatedly to and from the construction site over public streets.

The construction of the HST stations, platforms, and track alignment would require temporary construction easements (TCEs). The TCE may require the temporary closure of parking areas, roadway travel lanes, pedestrian facilities, bicycle lanes, and paths. Any closure or removal of parking areas, roadways, pedestrian facilities, bicycle lanes, and paths during construction would be temporary and every attempt would be made to minimize their removal or shorten the length of time that these facilities are inoperable. Upon completion of construction, all parking areas, roadway lanes, pedestrian facilities, and bicycle lanes would be restored. For TCEs that cross railroad property, the Authority would attempt to avoid affecting railroad operations, to the extent possible. Permission for temporary access on railroad property may be necessary during construction. In order to avoid affecting railroad operations during construction, the contractor would be responsible for reaching agreement on the timing and duration of activities prior to implementing a TCE on railroad property. However, because construction conditions may vary, there is a possibility for disruption to or temporary delay of railroad operations. In particular, impacts to rail operations are expected to occur in downtown Fresno at several railroad crossing locations. However, because the timing and duration of activities would be predetermined in agreement with the railroad, the railroad would be able to adapt their operations during construction activities as they deem acceptable, and the potential for disruption to railroad operations would be an impact with moderate intensity under NEPA and a less than significant impact under CEQA.

Downtown Merced Station Construction Impacts on Circulation

The City of Merced, in its municipal code, has designated the following roadways in the downtown area of the City as truck routes:

- W 13th Street from G Street to V Street
- W Highway 140 (McSwain Road) from V Street to the westerly city limits
- W 16th Street from the westerly city limits to G Street
- E 16th Street from G Street to Yosemite Parkway
- Yosemite Parkway from E 16th Street to the easterly city limits
- G Street from the northerly city limits to 13th Street
- Martin Luther King, Jr. Way from W 16th Street to Childs Avenue
- V Street from W 16th Street to West Avenue
- Childs Avenue from Highway 59 to the easterly city limits
- W Olive Avenue from Highway 59 to the easterly city limits
- Kibby Road from Yosemite Parkway to Childs Avenue
- Parsons Avenue from Yosemite Parkway to Childs Avenue
- West Avenue from V Street to Childs Avenue
- Highway 59 (Snelling Road) from 16th Street to the northerly city limits
- M Street from W 16th Street to Olive Avenue
- E Childs Avenue from Highway 99 to the easterly city limits

Approximately 225 daily peak-hour trips would be added to the Merced street system during construction of the proposed project. While the actual construction schedule is not currently known and cannot be known until closer to the beginning of construction, an analysis was conducted to assess impacts. The analysis focused on the impacts of construction-related trips (material hauling, worker trips, etc.) on City of Merced intersections. Based on this analysis, the addition of construction traffic from the proposed project is projected to be noticeable at the following six intersections:

- 16th Street at SR 59
- 16th Street at V Street

- SR 99 Southbound Ramps at Martin Luther King Jr. Way
- SR 99 Northbound Ramps at Martin Luther King Jr. Way
- 14th Street at Martin Luther King Jr. Way
- SR 99 Southbound On-Ramp at SR 140

Depending on the specifics of the construction activities, other intersections could experience increased traffic. Moreover, any delays from this additional traffic are expected to be short term and temporary. These construction impacts would not substantially increase hazards, safety risks, or incompatible uses or result in inadequate emergency access. Because additional trips resulting from construction of the project would be short term and temporary, and would not substantially increase hazards, safety risks, or incompatible uses, the impacts would have moderate intensity under NEPA and would be less than significant under CEQA.

Downtown Fresno Station Construction Impacts on Circulation

The City of Fresno, in its municipal code, has designated the following roadways in the downtown area of the City as truck routes:

- Divisadero Street from H Street to P Street
- P Street from Abby Street to CA 41
- Abby Street from SR 180 to Divisadero Street
- Blackstone Avenue from SR 180 to Divisadero Street
- E Belmont Avenue (entire length)
- O Street from Ventura Street to Butler Street
- San Benito Street from O Street to Van Ness Avenue
- California Avenue from Martin Luther King to westerly city limits
- Railroad Avenue from California Avenue to southerly city limits
- G Street from SR 180 to Golden State Boulevard
- Golden State Boulevard from SR 99 to southerly city limits
- Ventura Street from Martin Luther King to S 1st Street
- B Street from Tuolumne Street to El Dorado Street
- B Street from Ventura Street to E California Street
- A Street from El Dorado Street to Tuolumne Street
- Elm Street from California Street to southerly city limits
- West Amador Street from Whitesbridge Avenue to El Dorado Street
- Whitesbridge Avenue from El Dorado Street to the westerly city limits
- Thorne Avenue from Whitesbridge Avenue to California Avenue
- El Dorado Avenue/Trinity Street from A Street to G Street
- E Street from El Dorado Avenue to Fresno Street
- C Street from Fresno Street to Golden State Boulevard
- Stanislaus Street from B Street to P Street
- Tuolumne Street from B Street to P Street
- M Street from Tuolumne Street to Los Angeles Street
- Van Ness Avenue from CA 41 to Railroad Avenue

Approximately 170 daily peak-hour trips would be added to the Fresno roadway system during construction of the proposed project. While the actual construction schedule is not currently known and cannot be known until closer to the beginning of construction, an analysis was conducted to assess impacts. The analysis focused on the impacts of construction-related trips (material hauling, worker trips, etc.) on City of Fresno intersections. Based on this analysis, the addition of construction traffic from the proposed project is projected to be noticeable at N Blackstone Avenue at SR 180 westbound ramps.

Depending on the specifics of the construction activities, other intersections could notice increased traffic. These construction impacts are based on a worst-case assessment, however, that would be reduced through avoidance and minimization measures, and any impacts are expected to be short term and temporary. Moreover, these impacts would not substantially increase hazards or incompatible uses or

result in inadequate emergency access. Because additional trips resulting from construction of the project would be short term and temporary, and would not substantially increase hazards, safety risks, or incompatible uses, the impacts would have moderate intensity under NEPA and would be less than significant under CEQA.

Heavy Maintenance Facility Alternatives Construction Impacts on Local Circulation

Impacts during construction to roadways at HMF alternative sites would be temporary. Worker vehicles entering and leaving the job sites at the beginning and end of shifts have the potential to increase delays on roadways and at intersections. Use of heavy equipment and delivery or removal of materials by trucks also has the potential to add traffic, especially if they occur during morning or evening peak periods. However, the HMF sites are generally located on roadways that have relatively low volumes of traffic. Because worker vehicles and heavy equipment accessing job sites would be located on roadways that have relatively low volumes of traffic, impacts associated with HMF construction would have moderate intensity under NEPA and would be less than significant under CEQA.

Construction Adjacent to Freeways Construction Impacts on Circulation

Impacts to existing freeways adjacent to the HST mainline would be temporary and would typically affect roadway operations. Such construction could result in temporary closure of traffic lanes, reduction of lane widths, reduced speed limits, temporary on- and off-ramp closures, detours, and temporary closure of the freeway for placement of structural elements of installation or removal of falsework. The duration of these impacts could range from several hours in the case of a freeway closure to months in the case of lane-width reductions. Standard construction procedures related to traffic management would be used, including development of a detailed traffic control plan for each affected location prior to beginning any construction activities. These plans would identify when and where temporary closures and detours would occur, with the requirement of maintaining traffic flow during peak travel periods. Impacts due to temporary roadway closures associated with construction would not substantially increase hazards or incompatible uses or result in inadequate emergency access (also see Section 3.11, Safety and Security). Because standard construction practices would be used to manage traffic during construction, hazards and incompatible uses would not increase and inadequate emergency access would not occur, the impacts would have moderate intensity under NEPA and would be less than significant under CEQA.

Construction Related to the Realignment of SR 99

The realignment of SR 99 would result in short-term increases in trips associated with construction activity. The number of trips would vary but are expected to be no more than 100 workers per day. Most of those trips would occur before the AM and PM peak hours, coinciding with construction worker shifts.

Up to 100 construction worker trips would increase traffic at the intersections of Dakota Avenue and Brawley Avenue and Ashlan Avenue and SR 99 southbound ramps. Depending on the specifics of the construction activities, other intersections could notice increased traffic. However, any delays from this increased traffic would be short term and temporary. Moreover, this additional traffic would not substantially increase hazards, safety risks, or incompatible uses or result in inadequate emergency access. Because delays from increased traffic caused by construction would be temporary, hazards and incompatible uses would not increase and inadequate emergency access would not occur, the impacts would have moderate intensity under NEPA and would be less than significant under CEQA.

Traffic Flow and Circulation Impacts during SR 99 Realignment

Reconstruction of a similar size and scale to the proposed modifications to the SR 99 alignment is typically performed in multiple stages. This is done to accommodate the existing traffic flows through the project and provide adequate space for safe and cost effective construction operations. The number of stages needed would be determined by how restrictive the highway corridor is and the amount of traffic being accommodated on alternate routes or through the construction zones. The Conceptual Staging Plans (summarized below) provide more details on the staged construction approach.



Several stages of activities are anticipated for the overall construction effort: utility and local street modifications required to clear the right of way for the relocated highway facility, partial street and structure construction to accommodate staged access of traffic across highway and rail right-of-way, and partial highway construction to accommodate staged traffic through the mainline construction areas. Construction on the SR 99 mainline is anticipated to require a two-stage operation, separate from the utility and local street reconstruction operations:

Stage 1

Construction

- Construction of the north portion of Clinton Avenue and southbound SR 99, including the Clinton Avenue southbound off-ramp.
- Construction of the connection to the existing SR 99 section north of the project area at the Ashlan Avenue interchange, including the Ashlan Avenue southbound on-ramp.
- Construction of the connection to the existing SR 99 section south of the project area at the Clinton Avenue interchange, including the southbound off-ramp to Golden State Boulevard.

Traffic Handling

- Maintaining two lanes in each direction and shifting eastbound and westbound traffic onto the existing south portion of Clinton Avenue; lanes would be maintained while shifting SR 99 southbound traffic at the transition into the project area, and SR 99 northbound traffic would remain in its current condition.

Stage 2

Construction

- Construction of the south portion of Clinton Avenue and northbound SR 99.
- Complete construction of the connection to the existing SR 99 section north of the project area at the Ashlan Avenue interchange and south of the project area at the Clinton Avenue interchange.
- Construction of the Clinton Avenue northbound on-ramps and the Ashlan Avenue northbound off-ramp.

Traffic Handling

- Maintaining two lanes in each direction and shifting eastbound and westbound traffic onto the newly constructed north portion of Clinton Avenue.
- Maintaining lanes and shifting SR 99 northbound traffic at the transition into the project area.
- Maintaining lanes and shifting SR 99 southbound traffic onto newly constructed southbound SR 99.

These construction impacts are based on a worst-case assessment, however, and the impacts are expected to be short term and temporary. Moreover, these impacts would not substantially increase hazards or incompatible uses or result in inadequate emergency access. Lane shift and detours would be accompanied by adequate safety provisions, such as those set forth in the *California Manual on Uniform Traffic Control Devices* (Caltrans 2012). Because delays from increased traffic caused by construction would be temporary, hazards and incompatible uses would not increase, and inadequate emergency access would not occur, the impacts would have moderate intensity under NEPA and would be less than significant under CEQA.

Rural Area Construction Impacts on Circulation

In rural areas, the primary traffic impacts during construction would occur at locations where overcrossings are needed to carry minor roadways over the tracks. At these locations, the affected roadway would either be rerouted onto a temporary alignment or temporarily closed. Temporary closures would be viable if traffic volumes on the affected roadway were very low and a detour route was available that did not require an extraordinary amount of additional travel. Traffic volumes on local roads are generally less than 500 vehicles per day. Because detours would be limited in rural areas and would affect few travelers, only small effects to traffic circulation would occur in rural areas. Because local traffic would be rerouted during construction and would affect roads with very low traffic volumes, these would be impacts with negligible intensity under NEPA and would be considered less than significant under CEQA.

Regional Transportation Impacts from Construction Material Hauling

An analysis of construction material hauling was conducted to assess the impacts of moving ballast for construction of the HST tracks. The ballast material would be brought from sites all over the state, and it could be transported by rail and/or truck. There is the possibility of transportation impacts on freeways, local streets, and at-grade railroad crossings.

Most of the trains used for material hauling would travel from 50 to 100 miles per trip, over mostly rural areas. At the crossing locations, there would be low traffic volumes, so the number of vehicles affected would be relatively small. The overall average delay increase for all vehicles would be less than 1 second. The intensity of the impacts of the trains (up to one new train per day at each crossing) is expected to be negligible under NEPA and impacts would be less than significant under CEQA. Truck trips would cause an increase in traffic volumes on affected highways, ranging from 0.05% to 0.6% of ADT on regional highways, which would be an impact with negligible intensity under NEPA and less than significant under CEQA.

Project Impacts

Common Impacts to All HST Alternatives

In the regional setting, the HST alternatives would result in changes to both vehicle movement and volume on the Regional Highway system and changes to the aviation enplanements. The HST alternatives would also result in permanently closing roadways and creating HST overcrossings at at-grade intersections; all HST alternatives would also involve the shifting of SR 99 to create necessary right-of-way for the HST System. In addition, the following common impacts would occur and do not differ among the alternatives under analysis:

Regional Transportation System

All HST alternatives would provide benefits to the regional transportation system by reducing vehicle trips on the freeways through the diversion of intercity trips from road trips to high-speed rail. This reduction in future vehicle trips would improve the future LOS of the regional roadway system (and reduce overall VMT) compared to the No Project Alternative. As compared to existing conditions, the HST alternatives also would divert trips from regional road facilities, thereby improving regional roadway LOS. Likewise, intrastate commercial air trips would be diverted to HST. Information about these vehicle and air travel impacts is discussed below. The reduction of vehicle and air trips would meet the purpose and need of the HST Project. Hence this would be a beneficial aspect of the project and is consistent with the goals set for the project.

Regional Change to the Aviation System

The HST alternatives would divert trips from air travel, primarily from FAT. The Statewide High-Speed Rail ridership model projected where trips would be diverted and whether the diversions would be from automobiles or airplane trips; an estimated 23% of passengers at the Fresno and Merced airports would

be diverted to HST. The diversion of air travel would meet the purpose and need of the HST Project. Hence, this would be a beneficial aspect of the project and is consistent with the goals set for the project.

Changes in Conventional Passenger Rail Service

With the introduction of HST service, the Amtrak San Joaquin rail service is likely to be adjusted to function as a feeder service to the HST System. It is expected that many San Joaquin riders would shift to HST service as it becomes available (for example, for Bay Area to Fresno trips). The San Joaquin Route could be particularly important as a connecting service during Phase 1 HST operations, prior to the extension to Sacramento. While San Joaquin service adjustments are expected to occur, connecting or direct service to existing markets is expected to be provided and would likely improve as the HST System is implemented. This would be an impact with negligible intensity under NEPA and it would be less than significant under CEQA.

Changes in Intercity Bus Service

As with the Amtrak San Joaquin service, intercity bus service is likely to change as a result of the introduction of HST service. Many riders would switch to HST service, although the bus service's significantly lower pricing would help retain some riders. However, there would also be a new market providing feeder service to HST stations. The bus service providers (including Greyhound and Amtrak Thruway) would likely revise their current operation to better address this growing market of new transit riders. Because the future plans for the intercity bus service are not defined, the project impacts were not analyzed.

Pedestrian and Bicycle Impacts

Regional pedestrian and bicycle usage is largely concentrated in the urban areas along the corridor; impacts in the Merced and Fresno station areas are discussed in the station sections below. In other urban areas (such as Downtown Madera), HST is proposed to operate on an elevated structure that would not restrict pedestrian and bicycle movement. The HST Project would also grade separate roadways throughout the corridor (including new freight rail separations) and these separations would improve pedestrian and bicycle safety, which would be beneficial under NEPA and a less than significant impact under CEQA.

Altering Freight Rail Transportation

As the HST alternatives do not encroach on the freight rail corridors, they would not have a direct effect on current and anticipated freight operations. After construction, freight operation would continue as it currently does and train miles would not change due to HST. The HST alternatives would, in some locations, restrict the ability of the UPRR and BNSF to construct new spur lines for potential future customers.

The freight railroads would also benefit from planned grade separations in several locations, depending on which alternative is selected. These improvements would enhance the speed and capacity of the rail corridor.

Changes in Vehicle Movement on Regional Highway System

Because nearly all regional auto trips use SR 99, screenlines were established at four locations in the study area along SR 99. Using the estimate of diverted auto trips for the Merced and Fresno stations, the combined reduction of auto trips was estimated in terms of reduced average daily traffic (ADT) in 2035 (with ADT reductions based on HST fares at 50% of airfare). This information is provided in Table 3.2-12. Additional detail (including estimates of trip reductions on other freeway segments and reduced ADT as compared to existing conditions) is provided in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012). The reduction of ADT on SR 99 is considered beneficial to the project. The project impacts and mitigations are identified based on 50% airfare ADT, as it reflects the worst case scenario for traffic circulation. With HST fares at 83% of airfare, there would be a reduced benefit in terms of ADT reductions.



Table 3.2-12
 Vehicle Trip Reductions by SR 99 Screenline

Segment	Average Daily Traffic (ADT) Removed (2035)	Reduction in ADT (2035)
SR 99 (North of Merced)	5,148	5%
SR 99 (Merced to SR 152)	8,594	12%
SR 99 (SR 152 to Fresno)	9,995	8%
SR 99 (South of Fresno)	10,580	7%
Source: Authority and FRA (2012).		

The statewide travel demand model provided an estimate of 2035 statewide daily VMT for the HST alternatives. Information for Merced, Madera, and Fresno counties is presented in Table 3.2-13. The VMT reduction is due to reduced vehicle trips in and out of the Merced/Fresno region, as those trips divert to HST. The VMT attributed toward trips staying within the three-county region is not expected to change. VMT information was provided for the no project and with project conditions (for 50% airfare and 83% of airfare), and the difference was calculated to estimate the VMT savings. Compared to future background conditions, approximately 10% overall reduction in VMT is projected for the three counties for 50% of airfare and approximately 6.5% for 83% of airfare. If compared to existing conditions, the project would reduce VMT growth by an estimated 14% (see Table 2-5 in Chapter 2). It can be noted from this table that, VMT benefit for 83% airfare is lower than the 50% airfare VMT.

Table 3.2-13
 Vehicle Miles Traveled (VMT)

County	Percentage Change from No Project to With Project (2035)		
	Intraregional Traffic	Interregional Traffic	Total Traffic
Merced	-0.22% (-0.14%)	-16.10% (-10.72%)	-11.20% (-7.46%)
Madera	0.00% (0.00%)	-6.26% (-4.17%)	-3.23% (-2.16%)
Fresno	0.00% (0.00%)	-22.63% (-15.08%)	-10.98% (-7.32%)
Total (3 Counties)	-0.04% (-0.03%)	-17.70% (-11.79%)	-9.70% (-6.47%)
Notes: -0.22% (-0.14%) = 50% airfare VMT (83% airfare VMT)			

Changes to the Vehicle Movements and Flow on Highways and Roadways

All alternatives would result in impacts on highways and roadways between Merced and Fresno. The impacts include crossing over or shifting existing roads, road closures, and freeway operations. These impacts are described in detail in the following subsections.

All HST Alternatives

Roadway Crossings – Chapter 2, Alternatives, and the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) describe the type of changes that would take place at each roadway crossed by the proposed HST alignments. The following paragraphs provide additional detail and evaluate the traffic flow/volumes that would exist after the changes.

Roadway impacts are common for all alternatives in the Merced area (from the Downtown Merced Station to north of Mission Avenue) and in the Fresno area south of the San Joaquin River. There are also common impacts for the station areas (Merced and Fresno) and the SR 99 realignment in Fresno, which are discussed separately.

The common HST alignment extends south of the Downtown Merced Station in an at-grade configuration. Gerard Avenue would be closed at the existing crossing of UPRR, which connects to the Caltrans frontage road. This closure would result in a minor diversion of traffic to the Mission Avenue/SR 99 interchange.

Fresno Analysis

In Fresno County, the HST alignment would be on an elevated structure to cross the San Joaquin River, the UPRR corridor, and W Herndon Avenue, returning to an at-grade configuration south of Herndon and remaining at-grade to the Downtown Fresno Station. In this area, N Golden State Boulevard would be shifted to the west to accommodate the HST alignment.

The HST alignment would pass under the planned Veterans Boulevard extension and overcrossing. South of Veterans Boulevard, an existing road connection to Golden State Boulevard and crossing of UPRR at N Carnegie Avenue would be closed. In conjunction with the HST Project, an initial phase of the Veterans Boulevard project would be constructed between the realigned Golden State Boulevard and W Bullard Avenue, including an overcrossing of HST and UPRR. This connection would provide an alternative access route for the closure of Carnegie Avenue. The complete Veterans Boulevard extension is assumed to be in place in 2035 and is a component of the No Project condition.

At W Shaw Avenue, a new overcrossing would be constructed to carry traffic over the HST and UPRR corridors. New roadway connections to Golden State Boulevard from Shaw Avenue would be provided. In conjunction with the new overcrossing at Shaw Avenue, the existing eastbound and westbound left-turn movements onto Jennifer Avenue from Shaw Avenue would be restricted. Jennifer Avenue would only have right-in/right-out turn movements. Because of the roadway modifications in this area, traffic currently using the intersections of Golden State Boulevard/Carnegie Avenue and Golden State Boulevard/Shaw Avenue would be redistributed to the nearby roadways and intersections. This section further presents the analysis for existing and future project conditions for both roadways and intersections and identifies project impacts. The Fresno area analysis between Herndon Avenue and Shaw Avenue includes a total of 14 study intersections and 5 roadway segments.

Table 3.2-14 presents the results of the roadway segment analysis for existing plus project conditions and compares against the existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and V/C calculations. Because all the analyzed roadway segments continue to operate at LOS D or better under project conditions, this impact would have negligible intensity under NEPA and would be less than significant under CEQA.

Table 3.2-14

Existing Plus Project Roadway Segment Analysis – Between Herndon Avenue and Shaw Avenue

No.	Roadway Segment	# of Lanes	Existing ADT	Existing LOS	Existing + HST ADT	Existing + HST LOS	Impact
1	Golden State Blvd north of Carnegie Ave	2	3,614	A	6,629	B	No
2	Bullard Ave between Polk Ave and Dante Ave	2	7,238	A	7,095	A	No
3	Gates Ave between Figarden Dr and Shaw Ave	2	11,790	A	11,973	B	No
4	Shaw Ave between Brawley	2	29,871	D	30,054	D	No

No.	Roadway Segment	# of Lanes	Existing ADT	Existing LOS	Existing + HST ADT	Existing + HST LOS	Impact
	Ave and Golden State Blvd						
5	Veterans Blvd between Golden State Blvd and Bullard Ave ^a	2	N/A	N/A	2,795	A	No

^a Roadway exists only under Project conditions.

Table 3.2-15 presents the results of the roadway segment analysis for future (2035) plus project conditions and compares against the future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and V/C calculations. It can be noted from the table that one roadway segment (#5 – Veterans Boulevard between Golden State Boulevard and Bullard Avenue) would be impacted with the addition of project traffic. The V/C ratio on this segment increases by more than 0.04 compared to the future (2035) No Project conditions. Because traffic at one roadway segment in this area would experience an unacceptable increase in traffic, this would be an impact with substantial intensity under NEPA and it would be significant under CEQA.

Table 3.2-16 presents the results of the intersection analysis for existing plus project conditions and compares against the existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that one intersection (Intersection 3, Cornelia Avenue and Shaw Avenue) would be affected in the AM peak and two intersections (Intersection 5, Blythe Avenue and Shaw Avenue, in addition to Intersection 3) in the PM peak under existing plus project conditions. Because traffic at these intersections in this area would increase to LOS D or worse, the impact would have substantial intensity under NEPA and it would be significant under CEQA.

Table 3.2-15

Future (2035) Plus Project Roadway Segment Analysis – Between Herndon Avenue and Shaw Avenue

No.	Roadway Segment	# of Lanes	2035 No Project ADT	2035 No Project LOS	2035 No Project + HST ADT	2035 No Project + HST LOS	Impact
1	Golden State Blvd north of Carnegie Ave	4	21,210	B	23,845	C	No
2	Bullard Ave between Polk Ave and Dante Ave	4	16,620	C	16,228	C	No
3	Gates Ave between Figarden Dr and Shaw Ave	4	14,595	B	14,908	B	No
4	Shaw Ave between Brawley Ave and Golden State Blvd	5	57,305	F	57,618	F	No
5	Veterans Blvd between Golden State Blvd and Bullard Ave ^a	6	70,090	F	75,506	F	Yes

Notes:

^a Roadway exists only under project conditions.

Impacted locations are highlighted.

Table 3.2-16
 Existing Plus Project Intersection Analysis – Between Herndon Avenue and Shaw Avenue

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST	Impact	Existing LOS	Existing + HST	Impact
1	Golden State Blvd/Santa Ana Ave	C	C	No	C	C	No
2	Cornelia Ave/Santa Ana Ave	A	B	No	A	C	No
3	Cornelia Ave/Shaw Ave	E	F	Yes	F	F	Yes
4	Golden State Blvd/Shaw Ave	D	N/A	No	E	N/A	No
5	Blythe Ave/Shaw Ave	C	D	No	E	F	Yes
6	Brawley Ave/Shaw Ave	D	D	No	E	E	No
7	Cornelia Ave/Golden State Blvd	C	C	No	D	D	No
8	Figarden Dr/Gates Ave	B	B	No	B	B	No
9	Figarden Dr/Bullard Ave	D	D	No	C	C	No
10	Dante Ave/Bullard Ave	B	B	No	B	B	No
11	Polk Ave/Bullard Ave	B	A	No	B	B	No
12	Carnegie Ave/Bullard Ave	C	B	No	C	B	No
13	Golden State Blvd/West Driveway at Carnegie	E	C	No	C	C	No
14	Veterans Blvd/Bullard Ave	N/A	D	No	N/A	D	No

Notes:
 Intersection 4 does not exist under project conditions.
 Impacted locations are highlighted.

Table 3.2-17 presents the results of the intersection analysis for future (2035) plus project conditions and compares against the future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that seven intersections (1, 3, 5, 7, 9, 14, and 15) would be affected under AM and/or PM peak hours. Because traffic at seven intersections in this area would experience an unacceptable increase in traffic, the impact would have substantial intensity under NEPA would be significant under CEQA.

Between Ashlan and Clinton Avenues, the HST alignment would be accommodated on existing Caltrans right-of-way by shifting SR 99 approximately 80 feet to the west. This shift would require the reconfiguration of the interchange ramps at Ashlan and Clinton Avenues and the closure of the existing southbound on- and off-ramps at Dakota, Shields, and Princeton Avenues. In addition, some local roads would be closed or reconfigured. These changes and the ramp closures would result in a redistribution of local traffic in Downtown Fresno west of SR 99 as discussed separately under *Realignment of SR 99 between Clinton and Ashlan Avenues*.

Table 3.2-17
 Future (2035) Plus Project Intersection Analysis – Between Herndon Avenue and Shaw Avenue

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project	2035 No Project + HST	Impact	2035 No Project	2035 No Project + HST	Impact
1 Golden State Blvd/Santa Ana Ave	E	F	Yes	F	F	Yes
2 Cornelia Ave/Santa Ana Ave	A	B	No	A	C	No
3 Cornelia Ave/Shaw Ave	F	F	Yes	F	F	Yes
4 Golden State Blvd/Shaw Ave	E	N/A	N/A	F	N/A	N/A
5 Blythe Ave/Shaw Ave	C	E	Yes	F	F	Yes
6 Brawley Ave/Shaw Ave	D	D	No	F	F	No
7 Cornelia Ave/Golden State Blvd	E	E	No	F	F	Yes
8 Figarden Dr/Gates Ave	B	B	No	C	C	No
9 Figarden Dr/Bullard Ave	E	F	Yes	F	F	Yes
10 Dante Ave/Bullard Ave	D	D	No	C	C	No
11 Polk Ave/Bullard Ave	E	D	No	D	D	No
12 Carnegie Ave/Bullard Ave	E	C	No	F	F	No
13 Golden State Blvd/West Driveway at Carnegie Ave	F	D	No	F	F	No
14 Veterans Blvd/Bullard Ave	E	F	Yes	E	F	Yes
15 Veterans Blvd/Golden State Blvd	C	F	Yes	E	F	Yes

Notes:
 Intersection 4 does not exist under Project conditions.
 Impacted locations are highlighted.

South of Clinton Avenue, new overcrossings would be constructed at W McKinley Avenue, W Olive Avenue, and W Belmont Avenue to carry traffic over the HST and UPRR corridors. To accommodate the HST alignment, Golden State Boulevard would be shifted to the west between Clinton Avenue and W Olive Avenue and would be closed between W Olive Avenue and W Belmont Avenue. Because of these roadway modifications, traffic currently using Golden State Boulevard would be detoured to adjacent streets in the vicinity. Roadway segment and intersection analysis was performed to capture the traffic impacts associated with these roadway modifications.

Table 3.2-18 presents the results of the roadway segment analysis for existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and V/C calculations. It can be noted from the table that all the analyzed roadway segments continue to operate at LOS D or better under project conditions; therefore, the impact would be considered to have negligible intensity under NEPA and would be less than significant under CEQA.

Table 3.2-18
 Existing Plus Project Roadway Segment Analysis – Between McKinley Avenue and SR 180

No.	Roadway Segment	# of Lanes	Existing ADT	Existing LOS	Existing + HST ADT	Existing + HST LOS
1	On Golden State Blvd, north of W McKinley Ave	2/2	6,463	C	520	C
2	On W McKinley Ave, between SR 99 Ramps and Golden State Blvd	2/1	11,128	D	11,000	D
3	On W McKinley Ave, between Golden State Blvd and N West Ave	2/2	14,868	D	14,700	D
4	On W McKinley Ave, east of N West Ave	2/2	11,805	D	11,510	D
5	On Golden State Blvd, between W McKinley Ave and N West Ave	2/2	5,810	C	520	C
6	On Golden State Blvd, between N West Ave and W Olive Ave	2/2	4,655	C	520	C
7	On N Weber Ave, between W Olive Ave and North Brooks Ave	1/1	7,003	D	4,480	C
8	On W Olive Ave, between SR 99 Ramps and N West Ave	2/2	11,963	D	11,090	D
9	On W Olive Ave, east of N Weber Ave	2/2	8,794	C	14,040	D
10	On Golden State Blvd, between W Olive Ave and W Belmont Ave	2/2	3,710	C	0	-
11	On N Weber Ave, between W Olive Ave and W Belmont Ave	1/1	7,471	D	4,480	C
12	On W Belmont Ave, between N Arthur Ave and SR 99 Ramps	2/2	9,651	C	8,600	C
13	On Belmont Ave, east of N Weber Ave	2/2	8,021	C	8,290	C
Notes:						
Roadway segment 10 would be closed under project conditions.						

Table 3.2-19 presents the results of the roadway segment analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and V/C calculations. Two roadway segments (#8 – West Olive Avenue between SR 99 and North West Avenue and #12 – West Belmont Avenue between North Arthur Avenue and SR 99) would be impacted with the addition of project traffic. The V/C ratio on segment #12 increases by more than 0.04 compared to the future (2035) No Project conditions. Segment #8 drops from LOS D to LOS E. Because traffic at one roadway segment in this area would experience an unacceptable increase in traffic, the impact would have substantial intensity under NEPA and would be significant under CEQA.

Table 3.2-19

Future (2035) Plus Project Roadway Segment Analysis – Between McKinley Avenue and SR 180

No.	Roadway Segment	# of Lanes	2035 No Project ADT	2035 No Project LOS	2035 No Project + HST ADT	2035 No Project + HST LOS
1	On Golden State Blvd, north of W McKinley Ave	2/2	30,180	D	3,410	C
2	On W McKinley Ave, between SR 99 Ramps and Golden State Blvd	2/1	42,440	F	42,410	F
3	On W McKinley Ave, between Golden State Blvd and N West Ave	2/2	44,260	F	43,000	F
4	On W McKinley Ave, east of N West Ave	2/2	32,290	F	32,290	F
5	On Golden State Blvd, between W McKinley Ave and N West Ave	2/2	34,020	F	3,410	C
6	On Golden State Blvd, between N West Ave and W Olive Ave	2/2	34,110	F	3,410	C
7	On N Weber Ave, between W Olive Ave and N Brooks Ave	1/1	19,850	F	9,890	D
8	On W Olive Ave, between SR 99 Ramps and N West Ave	2/2	23,560	D	27,580	E
9	On W Olive Ave, east of N Weber Ave	2/2	50,830	F	50,830	F
10	On Golden State Blvd, between W Olive Ave and W Belmont Ave	2/2	12,790	D	0	-
11	On N Weber Ave, between W Olive Ave and W Belmont Ave	2/2	38,170	F	9,890	C
12	On W Belmont Ave, between N Arthur Ave and SR 99 Ramps	2/2	28,630	E	32,650	F
13	On Belmont Ave, east of N Weber Ave	2/2	38,610	F	36,400	F

Notes:
 Roadway segment 10 would be closed under project conditions.
 Impacted locations are highlighted.

Table 3.2-20 presents the results of the intersection analysis for existing plus project conditions and compares against the existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that three intersections (Intersections 5, 10, and 11) would be impacted under existing plus project conditions. Because traffic at three intersections in this area would experience an unacceptable increase in traffic, the impact would have substantial intensity under NEPA and would be significant under CEQA.

Table 3.2-20
 Existing Plus Project Intersection Analysis – Between McKinley Avenue and SR 180

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST	Impact	Existing LOS	Existing + HST	Impact
1	W McKinley Ave/SR 99 SB Ramp	A	A	No	A	A	No
2	W McKinley Ave/SR 99 NB Ramp	E	E	No	F	F	No
3	W McKinley Ave/Golden State Blvd	B	A	No	B	A	No
4	W McKinley Ave/N West Ave	C	C	No	D	D	No
5	W Olive Ave/SR 99 SB Ramps	B	B	No	C	E	Yes
6	W Olive Ave/SR 99 NB Ramps	B	B	No	C	C	No
7	W Olive Ave/N West Ave	B	B	No	B	B	No
8	W Olive Ave/Golden State Blvd	B	NA	No	B	NA	No
9	W Olive Ave/N Weber Ave	B	NA	No	B	NA	No
10	W Belmont Ave/SR 99 SB Ramps	C	C	No	E	F	Yes
11	W Belmont Ave/SR 99 NB Ramps	B	B	No	D	E	Yes
12	W Belmont Ave/N Weber Ave	A	NA	No	B	NA	No
13	Olive Ave/Fruit Ave	B	A	No	B	A	No

Notes:
 Intersection 3 under project conditions represents the intersection of new connector from Golden State Boulevard with McKinley Avenue.
 Intersections 8, 9, and 12 do not exist under project conditions because of proposed overpasses at these locations.
 Impacted locations are highlighted.

Table 3.2-21 presents the results of the intersection analysis for future (2035) plus project conditions and compares against the future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that five intersections (5, 6, 7, 10, and 11) would be impacted under AM and/or PM peak hours. Because traffic at five intersections in this area would experience an unacceptable increase in traffic, the impact would have substantial intensity under NEPA and would be significant under CEQA.

Table 3.2-21
 Future (2035) Plus Project Intersection Analysis – Between McKinley Avenue and SR 180

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project	2035 No Project + HST	Impact	2035 No Project	2035 No Project + HST	Impact
1	W McKinley Ave/SR 99 SB Ramp	F	F	No	C	C	No
2	W McKinley Ave/SR 99 NB Ramp	F	F	No	F	F	No
3	W McKinley Ave/Golden State Blvd	F	F	No	F	F	No

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project	2035 No Project + HST	Impact	2035 No Project	2035 No Project + HST	Impact
4	W McKinley Ave/N West Ave	F	F	No	F	F	No
5	W Olive Ave/SR 99 SB Ramps	F	F	Yes	F	F	Yes
6	W Olive Ave/SR 99 NB Ramps	C	C	No	F	F	Yes
7	W Olive Ave/N West Ave	D	D	No	D	E	Yes
8	W Olive Ave/Golden State Blvd	F	NA	No	F	NA	No
9	W Olive Ave/N Weber Ave	F	NA	No	F	NA	No
10	W Belmont Ave/SR 99 SB Ramps	F	F	No	F	F	Yes
11	W Belmont Ave/SR 99 NB Ramps	F	F	No	F	F	Yes
12	W Belmont Ave/N Weber Ave	F	NA	No	F	NA	No
13	Olive Ave/Fruit Ave	F	F	No	F	F	No

Notes:
 Intersection 3 under project conditions represents the intersection of new connector from Golden State Boulevard with McKinley Avenue.
 Intersections 8, 9, and 12 do not exist under project conditions because of proposed overpasses at these locations.
 Impacted locations are highlighted.

UPRR/SR 99 Alternative

Roadway Crossings – From the common alignment in the Downtown Merced area, the UPRR/SR 99 Alternative alignment would continue to be at-grade south of Merced. Lingard Road at this location would connect to the new frontage road. Existing SR 99 crossings at Le Grand Road and Arboleda Drive would be replaced by a new interchange and the proposed Arboleda overcrossing would be extended to cross the UPRR/HST alignment.

In conjunction with the Caltrans-planned SR 99-Plainsburg Road interchange, the HST alignment would restrict access at Athlone Road to the proposed Caltrans frontage road. Existing SR 99 and UPRR crossings at Sandy Mush Road and Plainsburg Road would be replaced by a new interchange and the proposed Sandy Mush/Plainsburg overcrossing would be extended to cross the UPRR/HST alignment.

Continuing into Madera County, the alignment would become elevated through the City of Chowchilla and continue on an elevated structure through Madera, before returning to grade north of Avenue 11. The alignment would return to an elevated structure to cross over the San Joaquin River on the common alignment discussed previously.

The north-south alignment of the Merced to Fresno Section would connect to the west to reach the Bay Area. Two alternatives are being considered for this wye connection, one along Avenue 24 and a second along Avenue 21.

Road Closures – Along the HST alignment, a number of local roads would be closed and traffic diverted to adjacent roads as discussed above. In the Merced and Chowchilla areas along SR 99, the following existing crossings of UPRR and connections to SR 99 would be closed:

- Healy Road
- Mariposa Avenue

With the closure of these crossings, traffic currently accessing SR 99 or areas to the east of SR 99 would be required to travel to the nearest interchanges at Mission Boulevard or Sandy Mush Road/Plainsburg Road. The diverted travel/traffic would not adversely affect the segments and intersections that would receive the traffic, but there may be potential impacts associated with property access as a result of these closures depending on the availability of alternative access routes. Because of potential property access issues, the road closure impacts would be considered to have moderate intensity under NEPA and would be significant under CEQA. Lingard Road and Athlone Road at this location would connect to the new frontage road.

In the Chowchilla and Madera areas, the alignment is generally elevated. Therefore, no road closures are proposed.

There would be road closures associated with the wye design options. For the UPRR/SR 99 Alternative, the following road closures are currently proposed, depending on which wye design option is selected:

- Road 11 (north leg of Ave 24 Wye)
- Avenue 24½ (north leg of Ave 24 Wye)
- Road 12 (north leg of Ave 24 Wye)
- Road 12 (south leg of Ave 24 Wye)
- Road 14 (south leg of Ave 24 Wye)
- Railroad Drive (south leg of Ave 24 Wye)
- Road 15¾ (south leg of Ave 24 Wye)
- Road 16½ (south leg of Ave 24 Wye)
- Road 17 (south leg of Ave 24 Wye)
- Road 17½ (south leg of Ave 24 Wye)
- Road 8 (Ave 21 Wye)
- Road 10 (Ave 21 Wye)
- Railroad Avenue (Ave 21 Wye)
- Road 15 (Ave 21 Wye)
- Road 15½ (Ave 21 Wye)
- Road 16½ (Ave 21 Wye)
- Road 17 (Ave 21 Wye)
- Road 18 (north leg of Ave 21 Wye)
- Road 18 ½ (Ave 21 Wye)
- Avenue 22½ (north leg of Ave 21 Wye)
- Road 18 (south leg of Ave 21 Wye)
- Road 18½ (south leg of Ave 21 Wye)
- Avenue 21 near Road 19 (south leg of Ave 21 Wye)
- Road 19½ (south leg of Ave 21 Wye)
- Road 20½ (south leg of Ave 21 Wye)

Based on existing field traffic counts of similar roadways and information from local agencies, the traffic volumes on these local roads are less than 500 vehicles per day. Therefore, limited traffic (LOS) impacts are expected as a result of the closures and diversion of traffic. There may be potential impacts associated with property access as a result of these closures depending on the availability of alternative access routes. Because of potential property access issues, the road closure impacts would be considered to have moderate intensity under NEPA and would be significant under CEQA.

BNSF Alternative

Roadway Crossings – Chapter 2, Alternatives, and the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) describe the impacts of the BNSF Alternative on existing and planned roadways that cross or parallel the proposed HST alignment. The BNSF Alternative would follow the common alignment through the Merced station area. The alignment would then shift to the BNSF corridor through southern Merced County and Madera County, generally in an at-grade configuration, before returning to the common alignment entering Fresno County. The BNSF Alternative includes the

Merced and Fresno stations and the SR 99 relocation in Fresno, the impacts of which are discussed separately.

Road Closures – In the Merced, Chowchilla, and Madera areas, the following existing crossings would be closed with the BNSF Alternative:

- Miles Road (Mission Ave design option)
- Vassar Avenue (Mariposa Way design option)
- McHenry Road (Mariposa Way design option)
- South Tower Road (Mariposa Way design option)
- Orchard Drive at Mariposa Way (Mariposa Way design option)
- Ranch Road (Mission Ave and Mariposa Way design options)
- Whealan Road at Mariposa Way (Mission Ave and Mariposa Way design options)
- Morley Avenue (Mission Ave and Mariposa Way design options)
- Mariposa Way (Mariposa Way design option)
- Banks Road (Mission Ave and Mariposa Way design options)
- Cunningham Road at Santa Fe (Le Grand design option)
- Ipsen Avenue/Wade Avenue (Le Grand and East of Le Grand design options)
- White Rock Road near Buchanan Hollow Road (Le Grand design option)
- Buchanan Hollow Road near White Rock Road (East of Le Grand design option)
- Road 22
- Avenue 22
- Avenue 20
- Road 28 $\frac{1}{4}$ near SR 145
- Watson Street near SR 145
- Avenue 15 $\frac{3}{4}$

There would also be road closures associated with the wye design options. For the BNSF Alternative, the following road closures are currently proposed, depending on which wye design option is selected:

- Road 11 (Ave 24 Wye)
- Road 12 (Ave 24 Wye)
- Railroad Drive (Ave 24 Wye)
- Road 15 $\frac{3}{4}$ (Ave 24 Wye)
- Road 16 $\frac{1}{2}$ (Ave 24 Wye)
- Road 17 (Ave 24 Wye)
- Road 18 $\frac{3}{4}$ (Ave 24 Wye)
- Road 19 (Ave 24 Wye)
- Road 19 $\frac{1}{2}$ (Ave 24 Wye)
- Road 20 (Ave 24 Wye)
- Avenue 25 (north leg of Ave 24 Wye)
- Road 19 (south leg of Ave 24 Wye)
- Road 19 $\frac{1}{2}$ (south leg of Ave 24 Wye)
- Road 20 (south leg of Ave 24 Wye)
- Road 20 $\frac{1}{2}$ (south leg of Ave 24 Wye)
- Avenue 22 $\frac{1}{2}$ (south leg of Ave 24 Wye)
- Road 8 (Ave 21 Wye)
- Road 10 (Ave 21 Wye)
- Railroad Avenue (Ave 21 Wye)
- Road 15 (Ave 21 Wye)
- Road 15 $\frac{1}{2}$ (Ave 21 Wye)
- Road 17 (Ave 21 Wye)
- Road 18 (Ave 21 Wye)
- Road 19 (Ave 21 Wye)
- Road 19 $\frac{1}{2}$ (Ave 21 Wye)
- Road 21 (Ave 21 Wye)



- Road 23 (north leg of Ave 21 Wye)
- Avenue 21 (south leg of Ave 21 Wye)
- Road 24 (south leg of Ave 21 Wye)

Based on existing field traffic counts of similar roadways and information from local agencies, the traffic volume on these local roads is less than 500 vehicles per day. Therefore, limited traffic (LOS) impacts are expected as a result of the closures and diversion of traffic. There may be potential impacts associated with property access as a result of these closures depending on the availability of alternative access routes. Because of potential property access issues, the road closure impacts would be considered to have moderate intensity under NEPA and would be considered significant under CEQA.

Hybrid Alternative

Roadway Crossings – Chapter 2, Alternatives, and the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) describe the impacts of the Hybrid Alternative on existing and planned roadways that cross or parallel the HST alignment. The Hybrid Alternative includes the impacts associated with the Merced and Fresno stations and the SR 99 Relocation in Fresno, the impacts of which are discussed separately, as well as the common alignment impacts discussed previously.

From the common alignment in the Downtown Merced area, the Hybrid Alternative alignment would continue at-grade south of Merced, along the west side of SR 99. Existing SR 99 crossings at Le Grand Road and Arboleda Drive would be replaced by a new interchange and the proposed Arboleda Drive overcrossing would be extended to cross the UPRR/HST alignment. Lingard Road at this location would connect to the new frontage road.

Existing SR 99 and UPRR crossings at Sandy Mush Road and Plainsburg Road would be replaced by a new interchange and the proposed Sandy Mush/Plainsburg Road overcrossing would be extended to cross the UPRR/HST alignment. Athlone Road at this location would connect to the new frontage road.

South of the planned Plainsburg Road interchange, there are two options for the Hybrid Alternative. One option would follow portions of the proposed West Chowchilla design option and the Ave 24 Wye through the Chowchilla area, generally in an at-grade configuration. It would continue at-grade through the Madera area before returning to the common alignment entering Fresno County.

The second option would continue along the same alignment as the UPRR/SR 99 Alternative through Chowchilla before connecting to the East Chowchilla design option and the Ave 21 wye alignment near SR 99. It would then continue along the Ave 21 Wye, joining the BNSF Alternative alignment through the Madera area before returning to the common alignment entering Fresno County.

Road Closures – Along the HST alignment, a number of local roads would be closed and traffic diverted to adjacent roads as discussed above. In the Merced and Chowchilla areas along SR 99, the following existing crossings of UPRR and connections to SR 99 would be closed (the same as for the UPRR/SR 99 Alternative):

- Healy Road
- Mariposa Avenue

With closure of these crossings, traffic currently accessing SR 99 or areas to the east of SR 99 would be required to travel to the nearest interchanges at Mission Boulevard or Sandy Mush Road/Plainsburg Road. The diverted travel/traffic would not adversely affect the segments and intersections that would receive the traffic, but there may be potential impacts associated with property access as a result of these closures, depending on the availability of alternative access routes. Because of potential property access issues, the road closure impacts would have moderate intensity under NEPA and would be significant under CEQA. Lingard Road and Athlone Road at this location would connect to the new frontage road.

In the Chowchilla and Madera areas, the following existing crossings would be closed with the Hybrid Alternative:

- Avenue 25 (West Chowchilla design option)
- Road 14 near Avenue 24 (West Chowchilla design option)
- Railroad Drive (West Chowchilla design option)
- Road 15¾ near Avenue 24 (West Chowchilla design option)
- Road 16½ near Avenue 24 (West Chowchilla design option)
- Road 17 near Avenue 24 (West Chowchilla design option)
- Road 18¾ near Avenue 24 (West Chowchilla design option)
- Road 19 south of Avenue 24 (West Chowchilla design option)
- Road 19½ south of Avenue 24 (West Chowchilla design option)
- Avenue 23½ (West Chowchilla design option)
- Road 20½ south of Avenue 24 (West Chowchilla design option)
- Avenue 22½ south of Avenue 24 (West Chowchilla design option)
- Road 21 (East Chowchilla design option)
- Avenue 21 (East Chowchilla design option)
- Avenue 20½ (East Chowchilla design option)
- Road 25 (East Chowchilla design option)
- Road 28¼ near SR 145 (both options)
- Watson Street near SR 145 (both options)
- Avenue 15¾ (both options)

There would also be road closures associated with the wye design options. For the Hybrid Alternative, the following road closures are currently proposed, depending on which wye design option is selected:

- Road 11 (north leg of Ave 24 Wye)
- Avenue 25 (Ave 24 Wye)
- Road 12 (north leg of Ave 24 Wye)
- Road 12 (south leg of Ave 24 Wye)
- Road 8 (Ave 21 Wye)
- Road 10 (Ave 21 Wye)
- Railroad Avenue/Avenue 21 (Ave 21 Wye)
- Road 15 (Ave 21 Wye)
- Road 15½ (Ave 21 Wye)
- Road 16½ (Ave 21 Wye)
- Road 17 (Ave 21 Wye)
- Road 18 (north leg of Ave 21 Wye)
- Road 18½ (north leg of Ave 21 Wye)
- Road 22½ (north leg of Ave 21 Wye)
- Road 18 (south leg of Ave 21 Wye)
- Road 19 (south leg of Ave 21 Wye)
- Road 19½ (south leg of Ave 21 Wye)

Based on existing field traffic counts of similar roadways and information from local agencies, the traffic volume on these local roads is less than 500 vehicles per day. Therefore, limited traffic (LOS) impacts are expected as a result of the closures and diversion of traffic. There may be potential impacts associated with property access as a result of these closures depending on the availability of alternative access routes. Because of potential property access issues, the road closure impacts would have moderate intensity under NEPA and would be significant under CEQA.

Realignment of SR 99 between Clinton and Ashlan Avenues – All HST Alternatives

The proposed realignment of SR 99 in Fresno to accommodate the HST alignment is described in Chapter 2, Alternatives, and in the *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012). A traffic assessment was conducted to evaluate the many proposed options for geometric improvements to SR 99 in Fresno (from Ashlan Avenue to Clinton Avenue). The analysis addressed both freeway operations and the traffic conditions at intersections in the study area adjacent to the proposed realignment. The proposed improvement plan is illustrated Figure 3.2-10.



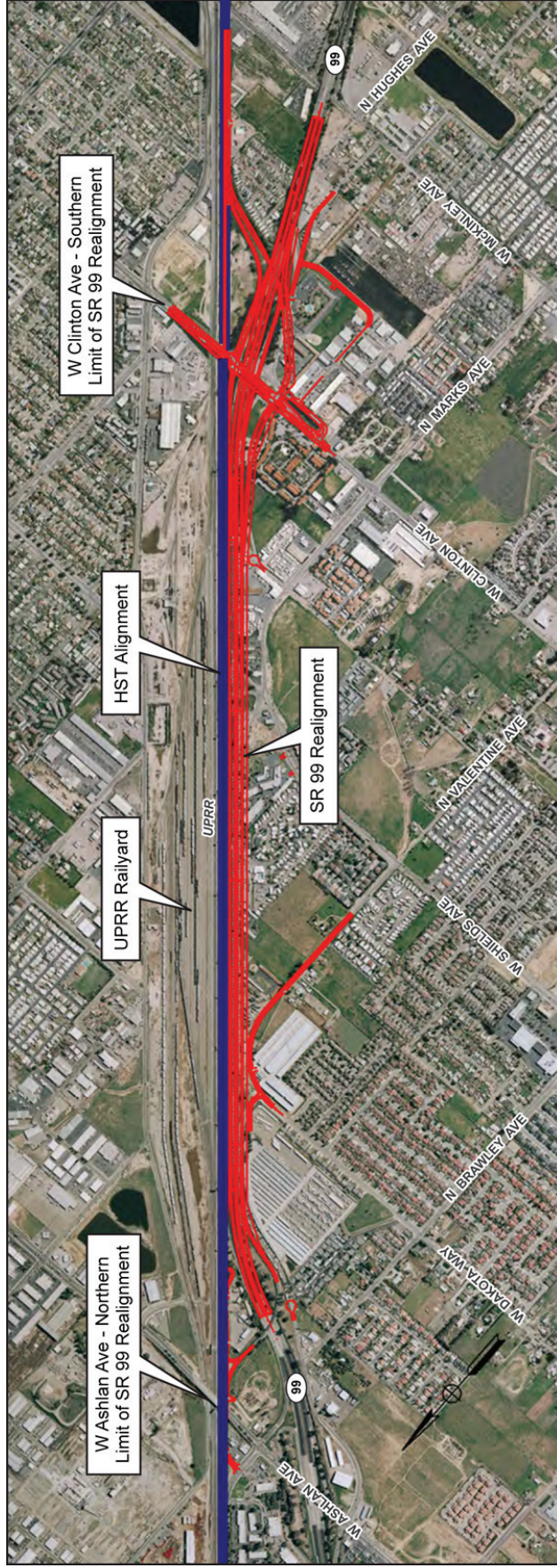


Figure 3.2-10
Proposed SR 99 Realignment

For existing plus project conditions, freeway operations results for northbound SR 99 are as follows:

- South of Ashlan Avenue, operations under existing plus project conditions are the same or better than existing conditions.
- North of Ashlan Avenue, operations under existing plus project and existing conditions are the same because the mainline improvements end south of Ashlan Avenue.

For existing plus project conditions, freeway operations results for southbound SR 99 are as follows:

- North of Ashlan Avenue, operations under existing plus project and existing conditions are the same because the mainline improvements end south of Ashlan Avenue.
- Operations from Ashlan Avenue to Clinton Avenue improve under existing plus project conditions because of the addition of the auxiliary lane and the elimination of several southbound ramps. Overall, the peak period LOS improves from LOS D under existing conditions to LOS B under existing plus project conditions.

Therefore, this would be an impact with negligible intensity under NEPA, and it would be less than significant under CEQA.

For future (2035) plus project conditions, freeway operations results for northbound SR 99 are as follows:

- Up to Ashlan Avenue, operations under future (2035) plus project conditions are the same or better than under future (2035) No Project conditions.
- North of Ashlan Avenue, operations under future (2035) plus project and future (2035) No Project conditions are the same because the mainline improvements end south of Ashlan Avenue.

For future (2035) plus project conditions, freeway operations results for southbound SR 99 are as follows:

- North of Ashlan Avenue, operations under future (2035) plus project and future (2035) No Project conditions are the same because the mainline improvements end south of Ashlan Avenue.
- Operations from Ashlan Avenue to Clinton Avenue improve under future (2035) plus project conditions because of adding the auxiliary lane and eliminating several southbound ramps. Overall, the peak period LOS improves from LOS E under future (2035) No Project conditions to LOS C under future (2035) plus project conditions.

The analysis indicates a significant impact south of the existing southbound parkway on-ramp. Operations under future (2035) plus project conditions are worse than future (2035) No Project conditions because the redistribution of traffic creates a concentrated merge at the southbound Clinton Avenue on-ramp. Therefore, this would be an impact with substantial intensity under NEPA, and it would be a significant impact under CEQA.

Table 3.2-22 presents the results of the intersection analysis for existing plus project conditions and compares against the existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that two intersections (Intersection 10, Clinton Avenue/Weber Avenue, and Intersection 15, Dakota Avenue/Brawley Avenue) would be impacted under PM peak hour with the project traffic, which would be an impact with a substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-22
 Existing Plus Project Intersection Analysis – SR 99 Relocation

Intersection	AM Peak Hour			PM Peak Hour		
	Existing	Existing + HST	Impact	Existing	Existing + HST	Impact
1 McKinley Ave/Woodson Ave ^a	B	B	No	B	B	No
2 McKinley Ave/SR 99 SB Ramp ^a	A	A	No	A	A	No
3 McKinley Ave/SR 99 NB Ramp ^a	C	C	No	C	C	No
4 Not Used						
5 Clinton Ave/Brawley Ave	B	B	No	B	C	No
6 Clinton Ave/Marks Ave	C	D	No	D	D	No
7 Clinton Ave/Vassar Ave ^a	F	E	No	F	C	
8 Clinton Ave/SR 99 SB Ramps	*	B	No	*	A	No
9 Clinton Ave/SR 99 NB Ramps	A	B	No	B	B	No
10 Clinton Ave/Weber Ave	D	C	No	E	E	Yes
11 Princeton Ave/SR 99 SB Ramp/Parkway Dr ^a	A	*	No	A	*	No
12 Shields Ave/SR 99 SB Ramp/Parkway Dr ^a	B	*	No	C	*	No
13 Shields Ave/Valentine Ave ^a	B	A	No	B	B	No
14 Shields Ave/Brawley Ave ^a	A	A	No	B	B	No
15 Dakota Ave/Brawley Ave ^a	B	C	No	C	F	Yes
16 Ashlan Ave – SR 99 SB Ramps/Parkway Dr	D	D	No	D	C	No
17 Ashlan Ave – SR 99 NB Ramps/Brawley Ave	C	C	No	E	E	No
18 Brawley Ave/Golden State Blvd ^a	F	F	No	F	F	No

Notes:
^a Denotes unsignalized intersection.
 *Intersection does not exist.
 Intersections with impacts are highlighted.

Table 3.2-23 presents the results of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that seven intersections (5, 6, 8, 10, 14, 15, and 16) would be affected under AM and/or PM peak hours with the project traffic under the criteria set forth in sections 3.2.3.4 and

3.2.3.5, which would be an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-23
 Future Year (2035) plus Project Intersection Analysis - SR 99 Relocation

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project	2035 No Project + HST	Impact	2035 No Project	2035 No Project + HST	Impact
1 McKinley Ave/Woodson Ave ^a	C	B	No	C	C	No
2 McKinley Ave/SR 99 SB On-Ramp ^a	B	B	No	B	B	No
3 McKinley Ave/SR 99 NB Off-Ramp ^a	F	F	No	F	F	No
4 Not Used						
5 Clinton Ave/Brawley Ave	C	D	No	D	E	Yes
6 Clinton Ave/Marks Ave	F	F	Yes	F	F	Yes
7 Clinton Ave/Vassar Ave	F	F	No	F	F	No
8 Clinton Ave/SR 99 SB Ramps	*	E	Yes	*	B	No
9 Clinton Ave/SR 99 NB Ramps	C	C	No	C	C	No
10 Clinton Ave/Weber Ave	F	F	Yes	F	F	Yes
11 Princeton Ave – SR 99 SB Ramps/Parkway Dr	A	*	No	A	*	No
12 Shields Ave – SR 99 SB Ramps/Parkway Dr	F	*	No	F	*	No
13 Shields Ave/Valentine Ave ^a	F	F	No	F	F	No
14 Shields Ave/Brawley Ave ^a	C	D	No	F	F	Yes
15 Dakota Ave/Brawley Ave ^a	F	F	Yes	F	F	Yes
16 Ashlan Ave – SR 99 SB Ramps/Parkway Dr	F	F	No	F	F	Yes
17 Ashlan Ave – SR 99 NB Ramps/Brawley Ave	E	E	No	E	E	No
18 Brawley Ave/Golden State Blvd ^a	F	F	No	F	F	No

Notes:
^a Denotes unsignalized intersection.
 *Intersection does not exist.
 Intersections with impacts are highlighted.

Impacts on the Local Roadway Network Due to Station Activity – All HST Alternatives

Downtown Merced Station

The Downtown Merced Station would be located between Martin Luther King Jr. Way and G Street along 15th Street. Station access would be provided along both 15th and 16th Streets. Because of the at-grade HST alignment near the station, an overpass at G Street would be built and D Street closed to eliminate the at-grade crossing of the tracks. These roadway modifications, along with the other activity at the Merced station, affect the local roadway network in the downtown area as described.

There are two phases of the California HST System planned. Phase 1 would connect San Francisco to Los Angeles via the Pacheco Pass and the Central Valley. Phase 2 is designed to connect from the Central Valley (Merced station) to the state's capital, Sacramento, and another extension is planned from Los Angeles to San Diego. Consequently, Merced would have a higher parking demand with the first phase of construction (estimated at 7,700 spaces in 2035) and a lesser parking demand after Phase 2 is operational (estimated at 2,000 spaces), because riders would shift to more convenient stations as they become available.

Based on these conditions, Merced officials have requested (March 2010 meeting with the City of Merced) that two parking options be explored—one (Option A) that builds the Phase 1 parking immediately adjacent to the station and another (Option B) that only constructs the needed Phase 2 parking at the station and disperses the remaining parking throughout an area within 3 miles the station. The two parking options for traffic analysis are identified as follows:

- Option A – All parking at the station, primarily in structured parking
- Option B – 2,000 spaces in structured parking at the station plus dispersed parking around the station area with connecting shuttles. (The 2,000 spaces would be constructed in the same footprint as Option A; accordingly, Option B could always be expanded with more/taller parking structures as demand requires if dispersed parking ever becomes an issue, which is not anticipated.)

The parking analysis is based on the projected Phase 1 2035 parking demand, which has the greatest impacts (to be conservative, even though Phase 2 with a Sacramento extension is expected in 2035 with resultant lower parking demand in Merced). For the initial Phase 1 HST operation prior to 2035, approximately 10 to 15% less parking is expected to be needed. Based on the trip distribution percentages presented in the *Merced to Fresno Transportation Technical Report* (Authority and FRA 2012), project traffic volumes were developed for both Options A and B for the AM and PM peak hour conditions. The project volumes were then added to existing and future (2035) No Project traffic volumes to obtain existing plus project and future (2035) with project traffic volumes, respectively.

Along with the roadway modifications at G Street (overpass) and D Street (closure), signalization of the 16th Street and H Street intersection was assumed under project conditions, because this intersection provides primary access to the station along 16th Street.

Merced Roadway Impacts – Tables 3.2-24 and 3.2-25 present the results of the roadway segment analysis for existing plus project conditions for Options A and B, respectively. These tables also compare the results of project conditions against existing conditions. It can be noted from the tables that one roadway segment (M Street between 13th and 16th Streets) under Option A and two roadway segments (V Street west of 13th Street and M Street between 13th and 16th Streets) under Option B have an increase in V/C of more than 0.04 with project-added traffic, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-24
 Existing Plus Project Roadway Segment Analysis – Downtown Merced Station (Parking Option A)

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact	
		Existing		Existing + HST			Existing		Existing + HST			
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS		
Main Street												
- Between Martin Luther King Jr. Way and M St	2	0.23	A	0.24	A	No	0.48	A	0.48	A	No	
- Between G St and Martin Luther King Jr. Way	4	0.09	A	0.35	A	No	0.15	A	0.49	A	No	
- Between Yosemite Pkwy (SR 140) and G St	2	0.27	A	0.67	B	No	0.29	A	0.77	C	No	
16th Street												
- Between V St and SR 59	4	0.62	B	0.64	B	No	0.85	D	0.88	D	No	
- Between R St and M St	4	0.37	A	0.43	A	No	0.60	A	0.67	B	No	
- Between Martin Luther King Jr. Way and M St	4	0.38	A	0.56	A	No	0.60	A	0.79	C	No	
- Between G St and Martin Luther King Jr. Way	4	0.37	A	0.33	A	No	0.54	A	0.48	A	No	
- Between Yosemite Pkwy (SR 140) and G St	4	0.30	A	0.15	A	No	0.45	A	0.22	A	No	
15th Street												
- Between R St and M St	2	0.12	A	0.16	A	No	0.32	A	0.35	A	No	
- Between Martin Luther King Jr. Way and M St	2	0.10	A	0.16	A	No	0.29	A	0.54	A	No	
- Between G St and Martin Luther King Jr. Way	2	0.15	A	0.09	A	No	0.29	A	0.18	A	No	
V Street												
- West of 13th St	2	0.67	B	0.71	B	No	0.84	D	0.87	D	No	
- Between 13th St and 16th St	4	0.54	A	0.57	A	No	0.69	B	0.72	C	No	

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact
		Existing		Existing + HST			Existing		Existing + HST		
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS	
- East of 16th St	2	0.63	B	0.63	B	No	0.74	C	0.74	C	No
R Street											
- West of 13th St	2	0.74	C	0.74	C	No	0.97	E	0.97	E	No
- Between 13th St and 16th St	4	0.44	A	0.47	A	No	0.63	B	0.65	B	No
- East of 16th St	4	0.47	A	0.47	A	No	0.72	C	0.73	C	No
M Street											
- West of 13th St	2	0.56	A	0.58	A	No	0.65	B	0.67	B	No
- Between 13th St and 16th St	2	0.63	B	0.99	E	Yes	0.70	B	1.01	F	Yes
- East of 16th St	4	0.52	A	0.54	A	No	0.59	A	0.60	A	No
Martin Luther King Jr. Way											
- West of Childs Ave	4	0.40	A	0.43	A	No	0.49	A	0.51	A	No
- Between Childs Ave and 13th St	4	0.33	A	0.34	A	No	0.47	A	0.49	A	No
- Between 13th St and 16th St	4	0.36	A	0.38	A	No	0.46	A	0.48	A	No
- East of 16th St	2	0.27	A	0.27	A	No	0.42	A	0.42	A	No
G Street											
- West of 13th St	2	0.54	A	0.54	A	No	0.57	A	0.57	A	No
- Between 13th St and 16th St	4	0.40	A	0.42	A	No	0.46	A	0.49	A	No
- East of 16th St	4	0.63	B	0.40	A	No	0.71	C	0.50	A	No
Note: Impacted locations are highlighted.											

Table 3.2-25
 Existing Plus Project Roadway Segment Analysis – Downtown Merced Station (Parking Option B)

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact	
		Existing		Existing + HST			Existing		Existing + HST			
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS		
Main Street												
- Between Martin Luther King Jr. Way and M St	2	0.23	A	0.23	A	No	0.48	A	0.48	A	No	
- Between G St and Martin Luther King Jr. Way	4	0.09	A	0.35	A	No	0.15	A	0.49	A	No	
- Between Yosemite Pkwy (SR 140) and G St	2	0.27	A	0.68	B	No	0.29	A	0.78	C	No	
16th Street												
- Between V St and SR 59	4	0.62	B	0.64	B	No	0.85	D	0.88	D	No	
- Between R St and M St	4	0.37	A	0.44	A	No	0.60	A	0.68	B	No	
- Between Martin Luther King Jr. Way and M St	4	0.38	A	0.56	A	No	0.60	A	0.79	C	No	
- Between G St and Martin Luther King Jr. Way	4	0.37	A	0.33	A	No	0.54	A	0.48	A	No	
- Between Yosemite Pkwy (SR 140) and G St	4	0.30	A	0.14	A	No	0.45	A	0.22	A	No	
15th Street												
- Between R St and M St	2	0.12	A	0.12	A	No	0.32	A	0.33	A	No	
- Between Martin Luther King Jr. Way and M St	2	0.10	A	0.14	A	No	0.29	A	0.38	A	No	
- Between G St and Martin Luther King Jr. Way	2	0.15	A	0.12	A	No	0.29	A	0.21	A	No	
V Street												
- West of 13th St	2	0.67	B	0.75	C	No	0.84	D	0.94	E	Yes	
- Between 13th St and 16th St	4	0.54	A	0.59	A	No	0.69	B	0.74	C	No	
- East of 16th St	2	0.63	B	0.67	B	No	0.74	C	0.77	C	No	

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact	
		Existing		Existing + HST			Existing		Existing + HST			
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS		
R Street												
- West of 13th St	2	0.74	C	0.74	C	No	0.97	E	0.97	E	No	
- Between 13th St and 16th St	4	0.44	A	0.46	A	No	0.63	B	0.65	B	No	
- East of 16th St	4	0.47	A	0.47	A	No	0.72	C	0.72	C	No	
M Street												
- West of 13th St	2	0.56	A	0.59	A	No	0.65	B	0.68	B	No	
- Between 13th St and 16th St	2	0.63	B	0.93	E	Yes	0.70	B	0.95	E	Yes	
- East of 16th St	4	0.52	A	0.54	A	No	0.59	A	0.60	A	No	
Martin Luther King Jr. Way												
- West of Childs Ave	4	0.40	A	0.43	A	No	0.49	A	0.51	A	No	
- Between Childs Ave and 13th St	4	0.33	A	0.35	A	No	0.47	A	0.51	A	No	
- Between 13th St and 16th St	4	0.36	A	0.38	A	No	0.46	A	0.48	A	No	
- East of 16th St	2	0.27	A	0.27	A	No	0.42	A	0.42	A	No	
G Street												
- West of 13th St	2	0.54	A	0.57	A	No	0.57	A	0.59	A	No	
- Between 13th St and 16th St	4	0.40	A	0.43	A	No	0.46	A	0.50	A	No	
- East of 16th St	4	0.63	B	0.40	A	No	0.71	C	0.50	A	No	
Note: Impacted locations are highlighted .												

Tables 3.2-26 and 3.2-27 present the results of the roadway segment analysis for future (2035) plus project conditions for Options A and B, respectively. These tables also compare the results of project conditions against future (2035) No Project conditions. It can be noted from the tables that six roadway segments under Option A and eight under Option B would have an increase in V/C of more than 0.04 with project-added traffic, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-26

Future (2035) Plus Project Roadway Segment Analysis – Downtown Merced Station (Parking Option A)

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact	
		2035 No Project		2035 No Project + HST			2035 No Project		2035 No Project + HST			
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS		
Main Street												
- Between Martin Luther King Jr. Way and M St	2	0.41	A	0.41	A	No	0.81	C	0.81	D	No	
- Between G St and Martin Luther King Jr. Way	4	0.15	A	0.66	B	No	0.26	A	0.83	D	No	
- Between Yosemite Pkwy (SR 140) and G St	2	0.48	A	1.23	F	Yes	0.50	A	1.36	F	Yes	
16th Street												
- Between V St and SR 59	4	1.06	F	1.08	F	No	1.51	F	1.54	F	No	
- Between R St and M St	4	0.63	B	0.70	B	No	1.06	F	1.13	F	Yes	
- Between Martin Luther King Jr. Way and M St	4	0.66	B	0.85	D	No	1.04	F	1.22	F	Yes	
- Between G St and Martin Luther King Jr. Way	4	0.66	B	0.54	A	No	0.94	E	0.78	C	No	
- Between Yosemite Pkwy (SR 140) and G St	4	0.52	A	0.37	A	No	0.76	C	0.32	A	No	
15th Street												
- Between R St and M St	2	0.21	A	0.25	A	No	0.54	A	0.57	A	No	
- Between Martin Luther King Jr. Way and M St	2	0.17	A	0.24	A	No	0.50	A	0.73	C	No	
- Between G St and Martin Luther King Jr. Way	2	0.27	A	0.18	A	No	0.53	A	0.35	A	No	
V Street												
- West of 13th St	2	1.27	F	1.30	F	No	1.59	F	1.62	F	No	
- Between 13th St and 16th St	4	1.05	F	1.07	F	No	1.33	F	1.36	F	No	

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact
		2035 No Project		2035 No Project + HST			2035 No Project		2035 No Project + HST		
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS	
- East of 16th St	2	1.18	F	1.18	F	No	1.40	F	1.40	F	No
R Street											
- West of 13th St	2	1.41	F	1.41	F	No	1.86	F	1.86	F	No
- Between 13th St and 16th St	4	0.84	D	0.88	D	No	1.22	F	1.24	F	No
- East of 16th St	4	0.89	D	0.90	D	No	1.38	F	1.38	F	No
M Street											
- West of 13th St	2	1.02	F	1.05	F	No	1.19	F	1.22	F	No
- Between 13th St and 16th St	2	1.20	F	1.56	F	Yes	1.32	F	1.64	F	Yes
- East of 16th St	4	0.98	E	1.00	E	No	1.12	F	1.13	F	No
Martin Luther King Jr. Way											
- West of Childs Ave	4	0.76	C	0.78	C	No	0.92	E	0.94	E	No
- Between Childs Ave and 13th St	4	0.63	B	0.64	B	No	0.90	D	0.92	E	Yes
- Between 13th St and 16th St	4	0.68	B	0.72	C	No	0.89	D	0.91	D	No
- East of 16th St	2	0.51	A	0.51	A	No	0.80	C	0.80	C	No
G Street											
- West of 13th St	2	1.03	F	1.03	F	No	1.08	F	1.08	F	No
- Between 13th St and 16th St	4	0.77	C	0.88	D	No	0.89	D	0.97	E	Yes
- East of 16th St	4	1.19	F	0.86	D	No	1.34	F	0.98	E	No
Note: Impacted locations are highlighted.											

Table 3.2-27

Future (2035) Plus Project Roadway Segment Analysis – Downtown Merced Station (Parking Option B)

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact	
		2035 No Project		2035 No Project + HST			2035 No Project		2035 No Project + HST			
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS		
Main Street												
- Between Martin Luther King Jr. Way and M St	2	0.41	A	0.41	A	No	0.81	C	0.81	D	No	
- Between G St and Martin Luther King Jr. Way	4	0.15	A	0.66	B	No	0.26	A	0.83	D	No	
- Between Yosemite Pkwy (SR 140) and G St	2	0.48	A	1.24	F	Yes	0.50	A	1.37	F	Yes	
16th Street												
- Between V St and SR 59	4	1.06	F	1.08	F	No	1.51	F	1.54	F	No	
- Between R St and M St	4	0.63	B	0.71	B	No	1.06	F	1.13	F	Yes	
- Between Martin Luther King Jr. Way and M St	4	0.66	B	0.85	D	No	1.04	F	1.22	F	Yes	
- Between G St and Martin Luther King Jr. Way	4	0.66	B	0.54	A	No	0.94	E	0.79	C	No	
- Between Yosemite Pkwy (SR 140) and G St	4	0.52	A	0.37	A	No	0.76	C	0.32	A	No	
15th Street												
- Between R St and M St	2	0.21	A	0.22	A	No	0.54	A	0.56	A	No	
- Between Martin Luther King Jr. Way and M St	2	0.17	A	0.22	A	No	0.50	A	0.57	A	No	
- Between G St and Martin Luther King Jr. Way	2	0.27	A	0.21	A	No	0.53	A	0.38	A	No	
V Street												
- West of 13th St	2	1.27	F	1.35	F	Yes	1.59	F	1.68	F	Yes	
- Between 13th St and 16th St	4	1.05	F	1.09	F	Yes	1.33	F	1.38	F	Yes	
- East of 16th St	2	1.18	F	1.22	F	No	1.40	F	1.43	F	No	
R Street												
- West of 13th St	2	1.41	F	1.41	F	No	1.86	F	1.86	F	No	

Segment	Travel Lanes	AM Peak Hour				Impact	PM Peak Hour				Impact
		2035 No Project		2035 No Project + HST			2035 No Project		2035 No Project + HST		
		V/C	LOS	V/C	LOS		V/C	LOS	V/C	LOS	
- Between 13th St and 16th St	4	0.84	D	0.87	D	No	1.22	F	1.24	F	No
- East of 16th St	4	0.89	D	0.89	D	No	1.38	F	1.38	F	No
M Street											
- West of 13th St	2	1.02	F	1.05	F	No	1.19	F	1.22	F	No
- Between 13th St and 16th St	2	1.20	F	1.50	F	Yes	1.32	F	1.58	F	Yes
- East of 16th St	4	0.98	E	1.00	E	No	1.12	F	1.13	F	No
Martin Luther King Jr. Way											
- West of Childs Ave	4	0.76	C	0.78	C	No	0.92	E	0.94	E	No
- Between Childs Ave and 13th St	4	0.63	B	0.65	B	No	0.90	D	0.94	E	Yes
- Between 13th St and 16th St	4	0.68	B	0.72	C	No	0.89	D	0.91	D	No
- East of 16th St	2	0.51	A	0.51	A	No	0.80	C	0.80	C	No
G Street											
- West of 13th St	2	1.03	F	1.05	F	No	1.08	F	1.11	F	No
- Between 13th St and 16th St	4	0.77	C	0.89	D	No	0.89	D	0.97	E	Yes
- East of 16th St	4	1.19	F	0.86	D	No	1.34	F	0.98	E	No
Note: Impacted locations are highlighted.											

Merced Intersection Impacts – Tables 3.2-28 and 3.2-29 present the results of the intersection analysis for existing plus project conditions for Options A and B, respectively. These tables also compare the results of project conditions against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that seven intersections (1, 14, 22, 25, 31, 39, and 44) under Option A and six (1, 22, 25, 31, 39, and 44) intersections under Option B would be affected with the project traffic under the criteria set forth in section 3.2.3.4 and 3.2.3.5, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-28
 Existing Plus Project Intersection Operating Conditions
 Downtown Merced Station – Parking Option A

	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1	16th St/SR 59	C	C	No	F	F	Yes
2	Olive Ave – Santa Fe Dr/SR 59	D	D	No	D	D	No
3	13th St – SR 99 SB Off-Ramp/V St	C	D	No	C	D	No
4	14th St – SR 99 NB On-Ramp/V St	B	B	No	B	C	No
5	15th St/V St	B	B	No	C	C	No
6	16th St/V St	C	C	No	C	C	No
7	13th St/R St	B	B	No	B	B	No
8	SR 99 NB Off-Ramp – 14th St/R St	B	C	No	B	C	No
9	15th St/R St	B	B	No	C	C	No
10	16th St/R St	C	C	No	C	C	No
11	Olive Ave/R St	D	D	No	E	E	No
12	15th St/O St	A	A	No	A	A	No
13	16th St/O St	C	B	No	B	B	No
14	15th St/M St	B	E	Yes	B	F	Yes
15	16th St/M St	C	C	No	C	D	No
16	Olive Ave/M St	D	D	No	E	E	No
17	2nd St/Grogan Ave/N West Ave	A	A	No	B	B	No
18	Childs Ave/Martin Luther King Jr. Way	D	D	No	D	D	No
19	13th St/Martin Luther King Jr. Way	C	C	No	C	C	No
20	SR 99 SB Ramps/Martin Luther King Jr. Way	C	D	No	C	C	No
21	SR 99 NB Ramps/Martin Luther King Jr. Way	C	C	No	C	D	No
22	14th St/Martin Luther King Jr. Way	C	C	No	C	E	Yes
23	15th St/Martin Luther King Jr. Way	B	B	No	B	B	No
24	16th St/Martin Luther King Jr. Way	C	C	No	C	C	No
25	13th St/G St	B	E	Yes	C	F	Yes
26	SR 99 – 14th St/G St	B	C	No	C	C	No

	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
27	16th St/G St ^a	C	N/A	N/A	C	N/A	N/A
28	Olive Ave/G St	D	D	No	D	D	No
29	SR 99 SB On-Ramp/SR 140	B	A	No	D	B	No
30	SR 99 SB Off-Ramp/SR 140	E	B	No	F	C	No
31	SR 99 NB Off-Ramp/Yosemite Parkway	F	F	No	F	F	Yes
32	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	D	D	No	D	D	No
33	14th St/O St	A	B	No	B	C	No
34	13th St/M St	B	D	No	C	D	No
35	14th St/M St	B	C	No	C	C	No
36	Main St/M St	A	A	No	B	B	No
37	18th St/M St	B	B	No	B	B	No
38	15th St/Canal St	B	B	No	B	C	No
39	16th St/Canal St	C	E	Yes	E	F	No
40	11th St/Martin Luther King Jr. Way	C	C	No	C	C	No
41	Main St/Martin Luther King Jr. Way	A	A	No	A	A	No
42	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
43	16th St/H St ^b	B	C	No	B	C	No
44	Main St/H St	A	C	No	B	E	Yes
45	15th St/G St ^a	B	N/A	N/A	C	N/A	N/A
46	Main St/G St	B	C	No	C	C	No
47	18th St/G St	A	A	No	A	B	No
48	15th St/D St ^c	B	N/A	N/A	B	N/A	N/A
49	16th St/D St ^c	C	N/A	N/A	C	N/A	N/A

Notes:

^a Intersection does not exist under project conditions because of proposed G Street overpass.

^b Intersection signalized under project conditions.

^c Intersection does not exist under project conditions because of proposed D Street closure.

Intersections with impacts are **highlighted**.

Table 3.2-29
 Existing Plus Project Intersection Operating Conditions
 Downtown Merced Station – Parking Option B

Intersection	AM Peak Hour			PM Peak Hour		
	Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1 16th St/SR 59	C	C	No	F	F	Yes
2 Olive Ave – Santa Fe Dr/SR 59	D	D	No	D	D	No
3 13th St – SR 99 SB Off-Ramp/V St	C	D	No	C	D	No
4 14th St – SR 99 NB On-Ramp/V St	B	B	No	B	C	No
5 15th St/V St	B	B	No	C	C	No
6 16th St/V St	C	C	No	C	C	No
7 13th St/R St	B	B	No	B	B	No
8 SR 99 NB Off-Ramp – 14th St/R St	B	C	No	B	C	No
9 15th St/R St	B	B	No	C	C	No
10 16th St/R St	C	C	No	C	C	No
11 Olive Ave/R St	D	D	No	E	E	No
12 15th St/O St	A	A	No	A	A	No
13 16th St/O St	C	B	No	B	B	No
14 15th St/M St	B	C	No	B	D	No
15 16th St/M St	C	C	No	C	C	No
16 Olive Ave/M St	D	D	No	E	E	No
17 2nd St/Grogan Ave/N West Ave	A	A	No	B	B	No
18 Childs Ave/Martin Luther King Jr. Way	D	D	No	D	D	No
19 13th St/Martin Luther King Jr. Way	C	C	No	C	C	No
20 SR 99 SB Ramps/Martin Luther King Jr. Way	C	C	No	C	C	No
21 SR 99 NB Ramps/Martin Luther King Jr. Way	C	C	No	C	D	No
22 14th St/Martin Luther King Jr. Way	C	C	No	C	E	Yes
23 15th St/Martin Luther King Jr. Way	B	B	No	B	B	No
24 16th St/Martin Luther King Jr. Way	C	C	No	C	C	No
25 13th St/G St	B	E	Yes	C	F	Yes
26 SR 99 – 14th St/G St	B	B	No	C	C	No

	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
27	16th St/G St ^a	C	N/A	N/A	C	N/A	N/A
28	Olive Ave/G St	D	D	No	D	D	No
29	SR 99 SB On-Ramp/SR 140	B	A	No	D	B	No
30	SR 99 SB Off-Ramp/SR 140	E	B	No	F	C	No
31	SR 99 NB Off-Ramp/Yosemite Pkwy	F	F	No	F	F	Yes
32	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	D	D	No	D	D	No
33	14th St/O St	A	B	No	B	B	No
34	13th St/M St	B	D	No	C	D	No
35	14th St/M St	B	C	No	C	C	No
36	Main St/M St	A	A	No	B	B	No
37	18th St/M St	B	B	No	B	B	No
38	15th St/Canal St	B	B	No	B	B	No
39	16th St/Canal St	C	E	Yes	E	F	No
40	11th St/Martin Luther King Jr. Way	C	C	No	C	C	No
41	Main St/Martin Luther King Jr. Way	A	A	No	A	A	No
42	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
43	16th St/H St ^b	B	C	No	B	C	No
44	Main St/H St	A	C	No	B	E	Yes
45	15th St/G St ^a	B	N/A	N/A	C	N/A	N/A
46	Main St/G St	B	C	No	C	C	No
47	18th St/G St	A	A	No	A	B	No
48	15th St/D St ^c	B	N/A	N/A	B	N/A	N/A
49	16th St/D St ^c	C	N/A	N/A	C	N/A	N/A

Notes:

^a Intersection does not exist under project conditions because of proposed G Street overpass.

^b Intersection signalized under project conditions.

^c Intersection does not exist under project conditions because of proposed D Street closure.

Intersections with impacts are highlighted.

Tables 3.2-30 and 3.2-31 present the results of the intersection analysis for future (2035) plus project conditions for Options A and B, respectively. These tables also compare the results of project conditions against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that 20 intersections under Option A and 19 intersections under Option B would be impacted with the project traffic under the criteria set forth in section 3.2.3.4 and 3.2.3.5, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA. The impacted intersections under future (2035) plus project conditions for Options A and B are also presented on Figures 3.2-11 and 3.2-12, respectively.

Table 3.2-30
 Future (2035) Plus Project Intersection Operating Conditions around
 Proposed Downtown Merced Station – Parking Option A

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1	16th St/SR 59	F	F	Yes	F	F	Yes
2	Olive Ave – Santa Fe Dr/SR 59	E	E	No	F	F	No
3	13th St – SR 99 SB Off-Ramp/V St	F	F	Yes	F	F	Yes
4	14th St – SR 99 NB On-Ramp/V St	C	C	No	C	D	No
5	15th St/V St	B	B	No	C	C	No
6	16th St/V St	E	E	No	F	F	Yes
7	13th St/R St	B	B	No	C	D	No
8	SR 99 NB Off-Ramp – 14th St/R St	C	C	No	C	C	No
9	15th St/R St	B	B	No	C	C	No
10	16th St/R St	C	C	No	D	D	No
11	Olive Ave/R St	E	E	No	F	F	No
12	15th St/O St	A	A	No	B	B	No
13	16th St/O St	C	C	No	C	C	No
14	15th St/M St	F	F	Yes	F	F	Yes
15	16th St/M St	D	D	No	D	D	No
16	Olive Ave/M St	F	F	No	F	F	No
17	2nd St/Grogan Ave/N West Ave	C	C	No	C	C	No
18	Childs Ave/Martin Luther King Jr. Way	E	E	No	F	F	Yes
19	13th St/Martin Luther King Jr. Way	C	C	No	C	D	No
20	SR 99 SB Ramps/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
21	SR 99 NB Ramps/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
22	14th St/Martin Luther King Jr. Way	F	F	No	F	F	Yes
23	15th St/Martin Luther King Jr. Way	B	B	No	B	B	No

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
24	16th St/Martin Luther King Jr. Way	C	D	No	F	F	Yes
25	13th St/G St	F	F	Yes	F	F	Yes
26	SR 99 – 14th St/G St	E	F	No	F	F	Yes
27	16th St/G St ^a	D	N/A	N/A	D	N/A	N/A
28	Olive Ave/G St	F	F	No	F	F	No
29	SR 99 SB On-Ramp/SR 140	C	C	No	F	B	No
30	SR 99 SB Off-Ramp/SR 140	F	F	No	F	F	No
31	SR 99 NB Off-Ramp/Yosemite Pkwy	F	F	Yes	F	F	Yes
32	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	F	F	Yes	F	F	Yes
33	14th St/O St	B	B	No	B	E	Yes
34	13th St/M St	F	F	Yes	F	F	Yes
35	14th St/M St	D	F	Yes	E	F	No
36	Main St/M St	B	B	No	B	B	No
37	18th St/M St	B	B	No	B	B	No
38	15th St/Canal St	B	C	No	C	F	Yes
39	16th St/Canal St	F	F	No	F	F	No
40	11th St/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
41	Main St/Martin Luther King Jr. Way	A	A	No	B	B	No
42	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
43	16th St/H St ^b	C	D	No	D	D	No
44	Main St/H St	B	F	Yes	B	F	Yes
45	15th St/G St ^a	D	N/A	N/A	F	N/A	N/A
46	Main St/G St	B	D	No	C	E	Yes
47	18th St/G St	A	B	No	A	B	No
48	15th St/D St ^c	D	N/A	N/A	C	N/A	N/A
49	16th St/D St ^c	E	N/A	N/A	E	N/A	N/A

Notes:

^a Intersection does not exist under project conditions because of proposed G Street overpass.

^b Intersection signalized under project conditions.

^c Intersection does not exist under project conditions because of proposed D Street closure.

Intersections with impacts are highlighted.

Table 3.2-31
 Future (2035) Plus Project Intersection Operating Conditions around
 Proposed Merced HST Station – Parking Option B

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1	16th St/SR 59	F	F	Yes	F	F	Yes
2	Olive Ave – Santa Fe Dr/SR 59	E	E	No	F	F	No
3	13th St– SR 99 SB Off-Ramp/V St	F	F	Yes	F	F	Yes
4	14th St – SR 99 NB On-Ramp/V St	C	C	No	C	D	No
5	15th St/V St	B	B	No	C	C	No
6	16th St/V St	E	E	Yes	F	F	Yes
7	13th St/R St	B	B	No	C	C	No
8	SR 99 NB Off-Ramp – 14th St/R St	C	C	No	C	C	No
9	15th St/R St	B	B	No	C	C	No
10	16th St/R St	C	C	No	D	D	No
11	Olive Ave/R St	E	E	No	F	F	No
12	15th St/O St	A	A	No	B	B	No
13	16th St/O St	C	C	No	C	C	No
14	15th St/M St	F	F	Yes	F	F	Yes
15	16th St/M St	D	D	No	D	D	No
16	Olive Ave/M St	F	F	No	F	F	No
17	2nd St/Grogan Ave/N West Ave	C	C	No	C	C	No
18	Childs Ave/Martin Luther King Jr. Way	E	E	No	F	F	Yes
19	13th St/Martin Luther King Jr. Way	C	C	No	C	D	No
20	SR 99 SB Ramps/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
21	SR 99 NB Ramps/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
22	14th St/Martin Luther King Jr. Way	F	F	No	F	F	Yes
23	15th St/Martin Luther King Jr. Way	B	B	No	B	B	No
24	16th St/Martin Luther King Jr. Way	C	D	No	F	F	Yes
25	13th St/G St	F	F	Yes	F	F	Yes
26	SR 99 – 14th St/G St	E	F	No	F	F	Yes

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
27	16th St/G St ^a	D	N/A	N/A	D	N/A	N/A
28	Olive Ave/G St	F	F	No	F	F	No
29	SR 99 SB On-Ramp/SR 140	C	C	No	F	B	No
30	SR 99 SB Off-Ramp/SR 140	F	F	No	F	F	No
31	SR 99 NB Off-Ramp/Yosemite Pkwy	F	F	Yes	F	F	Yes
32	Motel D/Glen Ave/Yosemite Pkwy (SR 140)	F	F	Yes	F	F	Yes
33	14th St/O St	B	B	No	B	C	No
34	13th St/M St	F	F	Yes	F	F	Yes
35	14th St/M St	D	E	Yes	E	F	No
36	Main St/M St	B	B	No	B	B	No
37	18th St/M St	B	B	No	B	B	No
38	15th St/Canal St	B	B	No	C	E	Yes
39	16th St/Canal St	F	F	No	F	F	No
40	11th St/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
41	Main St/Martin Luther King Jr. Way	A	A	No	B	B	No
42	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
43	16th St/H St ^b	C	D	No	D	D	No
44	Main St/H St	B	F	Yes	B	F	Yes
45	15th St/G St ^a	D	N/A	N/A	F	N/A	N/A
46	Main St/G St	B	D	No	C	E	Yes
47	18th St/G St	A	B	No	A	B	No
48	15th St/D St ^c	D	N/A	N/A	C	N/A	N/A
49	16th St/D St ^c	E	N/A	N/A	E	N/A	N/A

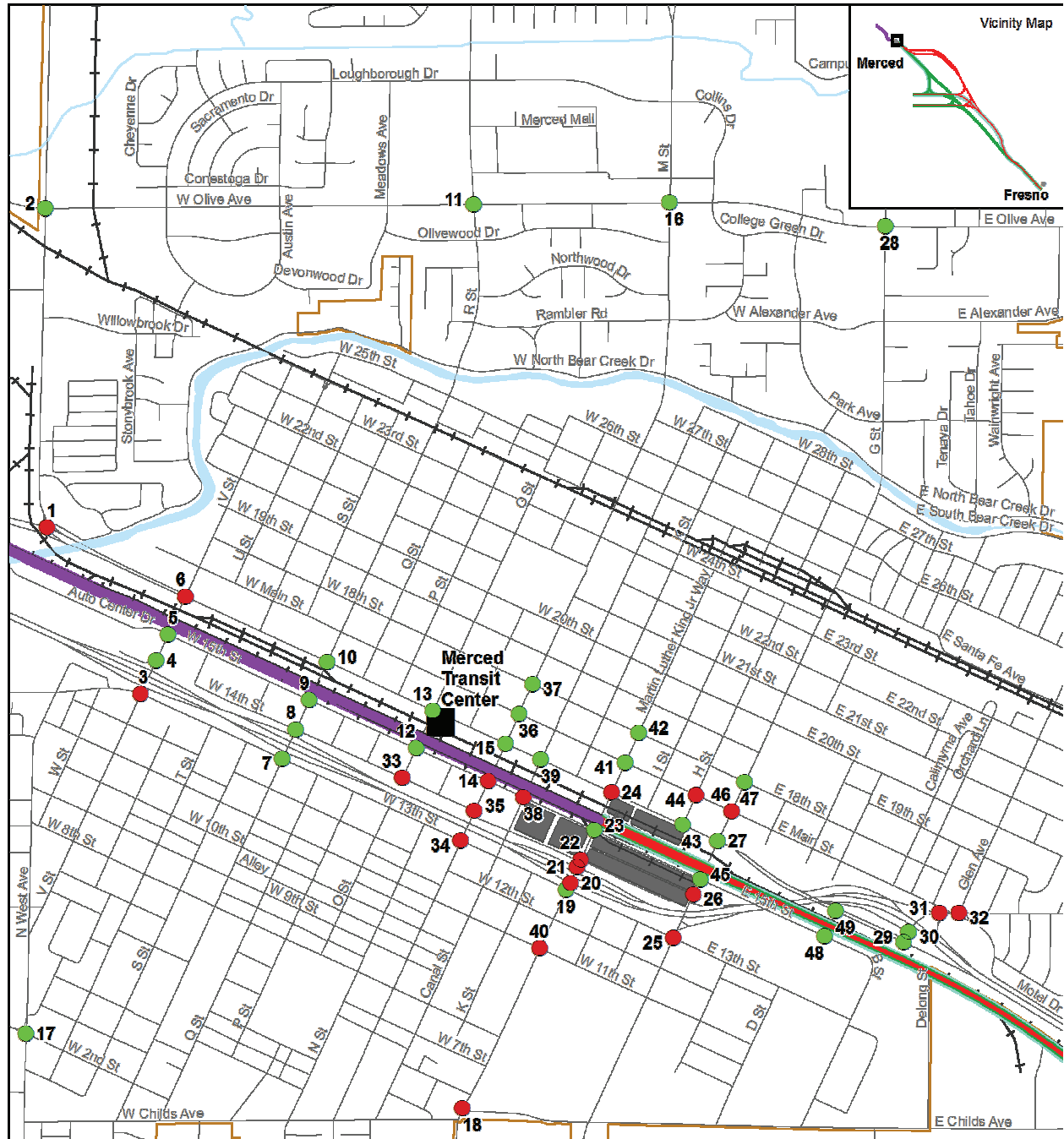
Notes:

^a Intersection does not exist under project conditions because of proposed G Street overpass.

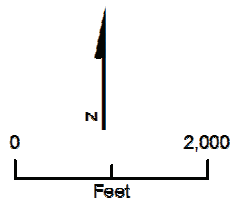
^b Intersection signalized under project conditions.

^c Intersection does not exist under project conditions because of proposed D Street closure.

Intersections with impacts are highlighted.

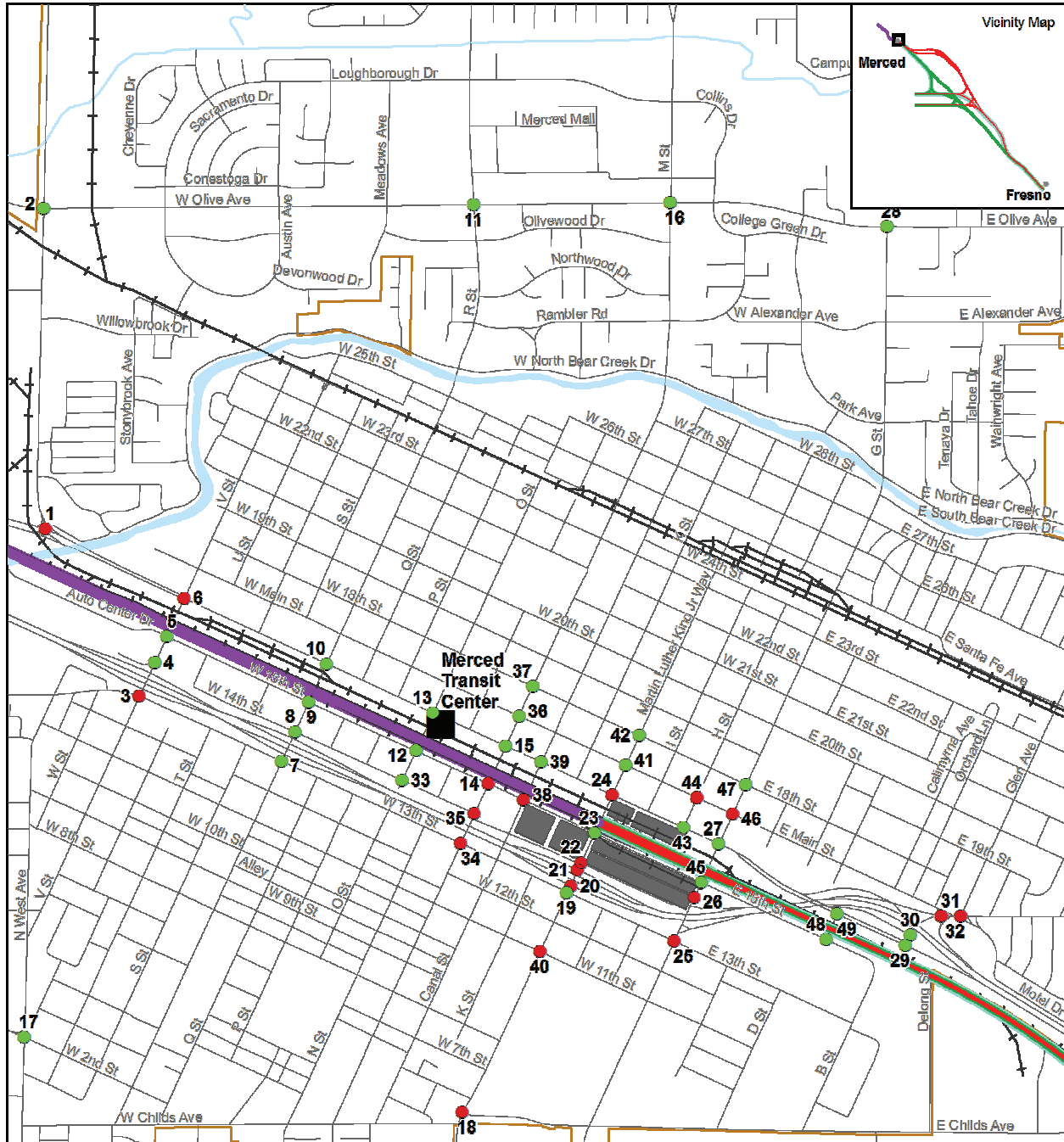


MF_EIS_TR_08a April 4, 2011

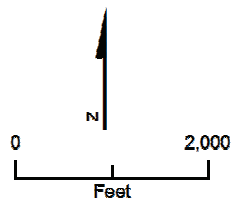


- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Footprint
- Potential Heavy Maintenance Facility Trackway
- City Limit
- Railroad
- No Impact
- Impact

Figure 3.2-11
 Future (2035) Project Intersection LOS with Proposed
 Downtown Merced Station – Parking Option A



MF_EIS_TR_08b April 5, 2011



- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Station Footprint
- Potential Heavy Maintenance Facility Trackway
- City Limit
- Railroad
- No Impact
- Impact

Figure 3.2-12
 Future (2035) Project Intersection LOS with Proposed
 Downtown Merced Station – Parking Option B

Merced Parking Impacts – Merced would have a higher parking demand with the first phase of construction (estimated at 7,700 spaces in 2035) and a lesser parking demand after Phase 2 is operational (estimated at 2,000 spaces), because riders would shift to more convenient stations as they become available. Based on these conditions, two parking options were analyzed for the Merced Station – one (Option A) that builds the Phase 1 parking immediately adjacent to the station and another (Option B) that only constructs the needed Phase 2 parking at the station and disperses the remaining parking throughout an area within 3 miles of the station. For the initial Phase 1 HST operation prior to 2035, approximately 10% to 15% less parking is expected to be needed.

During both the phases, only a limited percentage of parking is expected to be shared within the downtown area (approximately 6% shared downtown parking for Option A and approximately 13% under Option B). Based on the existing parking estimates, substantial excess public parking is available in the vicinity of the proposed station site. Because the HST Project includes a plan to provide adequate station parking (and because such parking can be provided), there would be an impact with negligible intensity under NEPA and a less than significant impact under CEQA on the existing downtown parking conditions.

Merced Area Transit Impacts – At the Merced station, the proposed project would add approximately 600 daily passengers using transit service in the City of Merced. It is projected that approximately 70 passengers would use the transit service in the peak hours. Eleven transit routes currently serve the Merced station area. The addition of approximately 70 passengers on existing transit routes averages to less than 7 passengers on each route (assuming equal distribution), which would be an impact with negligible intensity on transit under NEPA and a less than significant impact under CEQA.

Merced Pedestrian and Bicycle Facility Impacts – The proposed G Street overpass would close the current pedestrian crossing between 15th and 16th Streets, across UPRR. A new pedestrian overcrossing is proposed to provide alternative access. Other than described below (D Street closure), the proposed project would not close any of the existing or planned bicycle routes or pedestrian access/routes in the immediate vicinity of the Merced station. An estimated 300 passengers would use the station area via walking/bike on a daily basis. Approximately 40 passengers during the peak hour would arrive or leave the station area either walking or on bike. According to the *Highway Capacity Manual* (Transportation Research Board 2000), a typical pedestrian sidewalk can accommodate approximately 1,000 persons per hour; therefore, the addition of 40 persons would be an impact with negligible intensity under NEPA and a less than significant impact under CEQA.

The station would include bike racks, pedestrian connections to the existing sidewalks, and bike lanes/facilities where they can be accommodated within the streets. The addition of these pedestrian and bike trips during the peak hour (an average of about one pedestrian/bike per one minute) in the Merced station area would result in an impact with negligible intensity on pedestrian/bike facilities under NEPA and a less than significant impact under CEQA.

Because of the proposed at-grade HST alignment in the vicinity of the Merced station, D Street would be closed across the tracks, thus restricting pedestrian and bike movements. Since there are no adjacent parallel streets that provide a similar connection (as D Street) between the areas to the east and west of SR 99 within a reasonable walking distance, the closure of D street would have an impact with substantial intensity under NEPA and would be a significant impact under CEQA.

Merced Area Freight Impacts – As the proposed HST service would operate on a separate right-of-way through the Merced station area, it would not create any conflicts or impacts to UPRR freight operations. Pedestrian structures may cross over the freight rail line to provide access to the HST station, but the structures would be designed to meet freight height clearances. Because there would be no conflicts with freight operations, this would be an impact with negligible intensity under NEPA and a less than significant impact under CEQA. UPRR would also benefit from the G Street overpass and the D Street closure, which would eliminate current at-grade crossings.

Downtown Fresno Station

Two station locations in Fresno were studied, referred to as the Mariposa Alternative and the Kern Alternative. The Mariposa Street Alternative is centered on Mariposa Street and bounded by Fresno, Tulare, H and G Streets. The Kern Street Alternative is centered on Kern Street between Tulare and Inyo Streets. Because these two station alternatives are close to each other, the travel patterns to and from either station essentially would be the same, and therefore this document summarizes the traffic impacts for the two alternatives together. The Fresno station would require closure of Divisadero Street, Kern Street, and Mono Street at the proposed HST and UPRR alignment. Ventura Street and Tulare Street would cross the proposed HST and UPRR alignment on either an overpass or an underpass. For Ventura Street overpass or underpass options, the street connections and traffic circulation would be the same. However, for Tulare Street underpass and overpass options, street connections and traffic circulation would be different as identified below

Under the Tulare Street underpass option, the existing intersection of Tulare and G Streets would be removed. Under the Tulare Street overpass option, the existing intersections of Tulare and F, G, and H streets would be removed. In conjunction with the street closures, the following intersection modifications would also occur:

- Fresno Street at H Street: The existing grade separation with ramps would be replaced with an at-grade intersection with full directionality.
- Fresno Street at G Street: The existing at-grade intersection would be replaced with a grade separation (no turning movements would be allowed).
- Ventura Street at H Street: The existing at-grade intersection would be replaced with a grade separation (no turning movements would be allowed).
- Ventura Street at G Street: The existing at-grade intersection would be replaced with a grade separation (no turning movements would be allowed).
- South East Avenue at East Church Avenue: The existing at-grade intersection would be replaced with a grade separation (no turning movements would be allowed).
- South Sunland Avenue at East Church Avenue: The existing at-grade intersection would be replaced with a grade separation (no turning movements would be allowed).

The forecasted daily HST trips for the Fresno station alternatives were distributed on the transportation network based on the local roadway network and the results of the county travel demand model. Parking needed for 2035 (7,400 spaces) would be provided in the vicinity of the station location. Based on the trip distribution presented in the *Merced to Fresno Transportation Technical Report* (Authority and FRA 2012), project traffic volumes for the AM and PM peak hours were generated. The project volumes were then added to the existing volumes and future (2035) No Project volumes to obtain existing plus project and future (2035) with project volume, respectively. These volumes were then used for evaluating roadway segment and intersection impacts, as discussed below.

Fresno Roadway Impacts – Table 3.2-32 presents the results of the roadway segment analysis for existing plus project conditions and compares against existing conditions for Tulare Street Underpass Option. It can be noted from the table that none of the analyzed roadways would be affected by project traffic, resulting in an impact with negligible intensity under NEPA and in a less than significant impact under CEQA.

Table 3.2-32
 Existing Plus Project Roadway Segment Analysis around Downtown Fresno Station – Tulare Street Underpass Option

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		Existing	Existing + HST (Tulare St Underpass)	Existing	Existing + HST (Tulare St Underpass)	
1	Fulton St between SR 180 EB Ramps and E Divisadero St	6,970	7,120	D	D	No
2	Van Ness Ave between SR 180 EB Ramps and E Divisadero St	5,204	5,984	C	C	No
3	E Divisadero St between H St and Broadway St	9,014	7,770	C	C	No
4	H St between E Divisadero St and Stanislaus St	4,120	7,440	C	D	No
5	Broadway St between San Joaquin St and Stanislaus St	1,916	1,916	C	C	No
6	Van Ness Ave between Stanislaus St and E Divisadero St	5,262	6,202	D/C	D	No
7	Stanislaus St between Van Ness Ave and O St	4,360	4,700	C	C	No
8	N Blackstone Ave between McKenzie Ave and E Belmont Ave	8,074	8,414	C	C	No
9	N Abby St between McKenzie Ave and E Belmont Ave	9,036	9,396	C	C	No
10	E Belmont Ave between N Fresno St and N Abby St	12,080	12,080	C	C	No
11	Stanislaus St between Broadway St and E St	6,996	10,640	D/C	D	No
12	Tuolumne St between Broadway St and E St	5,586	2,010	C	C	No
13	Tuolumne St between Van Ness Ave and O St	4,300	4,300	C	C	No
14	Fresno St between P St and M St	12,322	13,132	D	D	No
15	Fresno St between M St and Van Ness Ave	12,150	12,980	C	D	No
16	Fresno St between Van Ness Ave and Broadway St	13,250	14,390	D	D	No
17	Fresno St between G St and SR 99 NB Ramps	16,082	17,510	D	D	No
18	Fresno St between C St and B St	11,860	11,990	C	C	No
19	Van Ness Ave between Fresno St and	9,992	10,982	D	D	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		Existing	Existing + HST (Tulare St Underpass)	Existing	Existing + HST (Tulare St Underpass)	
	Tulare St					
20	Tulare St between Broadway St and Van Ness Ave	7,174	7,120	C	C	No
21	Tulare St between R St and U St	19,910	20,710	D	D	No
22	Divisadero St between N Fresno St and SR 41 Ramps	20,338	23,038	D	D	No
23	Tulare St between SR 41 Ramps and N First St	32,476	32,636	F	F	No
24	M St between Tulare St and Inyo St	4,000	4,050	C	C	No
25	Inyo St between Broadway St and Van Ness Ave	3,302	3,910	C	C	No
26	Van Ness Ave between Inyo St and Ventura Ave	7,586	8,506	D	D	No
27	P St between Inyo St and Ventura Ave	2,018	2,038	C	C	No
28	Ventura Ave between B St and C St	13,886	14,016	D	D	No
29	Ventura Ave between E St and G St	14,320	13,140	D	D	No
30	Broadway St between Ventura Ave and SR 41 Ramps	3,438	4,170	C	C	No
31	Van Ness Ave between Ventura Ave and SR 41 Ramps	9,346	10,166	D	D	No
32	Ventura Ave between M St and Van Ness Ave	11,838	11,938	C	C	No
33	Ventura Ave between P St and N First St	11,500	11,630	D	D	No
34	N Blackstone Ave between SR 180 EB Ramps and E Belmont Ave	12,774	13,114	D	D	No
35	N Abby St between SR 180 EB Ramps and E Belmont Ave	12,906	13,266	D	D	No
36	Divisadero St between G St and H St	7231	NA	C	NA	No
37	Kern St between G St and H St	1416	NA	C	NA	No
38	Mono St between G St and H St	510	NA	C	NA	No
39	S Railroad Ave between E Florence Ave and E Church Ave	2,931	NA	C	NA	No
40	S Railroad Ave between E Church Ave and E Jensen Ave	2,094	NA	C	NA	No
41	S Orange Ave between S Railroad Ave and Golden State Boulevard	956	NA	C	NA	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		Existing	Existing + HST (Tulare St Underpass)	Existing	Existing + HST (Tulare St Underpass)	
42	SR 99 N Frontage Rd, between Stanislaus St and Tuolumne St	3,388	2,480	C	C	No
43	SR 99 N Frontage Rd, south of Tuolumne St	1,236	960	C	C	No
44	E St, between Stanislaus St and Tuolumne St	5,343	5,770	C	C	No
45	Stanislaus St, between E St and F St	6,748	10,230	C	C	No
46	F St, between Stanislaus St and Tuolumne St	701	2,480	C	C	No
47	G St, between Stanislaus St and Tuolumne St	4,269	4,269	C	C	No
48	Stanislaus St, between G St and H St	5,798	10,640	C	D	No
49	Tuolumne St, between G St and H St	4,446	0	C	NA	No
50	Stanislaus St, between Broadway St and Fulton St	5,421	7,710	C	D	No
51	Tuolumne St, between Broadway St and Fulton St	5,606	2,500	C	C	No
52	Fulton St, north of Stanislaus St	1,764	1,260	C	C	No
53	Van Ness Ave, north of Stanislaus St	5,156	6,160	C	D	No
54	Stanislaus St, between L St and M St	4,507	3,840	C	C	No
55	Tuolumne St, between L St and M St	4,120	3,260	C	C	No
56	Stanislaus St, between M St and N St	5,779	4,710	C	C	No
57	Tuolumne St, between M St and N St	4,113	3,070	C	C	No
58	Van Ness Ave, south of Tuolumne St	9,698	8,430	D	D	No

Notes:
 Under existing plus project conditions, roadway segment 49, Tuolumne St, is closed between G St and H St.
 Roadway segments 36 through 41 would be closed under project conditions.

Table 3.2-33 presents the results of the roadway segment analysis for existing plus project conditions and compares against existing conditions for Tulare Street Overpass Option. It can be noted from the table that none of the analyzed roadways are impacted by project traffic, resulting in an impact with negligible intensity under NEPA and a less than significant impact under CEQA.

Table 3.2-33
 Existing Plus Project Roadway Segment Analysis around Downtown Fresno Station – Tulare Street
 Overpass Option

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		Existing	Existing + HST (Tulare St Overpass)	Existing	Existing + HST (Tulare St Overpass)	
1	Fulton St between SR 180 EB Ramps and E Divisadero St	6,970	7,120	D	D	No
2	Van Ness Ave between SR 180 EB Ramps and E Divisadero St	5,204	5,984	C	C	No
3	E Divisadero St between H St and Broadway St	9,014	7,770	C	C	No
4	H St between E Divisadero St and Stanislaus St	4,120	7,440	C	D	No
5	Broadway St between San Joaquin St and Stanislaus St	1,916	1,916	C	C	No
6	Van Ness Ave between Stanislaus St and E Divisadero St	5,262	6,202	D/C	D	No
7	Stanislaus St between Van Ness Ave and O St	4,360	4,700	C	C	No
8	N Blackstone Ave between McKenzie Ave and E Belmont Ave	8,074	8,414	C	C	No
9	N Abby St between McKenzie Ave and E Belmont Ave	9,036	9,396	C	C	No
10	E Belmont Ave between N Fresno St and N Abby St	12,080	12,080	C	C	No
11	Stanislaus St between Broadway St and E St	6,996	11,550	D/C	D	No
12	Tuolumne St between Broadway St and E St	5,586	2,260	C	C	No
13	Tuolumne St between Van Ness Ave and O St	4,300	4,300	C	C	No
14	Fresno St between P St and M St	12,322	13,132	D	D	No
15	Fresno St between M St and Van Ness Ave	12,150	10,520	C	C	No
16	Fresno St between Van Ness Ave and Broadway St	13,250	13,690	D	D	No
17	Fresno St between G St and SR 99 NB Ramps	16,082	17,760	D	D	No
18	Fresno St between C St and B St	11,860	11,990	C	C	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		Existing	Existing + HST (Tulare St Overpass)	Existing	Existing + HST (Tulare St Overpass)	
19	Van Ness Ave between Fresno St and Tulare St	9,992	11,140	D	D	No
20	Tulare St between Broadway St and Van Ness Ave	7,174	4,990	C	C	No
21	Tulare St between R St and U St	19,910	20,710	D	D	No
22	Divisadero St between N Fresno St and SR 41 Ramps	20,338	23,038	D	D	No
23	Tulare St between SR 41 Ramps and N First St	32,476	32,636	F	F	No
24	M St between Tulare St and Inyo St	4,000	4,050	C	C	No
25	Inyo St between Broadway St and Van Ness Ave	3,302	3,910	C	C	No
26	Van Ness Ave between Inyo St and Ventura Ave	7,586	7,220	D	D	No
27	P St between Inyo St and Ventura Ave	2,018	2,038	C	C	No
28	Ventura Ave between B St and C St	13,886	14,016	D	D	No
29	Ventura Ave between E St and G St	14,320	13,140	D	D	No
30	Broadway St between Ventura Ave and SR 41 Ramps	3,438	5,690	C	C	No
31	Van Ness Ave between Ventura Ave and SR 41 Ramps	9,346	10,166	D	D	No
32	Ventura Ave between M St and Van Ness Ave	11,838	12,990	C	D	No
33	Ventura Ave between P St and N First St	11,500	11,630	D	D	No
34	N Blackstone Ave between SR 180 EB Ramps and E Belmont Ave	12,774	13,114	D	D	No
35	N Abby St between SR 180 EB Ramps and E Belmont Ave	12,906	13,266	D	D	No
36	Divisadero St between G St and H St	7231	NA	C	NA	No
37	Kern St between G St and H St	1416	NA	C	NA	No
38	Mono St between G St and H St	510	NA	C	NA	No
39	S Railroad Ave between E Florence Ave and E Church Ave	2,931	NA	C	NA	No
40	S Railroad Ave between E Church Ave and E Jensen Ave	2,094	NA	C	NA	No
41	S Orange Ave between S Railroad Ave and Golden State Boulevard	956	NA	C	NA	No
42	SR 99 N Frontage Rd, between Stanislaus St and Tuolumne St	3,388	2,480	C	C	No



No	Roadway Segment	Average Daily Traffic		LOS		Impact
		Existing	Existing + HST (Tulare St Overpass)	Existing	Existing + HST (Tulare St Overpass)	
43	SR 99 N Frontage Rd, south of Tuolumne St	1,236	960	C	C	No
44	E St, between Stanislaus St and Tuolumne St	5,343	6,500	C	C	No
45	Stanislaus St, between E St and F St	6,748	10,910	C	D	No
46	F St, between Stanislaus St and Tuolumne St	701	2,730	C	C	No
47	G St, between Stanislaus St and Tuolumne St	4,269	4,269	C	C	No
48	Stanislaus St, between G St and H St	5,798	11,550	C	D	No
49	Tuolumne St, between G St and H St	4,446	0	C	NA	No
50	Stanislaus St, between Broadway St and Fulton St	5,421	7,960	C	D	No
51	Tuolumne St, between Broadway St and Fulton St	5,606	2,750	C	C	No
52	Fulton St, north of Stanislaus St	1,764	1,260	C	C	No
53	Van Ness Ave, north of Stanislaus St	5,156	6,160	C	D	No
54	Stanislaus St, between L St and M St	4,507	3,840	C	C	No
55	Tuolumne St, between L St and M St	4,120	3,260	C	C	No
56	Stanislaus St, between M St and N St	5,779	4,710	C	C	No
57	Tuolumne St, between M St and N St	4,113	3,070	C	C	No
58	Van Ness Ave, south of Tuolumne St	9,698	8,430	D	D	No

Notes:

Under existing plus project conditions, roadway segment 49, Tuolumne St, is closed between G St and H St.
 Roadway segments 36 through 41 would be closed under project conditions.

Table 3.2-34 presents the results of the roadway segment analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions for Tulare Street Underpass Option. It can be noted from the table that seven roadway segments (#4, #7, #17, #20, #22, #50, and #54) would either have a further reduction in LOS below D, or the V/C ratio would increase by 0.04 or more. The roadway impacts identified surrounding the Fresno station would have substantial intensity under NEPA and would be significant under CEQA.

Table 3.2-34

Future (2035) Plus Project Roadway Segment Analysis around Downtown Fresno Station – Tulare Street Underpass Option

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Underpass)	2035 No Project	2035 No Project +HST (Tulare St Underpass)	
1	Fulton St between SR 180 EB Ramps and E Divisadero St	8,230	8,380	D	D	No
2	Van Ness Ave between SR 180 EB Ramps and E Divisadero St	13,670	14,450	D	D	No
3	E Divisadero St between H St and Broadway St	32,610	29,600	F	E	No
4	H St between E Divisadero St and Stanislaus St	16,150	25,310	F	F	Yes
5	Broadway St between San Joaquin St and Stanislaus St	12,730	12,730	D	D	No
6	Van Ness Ave between Stanislaus St and E Divisadero St	8,280	9,220	D	D	No
7	Stanislaus St between Van Ness Ave and O St	17,440	17,780	E	E	No
8	N Blackstone Ave between McKenzie Ave and E Belmont Ave	21,360	21,700	D	D	No
9	N Abby St between McKenzie Ave and E Belmont Ave	16,980	17,340	D	D	No
10	E Belmont Ave between N Fresno St and N Abby St	34,810	34,810	F	F	No
11	Stanislaus St between Broadway St and E St	24,100	32,680	F/D	F	Yes
12	Tuolumne St between Broadway St and E St	13,060	6,090	D	C/D	No
13	Tuolumne St between Van Ness Ave and O St	8,530	8,530	D	D	No
14	Fresno St between P St and M St	29,000	29,810	D	D	No
15	Fresno St between M St and Van Ness Ave	22,500	23,330	D	D	No
16	Fresno St between Van Ness Ave and Broadway St	25,700	26,840	D	D	No
17	Fresno St between G St and SR 99 NB Ramps	27,890	34,120	D	F	Yes
18	Fresno St between C St and B St	34,380	34,510	F	F	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Underpass)	2035 No Project	2035 No Project +HST (Tulare St Underpass)	
19	Van Ness Ave between Fresno St and Tulare St	14,970	15,960	D	D	No
20	Tulare St between Broadway St and Van Ness Ave	30,210	33,130	D	F	Yes
21	Tulare St between R St and U St	22,310	23,110	D	D	No
22	Divisadero St between N Fresno St and SR 41 Ramps	27,160	29,860	D	D/E	Yes
23	Tulare St between SR 41 Ramps and N First St	34,630	34,790	F	F	No
24	M St between Tulare St and Inyo St	17,230	17,280	D	D	No
25	Inyo St between Broadway St and Van Ness Ave	9,790	13,300	D	D	No
26	Van Ness Ave between Inyo St and Ventura Ave	13,120	14,040	D	D	No
27	P St between Inyo St and Ventura Ave	8,800	8,820	C	C	No
28	Ventura Ave between B St and C St	30,390	30,520	E	E	No
29	Ventura Ave between E St and G St	24,450	24,580	D	D	No
30	Broadway St between Ventura Ave and SR 41 Ramps	19,480	19,990	D	D	No
31	Van Ness Ave between Ventura Ave and SR 41 Ramps	19,420	20,240	D	D	No
32	Ventura Ave between M St and Van Ness Ave	21,310	21,410	D	D	No
33	Ventura Ave between P St and N First St	35,260	35,390	D	D	No
34	N Blackstone Ave between SR 180 EB Ramps and E Belmont Ave	26,250	26,590	F	F	No
35	N Abby St between SR 180 EB Ramps and E Belmont Ave	23,480	23,840	E	F	No
36	Divisadero St between G St and H St	19,777	NA	D	NA	No
37	Kern St between G St and H St	2,278	NA	C	NA	No
38	Mono St between G St and H St	820	NA	C	NA	No
39	S Railroad Ave between E Florence Ave and E Church Ave	3,084	NA	C	NA	No
40	S Railroad Ave between E Church Ave and E Jensen Ave	2,339	NA	C	NA	No



No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Underpass)	2035 No Project	2035 No Project +HST (Tulare St Underpass)	
41	S Orange Ave between S Railroad Ave and Golden State Boulevard	2,308	NA	C	NA	No
42	SR 99 N Frontage Rd, between Stanislaus St and Tuolumne St	10,450	10,450	F	F	No
43	SR 99 N Frontage Rd, south of Tuolumne St	8,610	14,570	D	D	No
44	E St, between Stanislaus St and Tuolumne St	8,850	8,850	C	C	No
45	Stanislaus St, between E St and F St	28,270	28,290	E	E	No
46	F St, between Stanislaus St and Tuolumne St	14,670	14,680	E	E	No
47	G St, between Stanislaus St and Tuolumne St	5,574	5,574	C	C	No
48	Stanislaus St, between G St and H St	32,650	32,680	F	F	No
49	Tuolumne St, between G St and H St	0	0	NA	NA	No
50	Stanislaus St, between Broadway St and Fulton St	21,930	23,840	F	F	Yes
51	Tuolumne St, between Broadway St and Fulton St	6,070	4,190	D	C	No
52	Fulton St, north of Stanislaus St	9,070	9,070	D	D	No
53	Van Ness Ave, north of Stanislaus St	7,560	8,500	D	D	No
54	Stanislaus St, between L St and M St	17,560	17,890	F	F	Yes
55	Tuolumne St, between L St and M St	8,850	8,850	D	D	No
56	Stanislaus St, between M St and N St	21,310	21,650	F	F	No
57	Tuolumne St, between M St and N St	8,490	8,490	D	D	No
58	Van Ness Ave, south of Tuolumne St	11,800	13,100	D	D	No

Notes:

Under future conditions, roadway segment 49, Tuolumne St, is closed between G St and H St.
 Roadway segments 36 through 41 would be closed under project conditions.
 Impacted locations are highlighted.

Table 3.2-35 presents the results of the roadway segment analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions for Tulare Street Overpass Option. It can be noted from the table that nine roadway segments (#4, #11, #16, #17, #22, #31, #45, #46, and #50) would either have a further reduction in LOS below D, or the V/C ratio would increase by 0.04 or more. The roadway impacts identified surrounding the Fresno station would have substantial intensity under NEPA and would be significant under CEQA.

Table 3.2-35

Future (2035) Plus Project Roadway Segment Analysis around Downtown Fresno Station – Tulare Street Overpass Option

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Overpass)	2035 No Project	2035 No Project +HST (Tulare St Overpass)	
1	Fulton St between SR 180 EB Ramps and E Divisadero St	8,230	8,380	D	D	No
2	Van Ness Ave between SR 180 EB Ramps and E Divisadero St	13,670	14,450	D	D	No
3	E Divisadero St between H St and Broadway St	32,610	29,600	F	E	No
4	H St between E Divisadero St and Stanislaus St	16,150	25,310	F	F	Yes
5	Broadway St between San Joaquin St and Stanislaus St	12,730	12,730	D	D	No
6	Van Ness Ave between Stanislaus St and E Divisadero St	8,280	9,220	D	D	No
7	Stanislaus St between Van Ness Ave and O St	17,440	17,780	E	E	No
8	N Blackstone Ave between McKenzie Ave and E Belmont Ave	21,360	21,700	D	D	No
9	N Abby St between McKenzie Ave and E Belmont Ave	16,980	17,340	D	D	No
10	E Belmont Ave between N Fresno St and N Abby St	34,810	34,810	F	F	No
11	Stanislaus St between Broadway St and E St	24,100	32,680	E/D	F	Yes
12	Tuolumne St between Broadway St and E St	13,060	6,090	D	C/D	No
13	Tuolumne St between Van Ness Ave and O St	8,530	8,530	D	D	No
14	Fresno St between P St and M St	29,000	29,810	D	D	No
15	Fresno St between M St and Van Ness Ave	22,500	23,320	D	D	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Overpass)	2035 No Project	2035 No Project +HST (Tulare St Overpass)	
16	Fresno St between Van Ness Ave and Broadway St	25,700	30,470	D	E	Yes
17	Fresno St between G St and SR 99 NB Ramps	27,890	37,980	D	F	Yes
18	Fresno St between C St and B St	34,380	34,510	F	F	No
19	Van Ness Ave between Fresno St and Tulare St	14,970	16,880	D	D	No
20	Tulare St between Broadway St and Van Ness Ave	30,210	23,580	D	D	No
21	Tulare St between R St and U St	22,310	23,110	D	D	No
22	Divisadero St between N Fresno St and SR 41 Ramps	27,160	29,860	D	D/E	Yes
23	Tulare St between SR 41 Ramps and N First St	34,630	34,790	F	F	No
24	M St between Tulare St and Inyo St	17,230	17,280	D	D	No
25	Inyo St between Broadway St and Van Ness Ave	9,790	12,720	D	D	No
26	Van Ness Ave between Inyo St and Ventura Ave	13,120	14,040	D	D	No
27	P St between Inyo St and Ventura Ave	8,800	8,820	C	C	No
28	Ventura Ave between B St and C St	30,390	30,520	E	E	No
29	Ventura Ave between E St and G St	24,450	24,580	D	D	No
30	Broadway St between Ventura Ave and SR 41 Ramps	19,480	19,990	D	D	No
31	Van Ness Ave between Ventura Ave and SR 41 Ramps	19,420	21,670	D	E	Yes
32	Ventura Ave between M St and Van Ness Ave	21,310	21,410	D	D	No
33	Ventura Ave between P St and N First St	35,260	35,390	D	D	No
34	N Blackstone Ave between SR 180 EB Ramps and E Belmont Ave	26,250	26,590	F	F	No
35	N Abby St between SR 180 EB Ramps and E Belmont Ave	23,480	23,840	E	F	No
36	Divisadero St between G St and H St	19,777	NA	D	NA	No
37	Kern St between G St and H St	2,278	NA	C	NA	No
38	Mono St between G St and H St	820	NA	C	NA	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Overpass)	2035 No Project	2035 No Project +HST (Tulare St Overpass)	
39	S Railroad Ave between E Florence Ave and E Church Ave	3,084	NA	C	NA	No
40	S Railroad Ave between E Church Ave and E Jensen Ave	2,339	NA	C	NA	No
41	S Orange Ave between S Railroad Ave and Golden State Boulevard	2,308	NA	C	NA	No
42	SR 99 N Frontage Rd, between Stanislaus St and Tuolumne St	10,450	10,450	F	F	No
43	SR 99 N Frontage Rd, south of Tuolumne St	8,610	14,570	D	D	No
44	E St, between Stanislaus St and Tuolumne St	8,850	13,930	C	D	No
45	Stanislaus St, between E St and F St	28,270	33,340	E	F	Yes
46	F St, between Stanislaus St and Tuolumne St	14,670	16,550	E	F	Yes
47	G St, between Stanislaus St and Tuolumne St	5,574	5,574	C	C	No
48	Stanislaus St, between G St and H St	32,650	39,210	F	F	No
49	Tuolumne St, between G St and H St	0	0	NA	NA	No
50	Stanislaus St, between Broadway St and Fulton St	21,930	26,140	F	F	Yes
51	Tuolumne St, between Broadway St and Fulton St	6,070	7,640	D	D	No
52	Fulton St, north of Stanislaus St	9,070	9,070	D	D	No
53	Van Ness Ave, north of Stanislaus St	7,560	8,500	D	D	No
54	Stanislaus St, between L St and M St	17,560	17,890	F	F	No
55	Tuolumne St, between L St and M St	8,850	8,850	D	D	No
56	Stanislaus St, between M St and N St	21,310	21,650	F	F	No
57	Tuolumne St, between M St and N St	8,490	8,490	D	D	No
58	Van Ness Ave, south of Tuolumne St	11,800	13,100	D	D	No

No	Roadway Segment	Average Daily Traffic		LOS		Impact
		2035 No Project	2035 No Project +HST (Tulare St Overpass)	2035 No Project	2035 No Project +HST (Tulare St Overpass)	
Notes:						
Under future conditions, roadway segment 49, Tuolumne St, is closed between G St and H St.						
Roadway segments 36 through 41 would be closed under project conditions.						
Impacted locations are highlighted .						

Fresno Intersection Impacts – Table 3.2-36 presents the results for the Tulare Street underpass option intersection analysis under existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that seven intersections (6, 33-0, 63, 80, 86, 109, and 117) would be impacted with the project traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA.

Table 3.2-36
 Existing Plus Project Intersection Operating Conditions around
 Proposed Fresno HST Station – Tulare Street Underpass Option

Intersection	AM Peak Hour			PM Peak Hour		
	Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact
1 Broadway St/SR 41 NB Ramp/Monterey St ^a	A	A	No	B	B	No
2 Van Ness Ave/SR 41 NB Ramp ^b	B	B	No	B	B	No
3 Broadway St/SR 41 SB Ramp ^a	A	A	No	B	B	No
4 Van Ness Ave/SR 41 SB Ramp ^a	C	D	No	B	B	No
5 SR 99 SB Ramps/Ventura Ave	B	B	No	A	A	No
6 SR 99 NB Ramps/Ventura Ave ^a	F	F	Yes	D	E	Yes
7 E St/Ventura Ave ^a	D	D	No	E	E	No
8 G St/Ventura Ave	A	NA	No	B	NA	No
9 Broadway St/Ventura Ave	B	B	No	C	C	No
10 Van Ness Ave/Ventura Ave	B	B	No	B	B	No
11 M St/Ventura Ave	A	A	No	B	B	No
12 O St/Ventura Ave	C	C	No	C	C	No
13 P St/Ventura Ave	A	A	No	A	A	No
14 N 1st St/Ventura Ave	B	B	No	B	B	No
15 G St/Inyo St ^a	A	A	No	B	A	No
16 H St/Inyo St	A	B	No	A	A	No

	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact
17	Van Ness Ave/Inyo St	A	A	No	A	A	No
18	M St/Inyo St	A	A	No	A	A	No
19	P St/Inyo St ^a	B	B	No	B	B	No
20	G St/Kern St	A	A	No	A	A	No
21	H St/Kern St ^a	B	B	No	B	B	No
22	E St/Tulare St	A	A	No	A	A	No
23	F St/Tulare St	A	A	No	A	A	No
24	G St/Tulare St	A	NA	No	B	NA	No
25	H St/Tulare St	B	B	No	B	B	No
26	Van Ness Ave/Tulare St	C	C	No	B	C	No
27	M St/Tulare St	A	A	No	B	B	No
28	P St/Tulare St	A	A	No	A	A	No
29	R St/Tulare St	B	B	No	B	B	No
30	U St/Tulare St	A	A	No	B	B	No
31	Divisadero St Off-Ramp/Tulare St	A	A	No	B	B	No
32	SR 41 SB Ramp/Divisadero St	C	C	No	A	B	No
33	SR 41 NB Ramps/Tulare St	B	B	No	B	B	No
33-0	Divisadero St/SR 41 NB Ramps/Tulare St	F	F	Yes	F	F	Yes
34	N 1st St/Tulare St	C	C	No	D	D	No
35	H St/Mariposa St/Fresno St	A	A	No	A	A	No
36	C St/Fresno St	A	A	No	B	B	No
37	SR 99 SB Ramps/Fresno St	B	C	No	C	D	No
38	SR 99 NB Ramps/Fresno St	B	B	No	C	C	No
39	G St/Fresno St	A	NA	No	A	NA	No
40	H St/Fresno St		B	No		B	No
41	Broadway St/Fresno St	A	A	No	A	A	No
42	Van Ness Ave/Fresno St	C	C	No	C	C	No
43	M St/Fresno St	A	A	No	A	A	No
44	P St/Fresno St	A	A	No	A	A	No
45	Fresno St/R St	B	B	No	B	B	No
46	Fresno St/Divisadero St	C	C	No	C	C	No

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact
47	H St/Broadway St	A	A	No	A	A	No
48	E St/Tuolumne St	A	A	No	B	B	No
49	Broadway St/Tuolumne St	B	A	No	B	A	No
50	Van Ness Ave/Tuolumne St	B	B	No	B	B	No
51	O St/Tuolumne St	A	A	No	A	A	No
52	E St/Stanislaus St	A	A	No	A	B	No
53	Broadway St/Stanislaus St	A	D	No	A	C	No
54	Van Ness Ave/Stanislaus St	B	C	No	B	C	No
55	N Blackstone Ave/Stanislaus St	B	C	No	B	B	No
56	N Abby St/E Divisadero St	B	A	No	B	D	No
57	N Blackstone Ave/Divisadero St	B	B	No	B	B	No
58	H St/San Joaquin St ^a	B	C	No	B	B	No
59	M St/Divisadero St	A	A	No	A	A	No
60	H St/Amador St ^a	B	D	No	B	B	No
61	G St/Divisadero St	A	A	No	A	A	No
62	N Roosevelt Ave/E Divisadero St ^a	B	NA	No	C	NA	No
63	H St/Divisadero St	E	F	Yes	C	C	No
64	Broadway St/Divisadero St	A	A	No	A	A	No
65	Fulton St/Divisadero St	B	B	No	B	B	No
66	Van Ness Ave/Divisadero St	A	B	No	B	B	No
67	H St/Roosevelt St	B	A	No	B	A	No
68	N Blackstone Ave/E McKenzie Ave	A	A	No	A	A	No
69	N Abby St/E McKenzie Ave	A	A	No	A	A	No
70	Fulton St/SR 180 EB Ramps	B	B	No	A	A	No
71	Van Ness Ave/SR 180 EB Ramps	A	A	No	B	B	No
72	Fulton St/SR 180 WB Ramps	B	B	No	A	A	No
73	Van Ness Ave/SR 180 WB Ramps	A	A	No	B	B	No
74	N Blackstone Ave/E Belmont Ave	B	B	No	B	B	No
75	N Abby St/E Belmont St	B	B	No	B	B	No
76	Fresno St/E Belmont St	C	C	No	C	C	No
77	N 1st St/E Belmont St	C	C	No	C	C	No
78	N Blackstone Ave/SR 180 EB	A	A	No	A	A	No

	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact
	Ramps						
79	N Abby St/SR 180 EB Ramps	A	A	No	B	B	No
80	N Blackstone Ave/SR 180 WB Ramps	F	F	Yes	B	B	No
81	Broadway St/Amador St ^a	B	B	No	B	B	No
82	Broadway St/San Joaquin St ^a	A	A	No	B	B	No
83	F St/Fresno St	A	A	No	A	A	No
84	G St/Mono St ^a	B	B	No	B	B	No
85	H St/Mono St ^a	B	B	No	B	B	No
86	H St/Ventura St ^a	D	F	Yes	D	F	Yes
87	O St/Santa Clara St - SR 41 SB Off-Ramp ^b	B	B	No	B	B	No
88	M St/SR 41 SB On-Ramp	Intersection not used					
89	M St/San Benito - SR 41 NB On-Ramp ^a	B	B	No	F	F	No
90	Broadway St/Santa Clara St ^a	B	C	No	B	B	No
91	Van Ness Ave/E Hamilton Ave ^b	A	A	No	A	A	No
92	S Van Ness Ave /E California Ave ^a	B	B	No	B	C	No
93	S Railroad Ave/E Lorena Ave ^a	A	NA	No	A	NA	No
94	S Van Ness Ave/S Railroad Ave ^a	B	NA	No	B	NA	No
95	S Railroad Ave/E Florence Ave ^a	B	NA	No	B	NA	No
96	Golden State Blvd/E Church Ave	B	B	No	B	B	No
97	S Railroad Ave/E Church Ave	A	NA	No	A	NA	No
98	S East Ave/E Church Ave ^a	B	NA	No	B	NA	No
99	S Sunland Ave/E Church Ave ^a	B	NA	No	C	NA	No
100	S East Ave/S Railroad Ave ^a	B	NA	No	B	NA	No
101	S East Ave/Golden State Blvd	B	B	No	C	C	No
102	Golden State Blvd/E Jensen Ave	B	B	No	B	B	No
103	S Railroad Ave/S Orange Ave ^a	A	NA	No	A	NA	No
104	S Golden State Blvd/S Orange Ave ^a	B	B	No	B	B	No
105	Stanislaus St/SR 99 SB Off-Ramp ^a	D	B	No	D	A	No
106	Stanislaus St /SR 99 NB On-Ramp ^a	B	A	No	E	B	No

	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Underpass)	Impact
107	Tuolumne St /SR 99 S Frontage Rd ^a	C	C	No	B	B	No
108	Tuolumne St /SR 99 N Frontage Rd ^a	B	B	No	B	B	No
109	Stanislaus St/F St ^a	A	F	Yes	B	B	No
110	Tuolumne St/F St	A	A	No	A	A	No
111	Stanislaus St/Fulton St	A	B	No	A	B	No
112	Tuolumne St/Fulton St	A	A	No	A	A	No
113	Stanislaus St/L St ^a	B	C	No	C	C	No
114	Tuolumne St/L St ^a	C	C	No	B	B	No
115	Stanislaus St/M St	A	A	No	A	A	No
116	Tuolumne St/M St	A	A	No	A	A	No
117	Stanislaus St/N St ^a	D	F	Yes	B	C	No
118	Tuolumne St/N St	A	A	No	A	A	No
119	Church Ave/S Sunland Ave	-	A	No	-	A	No

Notes:

^a One-way or two-way stop-controlled intersection. LOS reported for the worst approach.

^b All-way stop-controlled intersection.

Intersections 8, 24, 39, 86, 93, 94, 95, 97, 98, 99, 100, and 103 do not exist under project conditions.

Intersections with impacts are highlighted.

Source: Authority and FRA (2012).

Table 3.2-37 presents the results for the Tulare Street overpass option intersection analysis under existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that six intersections (6, 33-0, 63, 80, 109, and 117) would be affected with the project traffic, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-37
 Existing Plus Project Intersection Operating Conditions around
 Proposed Fresno HST Station – Tulare Street Overpass Option

Intersection	AM Peak Hour			PM Peak Hour		
	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact
1 Broadway St/SR 41 NB Ramp/Monterey St ^a	A	A	No	B	B	No
2 Van Ness Ave/SR 41 NB Ramp ^b	B	B	No	B	B	No
3 Broadway St/SR 41 SB Ramp ^a	A	A	No	B	B	No
4 Van Ness Ave/SR 41 SB Ramp ^a	C	D	No	B	B	No
5 SR 99 SB Ramps/Ventura Ave	B	B	No	A	A	No
6 SR 99 NB Ramps/Ventura Ave ^a	F	F	Yes	D	E	Yes
7 E St/Ventura Ave ^a	D	D	No	E	E	No
8 G St/Ventura Ave	A	NA	No	B	NA	No
9 Broadway St/Ventura Ave	B	C	No	C	C	No
10 Van Ness Ave/Ventura Ave	B	B	No	B	B	No
11 M St/Ventura Ave	A	A	No	B	B	No
12 O St/Ventura Ave	C	C	No	C	C	No
13 P St/Ventura Ave	A	A	No	A	A	No
14 N 1st St/Ventura Ave	B	B	No	B	B	No
15 G St/Inyo St ^a	A	A	No	B	A	No
16 H St/Inyo St	A	B	No	A	A	No
17 Van Ness Ave/Inyo St	A	A	No	A	A	No
18 M St/Inyo St	A	A	No	A	A	No
19 P St/Inyo St ^a	B	B	No	B	B	No
20 G St/Kern St	A	A	No	A	A	No
21 H St/Kern St ^a	B	B	No	B	B	No
22 E St/Tulare St	A	A	No	A	A	No
23 F St/Tulare St	A	NA	No	A	NA	No
24 G St/Tulare St	A	NA	No	B	NA	No
25 H St/Tulare St	B	NA	No	B	NA	No
26 Van Ness Ave/Tulare St	C	C	No	B	C	No
27 M St/Tulare St	A	A	No	B	B	No
28 P St/Tulare St	A	A	No	A	A	No
29 R St/Tulare St	B	B	No	B	B	No

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact
30	U St/Tulare St	A	A	No	B	B	No
31	Divisadero St Off-Ramp/Tulare St	A	A	No	B	B	No
32	SR 41 SB Ramp/Divisadero St	C	C	No	A	B	No
33	SR 41 NB Ramps/Tulare St	B	B	No	B	B	No
33-0	Divisadero St/SR 41 NB Ramps/Tulare St	F	F	Yes	F	F	Yes
34	N 1st St/Tulare St	C	C	No	D	D	No
35	H St/Mariposa St/Fresno St	A	B	No	A	A	No
36	C St/Fresno St	A	A	No	B	B	No
37	SR 99 SB Ramps/Fresno St	B	C	No	C	D	No
38	SR 99 NB Ramps/Fresno St	B	B	No	C	C	No
39	G St/Fresno St	A	NA	No	A	NA	No
40	H St/Fresno St		B	No		A	No
41	Broadway St/Fresno St	A	A	No	A	A	No
42	Van Ness Ave/Fresno St	C	C	No	C	C	No
43	M St/Fresno St	A	A	No	A	A	No
44	P St/Fresno St	A	A	No	A	A	No
45	Fresno St/R St	B	B	No	B	B	No
46	Fresno St/Divisadero St	C	C	No	C	C	No
47	H St/Broadway St	A	A	No	A	A	No
48	E St/Tuolumne St	A	B	No	B	B	No
49	Broadway St/Tuolumne St	B	A	No	B	A	No
50	Van Ness Ave/Tuolumne St	B	B	No	B	B	No
51	O St/Tuolumne St	A	A	No	A	A	No
52	E St/Stanislaus St	A	A	No	A	B	No
53	Broadway St/Stanislaus St	A	D	No	A	C	No
54	Van Ness Ave/Stanislaus St	B	C	No	B	C	No
55	N Blackstone Ave/Stanislaus St	B	C	No	B	B	No
56	N Abby St/E Divisadero St	B	A	No	B	D	No
57	N Blackstone Ave/Divisadero St	B	B	No	B	B	No
58	H St/San Joaquin St ^a	B	C	No	B	B	No
59	M St/Divisadero St	A	A	No	A	A	No

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact
60	H St/Amador St ^a	B	D	No	B	B	No
61	G St/Divisadero St	A	A	No	A	A	No
62	N Roosevelt Ave/E Divisadero St ^a	B	NA	No	C	NA	No
63	H St/Divisadero St	E	F	Yes	C	C	No
64	Broadway St/Divisadero St	A	A	No	A	A	No
65	Fulton St/Divisadero St	B	B	No	B	B	No
66	Van Ness Ave/Divisadero St	A	B	No	B	B	No
67	H St/Roosevelt St	B	A	No	B	A	No
68	N Blackstone Ave/E McKenzie Ave	A	A	No	A	A	No
69	N Abby St/E McKenzie Ave	A	A	No	A	A	No
70	Fulton St/SR 180 EB Ramps	B	B	No	A	A	No
71	Van Ness Ave/SR 180 EB Ramps	A	A	No	B	B	No
72	Fulton St/SR 180 WB Ramps	B	B	No	A	A	No
73	Van Ness Ave/SR 180 WB Ramps	A	A	No	B	B	No
74	N Blackstone Ave/E Belmont Ave	B	B	No	B	B	No
75	N Abby St/E Belmont St	B	B	No	B	B	No
76	Fresno St/E Belmont St	C	C	No	C	C	No
77	N 1st St/E Belmont St	C	C	No	C	C	No
78	N Blackstone Ave/SR 180 EB Ramps	A	A	No	A	A	No
79	N Abby St/SR 180 EB Ramps	A	A	No	B	B	No
80	N Blackstone Ave/SR 180 WB Ramps	F	F	Yes	B	B	No
81	Broadway St/Amador St ^a	B	B	No	B	B	No
82	Broadway St/San Joaquin St ^a	A	A	No	B	B	No
83	F St/Fresno St	A	A	No	A	A	No
84	G St/Mono St ^a	B	A	No	B	A	No
85	H St/Mono St ^a	B	B	No	B	B	No
86	H St/Ventura St ^a	D	D	No	D	D	No
87	O St/Santa Clara St - SR 41 SB Off-Ramp ^b	B	B	No	B	B	No
88	M St/SR 41 SB On-Ramp	Intersection not used					
89	M St/San Benito - SR 41 NB On-Ramp ^a	B	B	No	F	F	No

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact
90	Broadway St/Santa Clara St ^a	B	C	No	B	B	No
91	Van Ness Ave/E Hamilton Ave ^b	A	A	No	A	A	No
92	S Van Ness Ave /E California Ave ^a	B	B	No	B	C	No
93	S Railroad Ave/E Lorena Ave ^a	A	NA	No	A	NA	No
94	S Van Ness Ave/S Railroad Ave ^a	B	NA	No	B	NA	No
95	S Railroad Ave/E Florence Ave ^a	B	NA	No	B	NA	No
96	Golden State Blvd/E Church Ave	B	B	No	B	B	No
97	S Railroad Ave/E Church Ave	A	NA	No	A	NA	No
98	S East Ave/E Church Ave ^a	B	NA	No	B	NA	No
99	S Sunland Ave/E Church Ave ^a	B	NA	No	C	NA	No
100	S East Ave/S Railroad Ave ^a	B	NA	No	B	NA	No
101	S East Ave/Golden State Blvd	B	B	No	C	C	No
102	Golden State Blvd/E Jensen Ave	B	B	No	B	B	No
103	S Railroad Ave/S Orange Ave ^a	A	NA	No	A	NA	No
104	S Golden State Blvd/S Orange Ave ^a	B	B	No	B	B	No
105	Stanislaus St/SR 99 SB Off-Ramp ^a	D	B	No	D	B	No
106	Stanislaus St /SR 99 NB On-Ramp ^a	B	A	No	E	B	No
107	Tuolumne St /SR 99 S Frontage Rd ^a	C	C	No	B	B	No
108	Tuolumne St /SR 99 N Frontage Rd ^a	B	B	No	B	B	No
109	Stanislaus St/F St ^a	A	F	Yes	B	B	No
110	Tuolumne St/F St	A	A	No	A	A	No
111	Stanislaus St/Fulton St	A	B	No	A	B	No
112	Tuolumne St/Fulton St	A	A	No	A	A	No
113	Stanislaus St/L St ^a	B	C	No	C	C	No
114	Tuolumne St/L St ^a	C	C	No	B	B	No
115	Stanislaus St/M St	A	A	No	A	A	No
116	Tuolumne St/M St	A	A	No	A	A	No
117	Stanislaus St/N St ^a	D	F	Yes	B	C	No
118	Tuolumne St/N St	A	A	No	A	A	No
119	Church Ave/S Sunland Ave	NA	A	No	NA	A	No

Intersection	AM Peak Hour			PM Peak Hour		
	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact	Existing LOS	Existing + HST LOS (Tulare St Overpass)	Impact
Notes:						
^a One-way or two-way stop-controlled intersection. LOS reported for the worst approach. ^b All-way stop-controlled intersection. Intersections 8, 24, 39, 86, 93, 94, 95, 97, 98, 99, 100, and 103 do not exist under project conditions. Intersections with impacts are highlighted. Source: Authority and FRA (2012).						

Table 3.2-38 presents the result of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions for the Tulare Street underpass option. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that 38 intersections would be affected with the project traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA. The affected intersections under future (2035) conditions are also shown on Figures 3.2-13 and 3.2-14.

Table 3.2-38
 Future (2035) plus Project Intersection Operating Conditions around
 Proposed Fresno HST Station – Tulare Street Underpass Option

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact
1 Broadway St/SR 41 NB Ramp/Monterey St ^a	B	B	No	B	B	No
2 Van Ness Ave/SR 41 NB Ramp ^b	E	F	Yes	C	C	No
3 Broadway St/SR 41 SB Ramp ^a	D	D	No	E	E	No
4 Van Ness Ave/SR 41 SB Ramp ^a	F	F	No	F	F	No
5 SR 99 SB Ramps/Ventura Ave	C	C	No	F	F	No
6 SR 99 NB Ramps/Ventura Ave ^a	F	F	Yes	F	F	Yes
7 E St/Ventura Ave ^a	F	F	Yes	F	F	Yes
8 G St/Ventura Ave	A	NA	No	B	NA	No
9 Broadway St/Ventura Ave	E	E	No	F	F	Yes
10 Van Ness Ave/Ventura Ave	C	C	No	F	F	Yes
11 M St/Ventura Ave	B	B	No	C	C	No
12 O St/Ventura Ave	C	C	No	E	E	No
13 P St/Ventura Ave	A	A	No	A	A	No

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact
14	N 1st St/Ventura Ave	B	B	No	D	D	No
15	G St/Inyo St ^a	B	B	No	C	C	No
16	H St/Inyo St	B	C	No	B	B	No
17	Van Ness Ave/Inyo St	B	B	No	B	B	No
18	M St/Inyo St	A	A	No	B	B	No
19	P St/Inyo St ^a	C	C	No	F	F	No
20	G St/Kern St	A	A	No	B	A	No
21	H St/Kern St ^a	D	D	No	E	E	Yes
22	E St/Tulare St	C	C	No	F	F	No
23	F St/Tulare St	B	B	No	F	F	Yes
24	G St/Tulare St	C	NA	No	F	NA	No
25	H St/Tulare St	B	B	No	D	E	Yes
26	Van Ness Ave/Tulare St	C	C	No	F	F	Yes
27	M St/Tulare St	B	B	No	C	D	No
28	P St/Tulare St	B	B	No	C	C	No
29	R St/Tulare St	B	B	No	C	C	No
30	U St/Tulare St	A	A	No	E	F	Yes
31	Divisadero St Off-Ramp/Tulare St	A	A	No	B	B	No
32	SR 41 SB Ramp/Divisadero St	B	B	No	C	C	No
33	SR 41 NB Ramps/Tulare St	A	A	No	B	B	No
33-0	Divisadero St/SR 41 NB Ramps/Tulare St	C	C	No	D	D	No
34	N 1st St/Tulare St	D	D	No	E	E	No
35	H St/Mariposa St/Fresno St	B	B	No	B	B	No
36	C St/Fresno St	B	B	No	F	F	No
37	SR 99 SB Ramps/Fresno St	E	E	Yes	F	F	Yes
38	SR 99 NB Ramps/Fresno St	D	D	No	F	F	Yes
39	G St/Fresno St	A	NA	No	B	NA	No
40	H St/Fresno St	B	B	No	B	B	No
41	Broadway St/Fresno St	A	A	No	B	C	No
42	Van Ness Ave/Fresno St	C	C	No	E	F	Yes
43	M St/Fresno St	B	B	No	D	D	No

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact
44	P St/Fresno St	B	B	No	B	C	No
45	Fresno St/R St	C	C	No	F	F	No
46	Fresno St/Divisadero St	C	C	No	F	F	Yes
47	H St/Broadway St	A	B	No	B	D	No
48	E St/Tuolumne St	B	B	No	B	B	No
49	Broadway St/Tuolumne St	A	C	No	B	B	No
50	Van Ness Ave/Tuolumne St	B	E	Yes	D	E	Yes
51	O St/Tuolumne St	A	A	No	A	A	No
52	E St/Stanislaus St	B	B	No	E	E	No
53	Broadway St/Stanislaus St	D	D	No	F	F	No
54	Van Ness Ave/Stanislaus St	C	C	No	F	F	Yes
55	N Blackstone Ave/Stanislaus St	C	C	No	C	C	No
56	N Abby St/E Divisadero St	B	B	No	H	H	No
57	N Blackstone Ave/Divisadero St	B	C	No	C	C	No
58	H St/San Joaquin St ^a	C	F	Yes	D	F	Yes
59	M St/Divisadero St	B	B	No	B	B	No
60	H St/Amador St ^a	C	F	Yes	F	F	Yes
61	G St/Divisadero St	C	A	No	F	B	No
62	N Roosevelt Ave/E Divisadero St ^a	F	NA	No	F	NA	No
63	H St/Divisadero St	F	F	Yes	F	F	Yes
64	Broadway St/Divisadero St	B	B	No	E	E	No
65	Fulton St/Divisadero St	B	B	No	B	B	No
66	Van Ness Ave/Divisadero St	C	C	No	F	F	Yes
67	H St/Roosevelt St	B	D	No	F	F	Yes
68	N Blackstone Ave/E McKenzie Ave	B	B	No	F	F	Yes
69	N Abby St/E McKenzie Ave	B	B	No	B	B	No
70	Fulton St/SR 180 EB Ramps	C	C	No	C	C	No
71	Van Ness Ave/SR 180 EB Ramps	C	D	No	F	F	Yes
72	Fulton St/SR 180 WB Ramps	D	D	No	F	F	No
73	Van Ness Ave/SR 180 WB Ramps	D	D	No	F	F	Yes
74	N Blackstone Ave/E Belmont Ave	F	F	Yes	F	F	No

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact
75	N Abby St/E Belmont St	D	D	No	F	F	No
76	Fresno St/E Belmont St	D	D	No	F	F	No
77	N 1st St/E Belmont St	D	D	No	F	F	No
78	N Blackstone Ave/SR 180 EB Ramps	A	A	No	A	B	No
79	N Abby St/SR 180 EB Ramps	D	D	No	F	F	Yes
80	N Blackstone Ave/SR 180 WB Ramps	F	F	Yes	F	F	Yes
81	Broadway St/Amador St ^a	C	C	No	F	F	Yes
82	Broadway St/San Joaquin St ^a	D	D	No	F	F	No
83	F St/Fresno St	A	A	No	F	F	Yes
84	G St/Mono St ^a	B	B	No	E	F	Yes
85	H St/Mono St ^a	B	B	No	B	C	No
86	H St/Ventura St ^a	E	F	Yes	F	F	No
87	O St/Santa Clara St - SR 41 SB Off-Ramp ^b	C	C	No	F	F	No
88	M St/SR 41 SB On-Ramp	Intersection not used					
89	M St/San Benito - SR 41 NB On-Ramp ^a	C	C	No	F	F	No
90	Broadway St/Santa Clara St ^a	B	C	No	C	D	No
91	Van Ness Ave/E Hamilton Ave ^b	A	A	No	B	B	No
92	S Van Ness Ave /E California Ave ^a	F	F	Yes	F	F	Yes
93	S Railroad Ave/E Lorena Ave ^a	A	NA	No	B	NA	No
94	S Van Ness Ave/S Railroad Ave ^a	B	NA	No	D	NA	No
95	S Railroad Ave/E Florence Ave ^a	B	NA	No	C	NA	No
96	Golden State Blvd/E Church Ave	D	E	Yes	F	F	Yes
97	S Railroad Ave/E Church Ave	A	NA	No	D	NA	No
98	S East Ave/E Church Ave ^a	F	NA	No	F	NA	No
99	S Sunland Ave/E Church Ave ^a	F	NA	No	C	NA	No
100	S East Ave/S Railroad Ave ^a	B	NA	No	E	NA	No
101	S East Ave/Golden State Blvd	D	D	No	B	E	Yes
102	Golden State Blvd/E Jensen Ave	F	F	Yes	F	F	Yes
103	S Railroad Ave/S Orange Ave ^a	B	NA	No	D	NA	No

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Underpass)	Impact
104 S Golden State Blvd/S Orange Ave ^a	F	E	No	F	F	No
105 Stanislaus St/SR 99 SB Off-Ramp ^a	F	F	No	H	H	No
106 Stanislaus St /SR 99 NB On-Ramp ^a	F	F	No	H	H	No
107 Tuolumne St /SR 99 S Frontage Rd	B	B	No	A	A	No
108 Tuolumne St /SR 99 N Frontage Rd	A	A	No	B	B	No
109 Stanislaus St/F St	B	B	No	E	E	No
110 Tuolumne St/F St	A	A	No	D	D	No
111 Stanislaus St/Fulton St	D	D	No	F	F	No
112 Tuolumne St/Fulton St	B	C	No	A	B	No
113 Stanislaus St/L St	C	C	No	F	F	Yes
114 Tuolumne St/L St	B	B	No	A	A	No
115 Stanislaus St/M St	C	C	No	F	F	Yes
116 Tuolumne St/M St	B	B	No	B	B	No
117 Stanislaus St/N St	D	D	No	F	F	Yes
118 Tuolumne St/N St	A	A	No	A	A	No
119 Church Ave/S Sunland Ave	NA	B	No	NA	C	No

Notes:

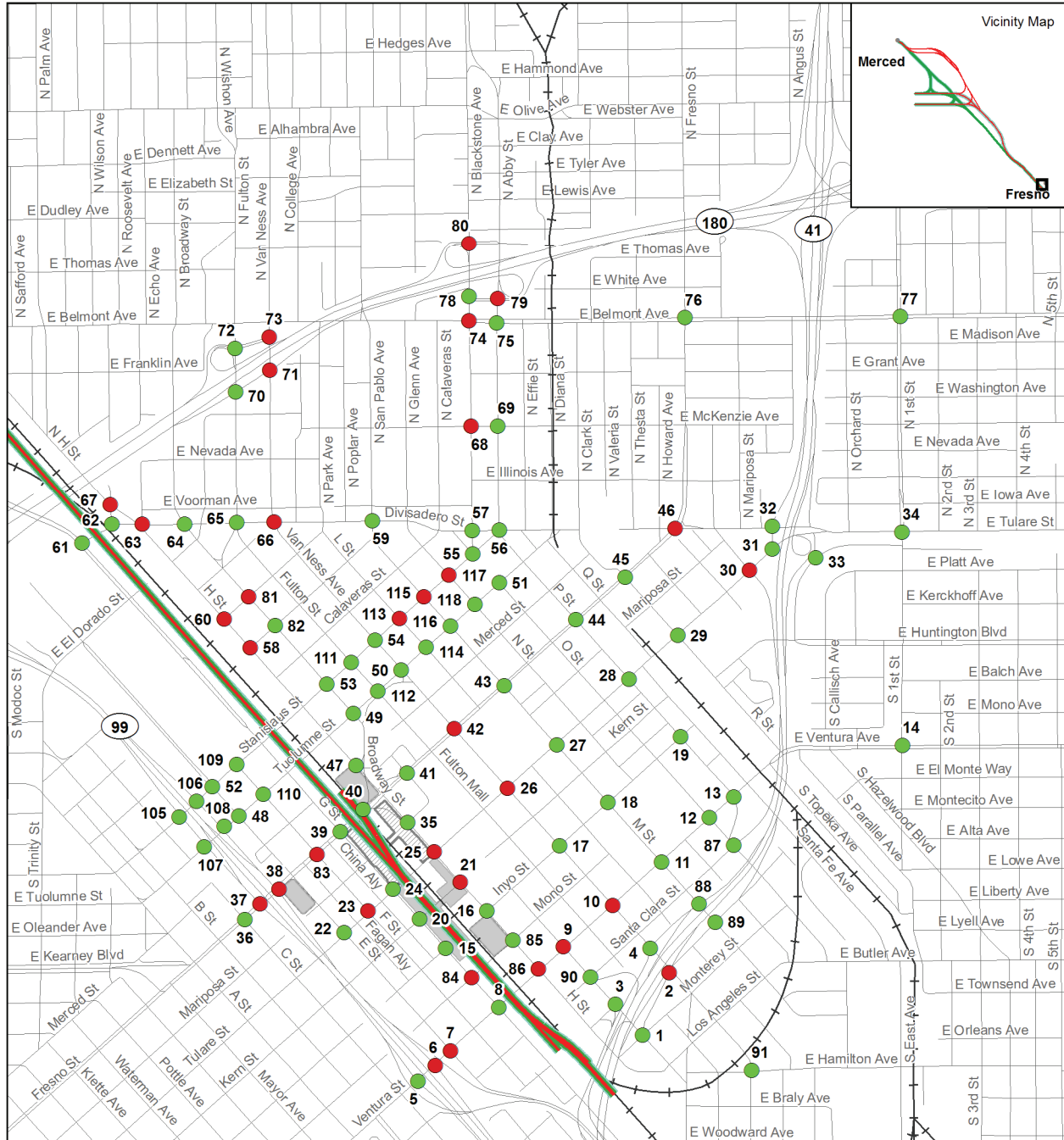
^a One-way or two-way stop-controlled intersection. LOS reported for the worst approach.

^b All-way stop-controlled intersection.

Intersections 8, 24, 39, 86, 93, 94, 95, 97, 98, 99, 100, and 103 do not exist under project conditions.

Intersections with impacts are highlighted.

Source: Authority and FRA (2012).



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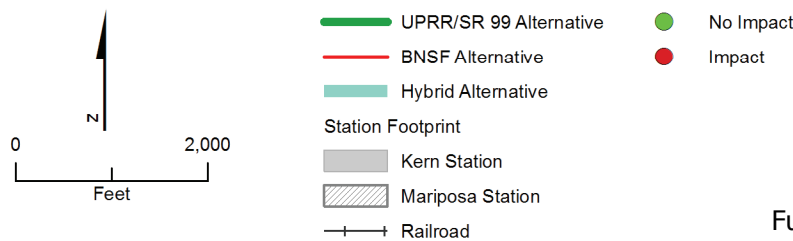


Figure 3.2-13
 Future (2035) Project Intersection LOS
 with Proposed Fresno Station – North
 Portion of Downtown
 (Tulare Street Underpass Option)

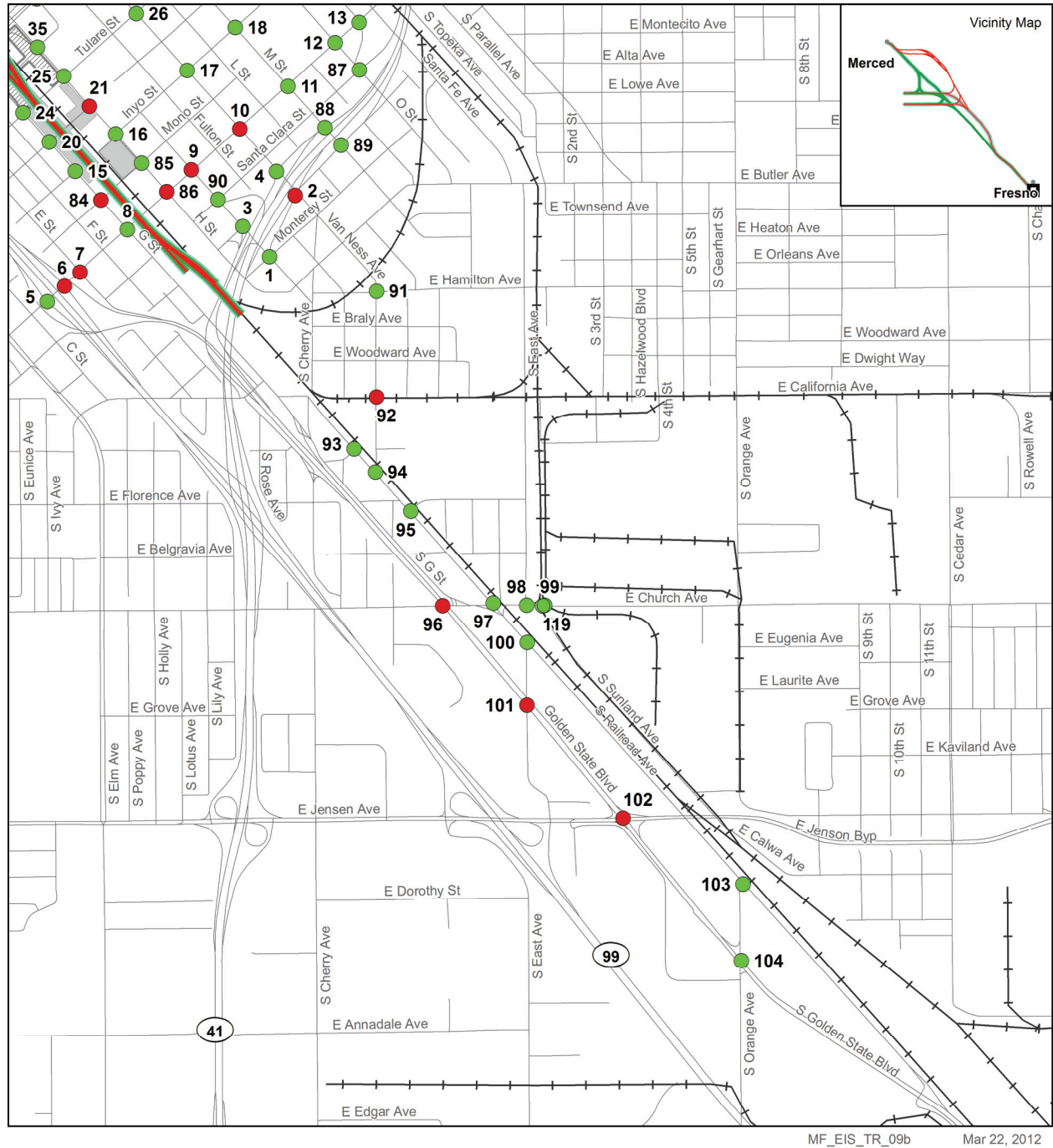


Figure 3.2-14
 Future (2035) Project Intersection LOS
 with Proposed Fresno Station – South
 Portion of Downtown
 (Tulare Street Underpass Option)

Table 3.2-39 presents the results of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions for the Tulare Street overpass option. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that 36 intersections would be impacted with the project traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA. The affected intersections under future (2035) conditions are also shown on Figures 3.2-15 and 3.2-16.

Table 3.2-39
 Future (2035) plus Project Intersection Operating Conditions around
 Proposed Fresno HST Station – Tulare Street Overpass Option

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact
1 Broadway St/SR 41 NB Ramp/Monterey St ^a	B	B	No	B	B	No
2 Van Ness Ave/SR 41 NB Ramp ^b	E	F	Yes	C	C	No
3 Broadway St/SR 41 SB Ramp ^a	D	D	No	E	E	No
4 Van Ness Ave/SR 41 SB Ramp ^a	F	F	No	F	F	No
5 SR 99 SB Ramps/Ventura Ave	C	C	No	F	F	No
6 SR 99 NB Ramps/Ventura Ave ^a	F	F	Yes	F	F	Yes
7 E St/Ventura Ave ^a	F	F	Yes	F	F	Yes
8 G St/Ventura Ave	A	NA	No	B	NA	No
9 Broadway St/Ventura Ave	E	F	Yes	F	F	Yes
10 Van Ness Ave/Ventura Ave	C	C	No	F	F	Yes
11 M St/Ventura Ave	B	B	No	C	C	No
12 O St/Ventura Ave	C	C	No	E	E	No
13 P St/Ventura Ave	A	A	No	A	A	No
14 N 1st St/Ventura Ave	B	B	No	D	D	No
15 G St/Inyo St ^a	B	B	No	C	C	No
16 H St/Inyo St	B	C	No	B	B	No
17 Van Ness Ave/Inyo St	B	B	No	B	B	No
18 M St/Inyo St	A	A	No	B	B	No
19 P St/Inyo St ^a	C	C	No	F	F	No
20 G St/Kern St	A	A	No	B	A	No
21 H St/Kern St ^a	D	C	No	E	E	No
22 E St/Tulare St	C	D	No	F	F	Yes
23 F St/Tulare St	B	NA	No	F	NA	No

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact
24	G St/Tulare St	C	NA	No	F	NA	No
25	H St/Tulare St	B	NA	No	D	NA	No
26	Van Ness Ave/Tulare St	C	C	No	F	F	No
27	M St/Tulare St	B	B	No	C	D	No
28	P St/Tulare St	B	B	No	C	C	No
29	R St/Tulare St	B	B	No	C	C	No
30	U St/Tulare St	A	A	No	E	F	Yes
31	Divisadero St Off-Ramp/Tulare St	A	A	No	B	B	No
32	SR 41 SB Ramp/Divisadero St	B	B	No	C	C	No
33	SR 41 NB Ramps/Tulare St	A	A	No	B	B	No
33-0	Divisadero St/SR 41 NB Ramps/Tulare St	C	C	No	D	D	No
34	N 1st St/Tulare St	D	D	No	E	E	No
35	H St/Mariposa St/Fresno St	B	B	No	B	C	No
36	C St/Fresno St	B	B	No	F	F	No
37	SR 99 SB Ramps/Fresno St	E	E	No	F	F	Yes
38	SR 99 NB Ramps/Fresno St	D	D	No	F	F	Yes
39	G St/Fresno St	A	NA	No	B	NA	No
40	H St/Fresno St	B	B	No	B	C	No
41	Broadway St/Fresno St	A	B	No	B	D	No
42	Van Ness Ave/Fresno St	C	D	No	E	F	Yes
43	M St/Fresno St	B	B	No	D	D	No
44	P St/Fresno St	B	B	No	B	C	No
45	Fresno St/R St	C	C	No	F	F	No
46	Fresno St/Divisadero St	C	C	No	F	F	Yes
47	H St/Broadway St	A	B	No	B	D	No
48	E St/Tuolumne St	B	B	No	B	B	No
49	Broadway St/Tuolumne St	A	A	No	B	D	No
50	Van Ness Ave/Tuolumne St	B	E	Yes	D	E	Yes
51	O St/Tuolumne St	A	A	No	A	A	No
52	E St/Stanislaus St	B	B	No	E	F	Yes
53	Broadway St/Stanislaus St	D	D	No	F	F	Yes



	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact
54	Van Ness Ave/Stanslaus St	C	C	No	F	F	No
55	N Blackstone Ave/Stanslaus St	C	C	No	C	C	No
56	N Abby St/E Divisadero St	B	B	No	H	H	No
57	N Blackstone Ave/Divisadero St	B	C	No	C	C	No
58	H St/San Joaquin St ^a	C	F	Yes	D	F	Yes
59	M St/Divisadero St	B	B	No	B	B	No
60	H St/Amador St ^a	C	F	Yes	F	F	Yes
61	G St/Divisadero St	C	A	No	F	B	No
62	N Roosevelt Ave/E Divisadero St ^a	F	NA	No	F	NA	No
63	H St/Divisadero St	F	F	Yes	F	F	Yes
64	Broadway St/Divisadero St	B	B	No	E	E	No
65	Fulton St/Divisadero St	B	B	No	B	B	No
66	Van Ness Ave/Divisadero St	C	C	No	F	F	Yes
67	H St/Roosevelt St	B	D	No	F	F	Yes
68	N Blackstone Ave/E McKenzie Ave	B	B	No	F	F	Yes
69	N Abby St/E McKenzie Ave	B	B	No	B	B	No
70	Fulton St/SR 180 EB Ramps	C	C	No	C	C	No
71	Van Ness Ave/SR 180 EB Ramps	C	D	No	F	F	Yes
72	Fulton St/SR 180 WB Ramps	D	D	No	F	F	No
73	Van Ness Ave/SR 180 WB Ramps	D	D	No	F	F	Yes
74	N Blackstone Ave/E Belmont Ave	F	F	Yes	F	F	No
75	N Abby St/E Belmont St	D	D	No	F	F	No
76	Fresno St/E Belmont St	D	D	No	F	F	No
77	N 1st St/E Belmont St	D	D	No	F	F	No
78	N Blackstone Ave/SR 180 EB Ramps	A	A	No	A	B	No
79	N Abby St/SR 180 EB Ramps	D	D	No	F	F	Yes
80	N Blackstone Ave/SR 180 WB Ramps	F	F	Yes	F	F	Yes
81	Broadway St/Amador St ^a	C	C	No	F	F	Yes
82	Broadway St/San Joaquin St ^a	D	D	No	F	F	No
83	F St/Fresno St	A	A	No	F	F	Yes

Intersection	AM Peak Hour			PM Peak Hour			
	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact	
84	G St/Mono St ^a	B	A	No	E	C	No
85	H St/Mono St ^a	B	B	No	B	C	No
86	H St/Ventura St ^a	E	E	No	F	F	No
87	O St/Santa Clara St - SR 41 SB Off-Ramp ^b	C	C	No	F	F	No
88	M St/SR 41 SB On-Ramp	Intersection not used					
89	M St/San Benito - SR 41 NB On-Ramp ^a	C	C	No	F	F	No
90	Broadway St/Santa Clara St ^a	B	C	No	C	D	No
91	Van Ness Ave/E Hamilton Ave ^b	A	A	No	B	B	No
92	S Van Ness Ave /E California Ave ^a	F	F	Yes	F	F	Yes
93	S Railroad Ave/E Lorena Ave ^a	A	NA	No	B	NA	No
94	S Van Ness Ave/S Railroad Ave ^a	B	NA	No	D	NA	No
95	S Railroad Ave/E Florence Ave ^a	B	NA	No	C	NA	No
96	Golden State Blvd/E Church Ave	D	E	Yes	F	F	Yes
97	S Railroad Ave/E Church Ave	A	NA	No	D	NA	No
98	S East Ave/E Church Ave ^a	F	NA	No	F	NA	No
99	S Sunland Ave/E Church Ave ^a	F	NA	No	C	NA	No
100	S East Ave/S Railroad Ave ^a	B	NA	No	E	NA	No
101	S East Ave/Golden State Blvd	D	D	No	B	E	Yes
102	Golden State Blvd/E Jensen Ave	F	F	Yes	F	F	Yes
103	S Railroad Ave/S Orange Ave ^a	B	NA	No	D	NA	No
104	S Golden State Blvd/S Orange Ave ^a	F	E	No	F	F	No
105	Stanislaus St/SR 99 SB Off-Ramp ^a	F	H	No	H	H	No
106	Stanislaus St /SR 99 NB On-Ramp ^a	C	D	No	H	H	No
107	Tuolumne St /SR 99 S Frontage Rd	B	B	No	A	A	No
108	Tuolumne St /SR 99 N Frontage Rd	A	A	No	B	B	No
109	Stanislaus St/F St	B	B	No	E	F	Yes
110	Tuolumne St/F St	A	A	No	D	E	Yes
111	Stanislaus St/Fulton St	D	D	No	F	F	No
112	Tuolumne St/Fulton St	B	C	No	A	C	No

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact	2035 No Project LOS	2035 No Project + HST LOS (Tulare St Overpass)	Impact
113 Stanislaus St/L St	C	C	No	F	F	Yes
114 Tuolumne St/L St	B	B	No	A	A	No
115 Stanislaus St/M St	C	C	No	F	F	Yes
116 Tuolumne St/M St	B	B	No	B	B	No
117 Stanislaus St/N St	D	D	No	F	F	Yes
118 Tuolumne St/N St	A	A	No	A	A	No
119 Church Ave/S Sunland Ave	NA	B	No	NA	C	No

Notes:

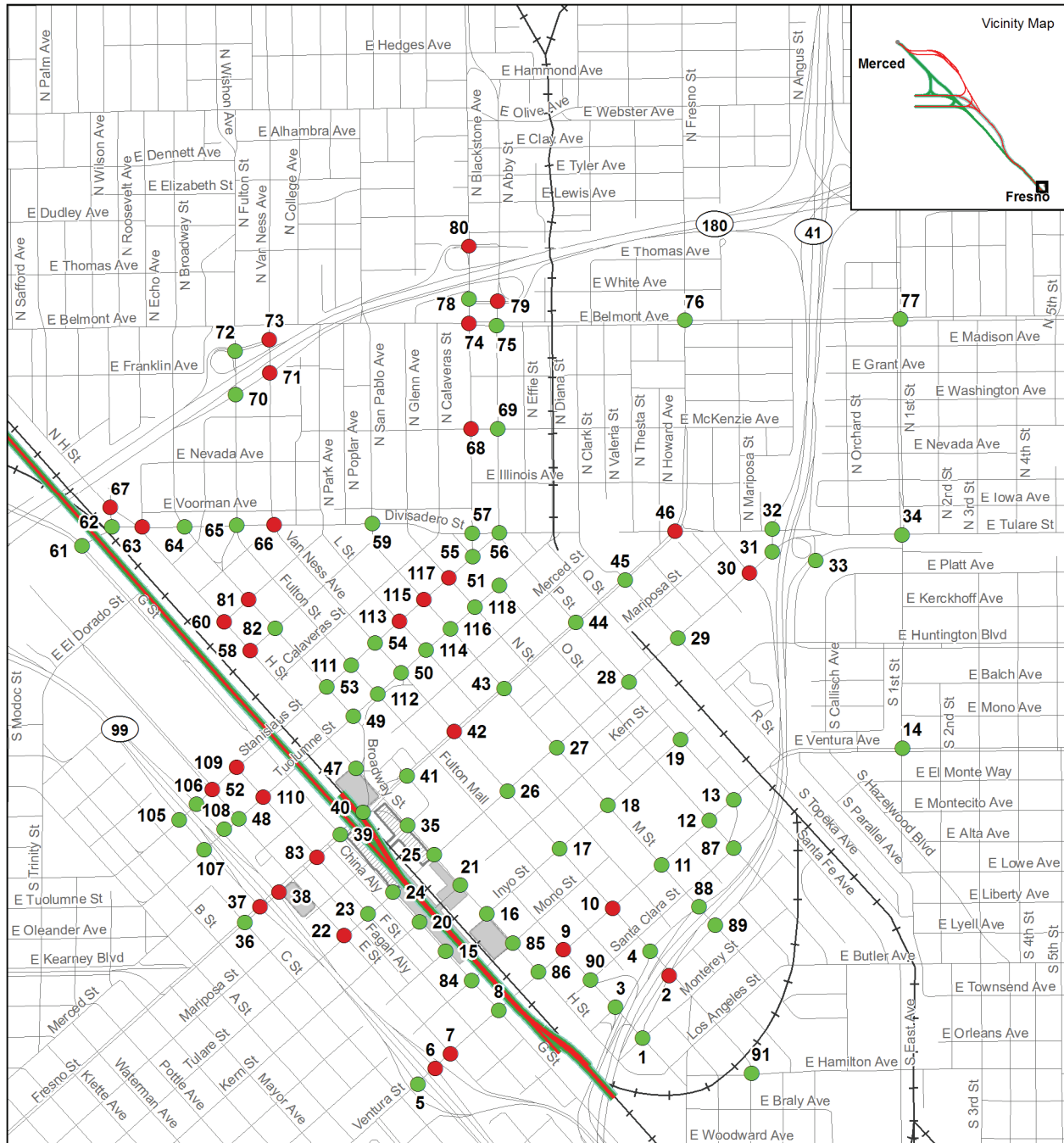
^a One-way or two-way stop-controlled intersection. LOS reported for the worst approach.

^b All-way stop-controlled intersection.

Intersections 8, 24, 39, 86, 93, 94, 95, 97, 98, 99, 100, and 103 do not exist under project conditions.

Intersections with impacts are highlighted.

Source: Authority and FRA (2012).



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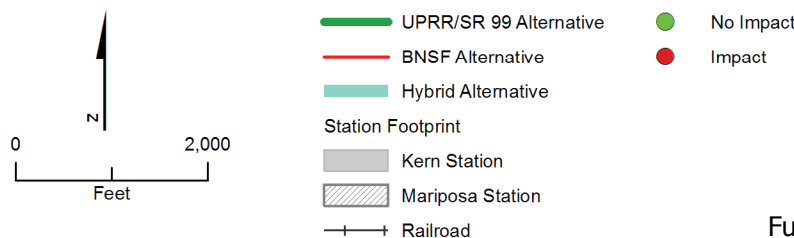
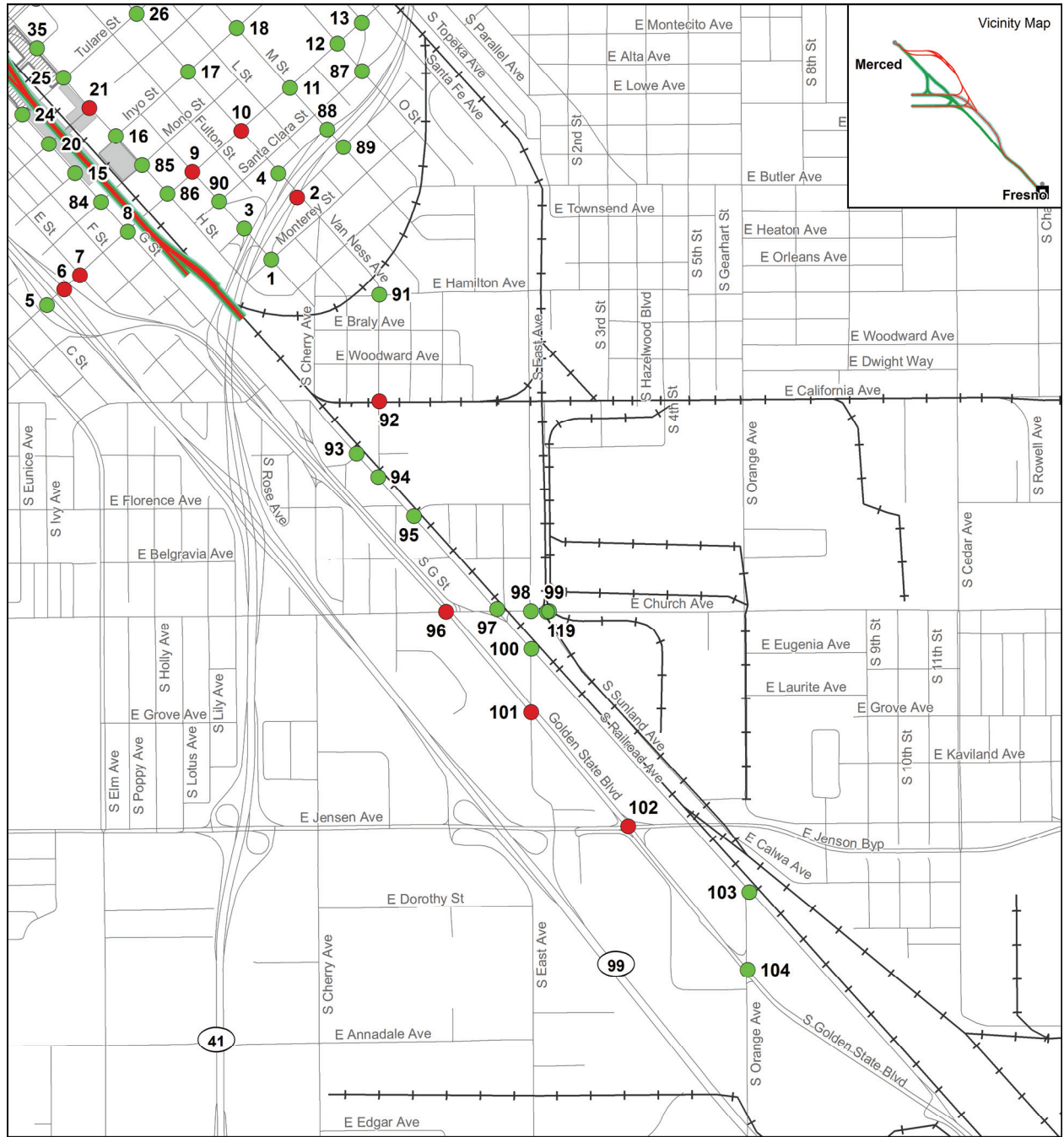
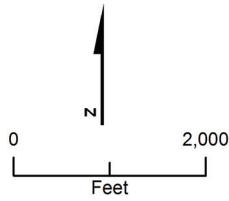


Figure 3.2-15
 Future (2035) Project Intersection LOS
 with Proposed Fresno Station – North
 Portion of Downtown
 (Tulare Street Overpass Option)



MF_EIS_TR_10b Mar 22, 2012



- UPRR/SR 99 Alternative
- BNSF Alternative
- Hybrid Alternative
- Kern Station
- Mariposa Station
- Railroad
- No Impact
- Impact

Figure 3.2-16
 Future (2035) Project Intersection LOS
 with Proposed Fresno Station – South
 Portion of Downtown
 (Tulare Street Overpass Option)

Fresno Parking Impacts – The City of Fresno currently has substantial excess public parking available within 1 mile of the alternative Fresno station sites. Based on discussions with the City, the Authority and FRA would meet projected 2035 parking demand through a combination of new parking structures near the station plus reliance on existing public spaces. This takes advantage of the substantial public parking available in the vicinity of the station sites.

It is conservatively estimated that 5,850 parking spaces would be required for the Fresno station in 2020, with 7,400 spaces required in 2035. Based on the amount of excess public parking within 1 mile of the station, it is estimated that 2035 parking demand can be met with a total of 5,000 additional parking spaces provided in four new parking structures built adjacent to the station by 2035. All four structures would not be necessary at the opening of the station in 2020. Instead, parking would be provided as demand requires. For the opening of the Fresno station in 2020, a combination of parking structures and surface parking lots with a total of about 3,500 spaces would be constructed adjacent to the station. Combined with the estimated 2,400 public parking spaces available in the Downtown Fresno area, this plan would address the estimated 2020 parking demand.

Because the HST Project includes a plan to provide adequate station parking, impacts on the existing downtown parking conditions are expected to have negligible intensity under NEPA and to be less than significant under CEQA.

Fresno Area Transit Impacts – At the Fresno station, the proposed project is expected to add approximately 700 daily passengers who would use transit service in the City of Fresno. Projections indicate that the proposed project would add approximately 105 peak hour passengers to the city's transit service (Cambridge Systematics 2007). Approximately eight transit routes serve the Fresno station area. The addition of approximately 105 passengers on existing transit routes averages approximately 13 additional passengers on each route serving the Fresno station area (assuming equal distribution). The addition of these passengers to the existing transit routes during the peak hour is expected to have an impact with negligible intensity on transit under NEPA and to be a less than significant impact under CEQA.

Fresno Pedestrian and Bicycle Facility Impacts – The proposed project would not close any of the existing or planned bicycle routes or pedestrian access/routes in the immediate vicinity of the Fresno station. An estimated 400 passengers would use the station area via walking/bike on a daily basis. Approximately 60 passengers during the peak hour would arrive or leave the station area either walking or on bike (Authority 2010b). According to the *Highway Capacity Manual*, a typical pedestrian sidewalk can accommodate approximately 1,000 persons per hour; therefore, this would be an impact with negligible intensity under NEPA and a less than significant impact under CEQA.

The station would include bike racks, pedestrian connections to the existing sidewalks, and bike lanes/facilities where they can be accommodated within the streets. The addition of these pedestrian and bike trips during the peak hour (an average of about one pedestrian/bike per one minute) in the Fresno station area would result in a negligible impact on pedestrian/bike facilities under NEPA and a less than significant impact under CEQA.

Fresno Area Freight Impacts – As the proposed HST service would operate on a separate alignment through the Fresno station area, it would not create any conflicts or impacts on UPRR freight operations. Pedestrian structures may cross over the freight rail line to provide access to the HST station, but the structures would be designed to meet freight height clearances. Because there would be no conflicts with freight operations, this would be an impact with negligible intensity under NEPA and a less than significant impact under CEQA.

Heavy Maintenance Facility Alternatives

Castle Commerce Center HMF Site – Changes proposed at this facility include an overpass at Martin Luther King Jr. Way and the closure of Canal Street in Downtown Merced across the HST and UPRR alignments. Because of these roadway improvements in the vicinity of the proposed Merced station,

traffic analysis around this HMF site was performed under two scenarios: (1) assuming Merced station Parking Option A and (2) assuming Merced station Parking Option B.

Tables 3.2-40 and 3.2-41 present the results of intersection analysis for existing plus project traffic conditions (for Parking Options A and B, respectively) and compare against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the tables, eight intersections would be affected by project-related additional traffic under Options A and Option B, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA. However, Intersection 11, Ashby Road/Buhach Road would not exist under future conditions because of the proposed Atwater-Merced Expressway project.

Table 3.2-40
 Existing plus Project Intersection Level of Service Summary
 near Proposed Castle Commerce HMF Site – Parking Option A

No.	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1	N Winton Way/Bellevue Rd	C	C	No	C	C	No
2	Atwater Blvd/Winton Way	C	C	No	C	D	No
3	Sycamore Ave/SR 99 NB Ramps ^a	A	A	No	A	A	No
4	Sycamore Ave/Applegate Rd	C	C	No	C	C	No
5	Bell Ln/Bell Dr/SR 99 SB Ramps	C	C	No	C	C	No
6	Bell Dr/Bell Ln	C	B	No	B	B	No
7	Bell Ln – Commerce Ave/Applegate Rd	C	C	No	C	C	No
8	Mall Access/Applegate Rd ^a	A	A	No	A	A	No
9	N Buhach Rd/Santa Fe Dr/Airdrome Entry	C	C	No	C	C	No
10	N Buhach Rd/E Bellevue Rd	C	C	No	C	C	No
11	Ashby Rd/Buhach Rd ^a	F	F	Yes	F	F	Yes
12	Ashby Rd/N 193 ^a	D	D	No	C	C	No
13	Ashby Rd/SR 99 SB Ramps ^a	B	B	No	B	B	No
14	Santa Fe Dr/E Bellevue Rd	B	B	No	B	B	No
15	Santa Fe Dr/F St	A	A	No	A	A	No
16	Santa Fe Dr/W Ave 2 ^a	C	C	No	B	B	No
17	Santa Fe Dr/N Franklin Rd	B	C	No	B	B	No
18	Ashby Rd/Franklin Rd ^a	B	C	No	B	B	No
19	Santa Fe Dr/Belcher Ave ^a	B	B	No	B	C	No
20	Santa Fe Dr/W Olive Ave/SR 59	D	D	No	D	D	No



No.	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
21	Santa Fe Dr/AM Express WB Ramps	N/A	N/A	N/A	N/A	N/A	N/A
22	Santa Fe Dr/AM Express EB Ramps	N/A	N/A	N/A	N/A	N/A	N/A
23	SR 99 NB Ramps/AM Express	N/A	N/A	N/A	N/A	N/A	N/A
24	SR 99 SB Ramps/AM Express	N/A	N/A	N/A	N/A	N/A	N/A
25	16th St/SR 59 ^a	C	C	No	F	F	Yes
26	13th St - SR 99 SB Off-Ramp/V St	C	D	No	C	D	No
27	14th St - SR 99 NB On-Ramp/V St	B	B	No	B	C	No
28	15th St/V St	B	B	No	C	C	No
29	16th St/V St	C	C	No	C	C	No
30	13th St/R St	B	B	No	B	B	No
31	SR 99 NB Off-Ramp - 14th St/R Street	B	C	No	B	C	No
32	15th St/R St	B	B	No	C	C	No
33	16th St/R St	C	C	No	C	C	No
34	Olive Ave/R St	D	D	No	E	E	No
35	15th St/O St ^a	A	A	No	A	A	No
36	16th St/O St	C	B	No	B	B	No
37	15th St/M St ^a	B	F	Yes	B	F	Yes
38	16th St/M St	C	D	No	C	D	No
39	Olive Ave/M St	D	D	No	E	E	No
40	2nd St/Grogan Ave/N West Ave ^a	A	A	No	B	B	No
41	Childs Ave/Martin Luther King Jr. Way	D	D	No	D	D	No
42	13th St/Martin Luther King Jr. Way	C	C	No	C	C	No
43	SR 99 SB Ramps/Martin Luther King Jr. Way ^a	C	C	No	C	C	No
44	SR 99 NB Ramps/Martin Luther King Jr. Way ^a	C	C	No	C	C	No
45	14th St/Martin Luther King Jr. Way ^a	C	C	No	C	F	Yes
46	15th St/Martin Luther King Jr. Way ^b	B	N/A	N/A	B	N/A	N/A
47	16th St/Martin Luther King Jr. Way ^b	C	N/A	N/A	C	N/A	N/A
48	13th St/G St ^a	B	E	Yes	C	F	Yes
49	SR 99 - 14th St/G St ^a	B	C	No	C	C	No
50	16th St/G Street ^c	C	N/A	N/A	C	N/A	N/A

No.	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
51	Olive Ave/G St	D	D	No	D	D	No
52	SR 99 SB On-Ramp/Yosemite Pkwy (SR 140) ^a	B	A	No	D	B	No
53	SR 99 SB Off-Ramp/Yosemite Pkwy (SR 140) ^a	E	B	No	F	C	No
54	SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140) ^a	F	F	No	F	F	Yes
55	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	D	D	No	D	D	No
56	14th St/O St	A	B	No	B	C	No
57	13th St/M St	B	D	No	C	D	No
58	14th St/M St	B	C	No	C	C	No
59	Main St/M St	A	A	No	B	B	No
60	18th St/M St	B	B	No	B	B	No
61	15th St/Canal St ^d	B	B	No	B	B	No
62	16th St/Canal St	C	E	Yes	E	F	No
63	11th St/Martin Luther King Jr. Way	C	C	No	C	C	No
64	Main St/Martin Luther King Jr. Way	A	B	No	A	B	No
65	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
66	16th St/H St ^e	B	C	No	B	C	No
67	Main St/H St	A	C	No	B	E	Yes
68	15th St/G St ^f	B	N/A	N/A	C	N/A	N/A
69	Main St/G St	B	C	No	C	C	No
70	18th St/G St	A	A	No	A	B	No
71	15th St/D St ^f	B	N/A	N/A	B	N/A	N/A
72	16th St/D St ^f	C	N/A	N/A	C	N/A	N/A

Notes:

^a Unsignalized intersection.

^b Intersection does not exist under project conditions because of proposed Martin Luther King Jr. Way overpass.

^c Intersection does not exist under project conditions because of proposed G Street overpass.

^d Four-legged intersection converted to T-intersection under project conditions because of Canal Street closure at the HST tracks.

^e Intersection signalized under project conditions.

^f Intersection does not exist under project conditions because of proposed D Street closure.

Intersections 21, 22, 23, and 24 exist only under future conditions.

Intersections with impacts are **highlighted**.

Table 3.2-41
 Existing plus Project Intersection Level of Service Summary
 near Proposed Castle Commerce HMF Site – Parking Option B

No.	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing +HST LOS	Impact	Existing LOS	Existing +HST LOS	Impact
1	N Winton Way/Bellevue Rd	C	C	No	C	C	No
2	Atwater Blvd/Applegate Rd	C	C	No	C	D	No
3	Sycamore Ave/SR 99 NB Ramps ^a	A	A	No	A	A	No
4	Sycamore Ave/Applegate Rd	C	C	No	C	C	No
5	Bell Ln/Bell Dr/SR 99 SB Ramps	C	C	No	C	C	No
6	Bell Dr/Bell Ln	C	B	No	B	B	No
7	Bell Ln – Commerce Ave/Applegate Rd	C	C	No	C	C	No
8	Mall Access/Applegate Rd ^a	A	A	No	A	A	No
9	N Buhach Rd/Santa Fe Dr/Airdrome Entry	C	C	No	C	C	No
10	N Buhach Rd/Bellevue Rd	C	C	No	C	C	No
11	Ashby Rd/Buhach Rd ^a	F	F	Yes	F	F	Yes
12	Ashby Rd/N 193 ^a	D	D	No	C	C	No
13	Ashby Rd/SR 99 SB Ramps ^a	B	B	No	B	B	No
14	Santa Fe Dr/Bellevue Rd	B	B	No	B	B	No
15	Santa Fe Dr/F St	A	A	No	A	A	No
16	Santa Fe Dr/W Ave 2 ^a	C	C	No	B	B	No
17	Santa Fe Dr/N Franklin Rd	B	C	No	B	B	No
18	Ashby Rd/Franklin Rd ^a	B	C	No	B	B	No
19	Santa Fe Dr/Belcher Ave ^a	B	B	No	B	C	No
20	Santa Fe Dr/W Olive Ave/SR 59	D	D	No	D	D	No
21	Santa Fe Dr/AM Express SB Ramps	N/A	N/A	N/A	N/A	N/A	N/A
22	Santa Fe Dr/AM Express NB Ramps	N/A	N/A	N/A	N/A	N/A	N/A
23	SR 99 NB Ramps/AM Express	N/A	N/A	N/A	N/A	N/A	N/A
24	SR 99 SB Ramps/AM Express	N/A	N/A	N/A	N/A	N/A	N/A
25	16th St/SR 59 ^a	C	C	No	F	F	Yes
26	13th St - SR 99 SB Off-Ramp/V St	C	D	No	C	D	No
27	14th St - SR 99 NB On-Ramp/V St	B	B	No	B	C	No

No.	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing +HST LOS	Impact	Existing LOS	Existing +HST LOS	Impact
28	15th St/V St	B	B	No	C	C	No
29	16th St/V St	C	C	No	C	C	No
30	13th St/R St	B	B	No	B	B	No
31	SR 99 NB Off-Ramp - 14th St/R St	B	C	No	B	C	No
32	15th St/R St	B	B	No	C	C	No
33	16th St/R St	C	C	No	C	C	No
34	Olive Ave/R St	D	D	No	E	E	No
35	15th St/O St ^a	A	A	No	A	A	No
36	16th St/O St ^a	C	B	No	B	B	No
37	15th St/M St	B	D	No	B	F	Yes
38	16th St/M St	C	D	No	C	D	No
39	Olive Ave/M St	D	D	No	E	E	No
40	2nd St/Grogan Ave/N West Ave ^a	A	A	No	B	B	No
41	Childs Ave/Martin Luther King Jr. Way	D	D	No	D	D	No
42	13th St/Martin Luther King Jr. Way	C	C	No	C	C	No
43	SR 99 SB Ramps/Martin Luther King Jr. Way ^a	C	C	No	C	C	No
44	SR 99 NB Ramps/Martin Luther King Jr. Way ^a	C	C	No	C	D	No
45	14th St/Martin Luther King Jr. Way ^a	C	C	No	C	E	Yes
46	15th St/Martin Luther King Jr. Way ^b	B	N/A	N/A	B	N/A	N/A
47	16th St/Martin Luther King Jr. Way ^b	C	N/A	N/A	C	N/A	N/A
48	13th St/G St ^a	B	E	Yes	C	F	Yes
49	SR 99 - 14th St/G St ^a	B	C	No	C	C	No
50	16th St/G Street ^c	C	N/A	N/A	C	N/A	N/A
51	Olive Ave/G St	D	D	No	D	D	No
52	SR 99 SB On-Ramp/Yosemite Pkwy (SR 140) ^a	B	A	No	D	B	No
53	SR 99 SB Off-Ramp/Yosemite Pkwy (SR 140) ^a	E	B	No	F	C	No
54	SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140) ^a	F	F	No	F	F	Yes
55	Motel Dr/Glen Ave/Yosemite Pkwy	D	D	No	D	D	No

No.	Intersection	AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing +HST LOS	Impact	Existing LOS	Existing +HST LOS	Impact
	(SR 140)						
56	14th St/O St	A	B	No	B	B	No
57	13th St/M St	B	D	No	C	D	No
58	14th St/M St	B	C	No	C	C	No
59	Main St/M St	A	A	No	B	B	No
60	18th St/M St	B	B	No	B	B	No
61	15th St/Canal St ^d	B	A	No	B	B	No
62	16th St/Canal St	C	E	Yes	E	F	No
63	11th St/Martin Luther King Jr. Way	C	C	No	C	C	No
64	Main St/Martin Luther King Jr. Way	A	B	No	A	B	No
65	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
66	16th St/H St ^e	B	C	No	B	C	No
67	Main St/H St	A	C	No	B	E	Yes
68	15th St/G St ^f	B	N/A	N/A	C	N/A	N/A
69	Main St/G St	B	C	No	C	C	No
70	18th St/G St	A	A	No	A	B	No
71	15th St/D St ^f	B	N/A	N/A	B	N/A	N/A
72	16th St/D St ^c	C	N/A	N/A	C	N/A	N/A

Notes:

^a Unsignalized intersection.

^b Intersection does not exist under project conditions because of proposed Martin Luther King Jr. Way overpass.

^c Intersection does not exist under project conditions because of proposed G Street overpass.

^d Four-legged intersection converted to T-intersection under project conditions because of Canal Street closure at the HST tracks.

^e Intersection signalized under project conditions.

^f Intersection does not exist under project conditions because of proposed D Street closure.

Intersections 21, 22, 23, and 24 exist only under future conditions.

Intersections with impacts are **highlighted**.



Tables 3.2-42 and 3.2-43 present the result of the intersection analysis for future (2035) plus project traffic conditions (for Parking Options A and B respectively) and compare against the future (2035) no project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the tables, 27 intersections would be affected by project-related additional traffic under Option A and 22 intersections would be affected under Option B, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-42
 Future (2035) Plus Project Intersection Level of Service Summary
 near Proposed Castle Commerce HMF Site – Parking Option A

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1	N Winton Way/Bellevue Rd	C	C	No	D	D	No
2	Atwater Blvd/Winton Way	D	D	No	F	F	Yes
3	Sycamore Ave/SR 99 NB Ramps ^a	A	A	No	B	B	No
4	Sycamore Ave/Applegate Rd	D	D	No	F	F	Yes
5	Bell Ln/Bell Dr/SR 99 SB Ramps	C	C	No	C	C	No
6	Bell Dr/Bell Ln	C	C	No	C	C	No
7	Bell Ln – Commerce Ave/Applegate Rd	C	C	No	C	C	No
8	Mall Access/Applegate Rd ^a	B	B	No	B	B	No
9	N Buhach Rd/Santa Fe Dr/Airdome Entry	C	C	No	C	C	No
10	N Buhach Rd/E Bellevue Rd	C	C	No	C	C	No
14	Santa Fe Dr/E Bellevue Rd	B	B	No	B	B	No
15	Santa Fe Dr/F St	A	A	No	B	B	No
16	Santa Fe Dr/W Avenue 2 ^a	F	F	Yes	F	F	Yes
17	Santa Fe Dr/N Franklin Rd	E	E	No	D	D	No
19	Santa Fe Dr/Belcher Ave ^a	C	C	No	F	F	Yes
20	Santa Fe Dr/W Olive Ave/SR 59	E	E	No	F	F	Yes
21	Santa Fe Dr/AME SB Ramps	C	D	No	C	D	No
22	Santa Fe Dr/AME NB Ramps	B	D	No	C	C	No
23	SR 99 NB Ramps/AME	C	D	No	B	C	No
24	SR 99 SB Ramps/AME	C	C	No	B	B	No
25	16th St/SR 59 ^a	F	F	Yes	F	F	Yes
26	13th St - SR 99 SB Off-Ramp/V St	F	F	Yes	F	F	Yes

	Intersection	AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
27	14th St - SR 99 NB On-Ramp/V St	C	C	No	C	D	No
28	15th St/V St	B	B	No	C	C	No
29	16th St/V St	E	E	No	F	F	Yes
30	13th St/R St	B	B	No	C	D	No
31	SR 99 NB Off-Ramp - 14th St/R St	C	C	No	C	C	No
32	15th St/R St	B	B	No	C	C	No
33	16th St/R St	C	C	No	D	D	No
34	Olive Ave/R St	E	E	No	F	F	No
35	15th St/O St ^a	A	A	No	B	B	No
36	16th St/O St	C	C	No	C	C	No
37	15th St/M St ^a	F	F	Yes	F	F	Yes
38	16th St/M St	D	D	No	D	E	Yes
39	Olive Ave/M St	F	F	No	F	F	No
40	2nd St/Grogan Ave/N West Ave ^a	C	C	No	C	C	No
41	Childs Ave/Martin Luther King Jr. Way	E	E	No	F	F	Yes
42	13th St/Martin Luther King Jr. Way	C	C	No	C	D	No
43	SR 99 SB Ramps/Martin Luther King Jr. Way ^a	F	F	Yes	F	F	No
44	SR 99 NB Ramps/Martin Luther King Jr. Way ^a	F	F	Yes	F	F	Yes
45	14th St/Martin Luther King Jr. Way ^a	F	F	Yes	F	F	Yes
46	15th St/Martin Luther King Jr. Way ^b	B	N/A	N/A	B	N/A	N/A
47	16th St/Martin Luther King Jr. Way ^b	C	N/A	N/A	F	N/A	N/A
48	13th St/G St ^a	F	F	Yes	F	F	Yes
49	SR 99 - 14th St/G St ^a	E	F	No	F	F	Yes
50	16th St/G St ^c	D			D		
51	Olive Ave/G St	F	F	No	F	F	No
52	SR 99 SB On-Ramp/Yosemite Pkwy (SR 140) ^a	C	C	No	F	B	No
53	SR 99 SB Off-Ramp/Yosemite Pkwy (SR 140) ^a	F	F	No	F	F	No
54	SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140) ^a	F	F	Yes	F	F	Yes

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
55	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	F	F	Yes	F	F	Yes
56	14th St/O St	B	B	No	B	E	Yes
57	13th St/M St	F	F	Yes	F	F	Yes
58	14th St/M St	D	F	Yes	E	F	No
59	Main St/M St	B	B	No	B	C	No
60	18th St/M St	B	B	No	B	B	No
61	15th St/Canal St ^d	B	B	No	C	E	Yes
62	16th St/Canal St	F	F	No	F	F	No
63	11th St/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
64	Main St/Martin Luther King Jr. Way	A	B	No	B	C	No
65	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
66	16th St/H St ^e	C	D	No	D	D	No
67	Main St/H St	B	F	Yes	B	F	Yes
68	15th St/G St ^f	D	N/A	N/A	F	N/A	N/A
69	Main St/G St	B	D	No	C	E	Yes
70	18th St/G St	A	B	No	A	B	No
71	15th St/D St ^f	D	N/A	N/A	C	N/A	N/A
72	16th St/D St ^f	E	N/A	N/A	E	N/A	N/A

Notes:

^a Unsignalized intersection.

^b Intersection does not exist under project conditions because of proposed Martin Luther King Jr. Way overpass.

^c Intersection does not exist under project conditions because of proposed G Street overpass.

^d Four-legged intersection converted to T-intersection under project conditions because of Canal Street closure at the HST tracks.

^e Intersection signalized under project conditions.

^f Intersection does not exist under project conditions because of proposed D Street closure.

Intersections 11, 12, 13, and 18 do not exist under future conditions.

Intersections with impacts are **highlighted**.

Table 3.2-43
 Future (2035) Intersection Level of Service Summary
 near Proposed Castle Commerce HMF Site – Parking Option B

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1	N Winton Way/Bellevue Rd	C	C	No	D	D	No
2	Atwater Blvd/Winton Way	D	D	No	F	F	Yes
3	Sycamore Ave/SR 99 NB Ramps ^a	A	A	No	B	B	No
4	Sycamore Ave/Applegate Rd	D	D	No	F	F	Yes
5	Bell Ln/Bell Dr/SR 99 SB Ramps	C	C	No	C	C	No
6	Bell Dr/Bell Ln	C	C	No	C	C	No
7	Bell Ln – Commerce Ave/Applegate Rd	C	C	No	C	C	No
8	Mall Access/Applegate Rd ^a	B	B	No	B	B	No
9	N Buhach Rd/Santa Fe Dr/Airdome Entry	C	C	No	C	C	No
10	N Buhach Rd/E Bellevue Rd	C	C	No	C	C	No
14	Santa Fe Dr/E Bellevue Rd	B	B	No	B	B	No
15	Santa Fe Dr/F St	A	A	No	B	B	No
16	Santa Fe Dr/W Ave 2 ^a	F	F	Yes	F	F	Yes
17	Santa Fe Dr/N Franklin Rd	E	E	No	D	D	No
19	Santa Fe Dr/Belcher Ave ^a	C	C	No	F	F	Yes
20	Santa Fe Dr/W Olive Ave/SR 59	E	E	No	F	F	Yes
21	Santa Fe Dr/AME SB Ramps	C	D	No	C	D	No
22	Santa Fe Dr/AME NB Ramps	B	D	No	C	C	No
23	SR 99 NB Ramps/AME	C	D	No	B	C	No
24	SR 99 SB Ramps/AME	C	C	No	B	B	No
25	16th St/SR 59	F	F	Yes	F	F	Yes
26	13th St - SR 99 SB Off-Ramp/V St	F	F	Yes	F	F	Yes
27	14th St - SR 99 NB On-Ramp/V St	C	C	No	C	D	No
28	15th St/V St	B	B	No	C	C	No
29	16th St/V St	E	E	Yes	F	F	Yes
30	13th St/R St	B	B	No	C	C	No

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
31	SR 99 NB Off-Ramp - 14th St/R Street	C	C	No	C	C	No
32	15th St/R St	B	B	No	C	C	No
33	16th St/R St	C	C	No	D	D	No
34	Olive Ave/R St	E	E	No	F	F	No
35	15th St/O St ^a	A	A	No	B	B	No
36	16th St/O St	C	C	No	C	C	No
37	15th St/M St ^a	F	F	Yes	F	F	Yes
38	16th St/M St	D	D	No	D	E	Yes
39	Olive Ave/M St	F	F	No	F	F	No
40	2nd St/Grogan Ave/N West Ave ^a	C	C	No	C	C	No
41	Childs Ave/Martin Luther Jr. King Way	E	E	No	F	F	Yes
42	13th St/Martin Luther King Jr. Way	C	C	No	C	D	No
43	SR 99 SB Ramps/Martin Luther King Jr. Way ^a	F	F	No	F	F	No
44	SR 99 NB Ramps/Martin Luther King Jr. Way ^a	F	F	No	F	F	Yes
45	14th St/Martin Luther King Jr. Way ^a	F	F	Yes	F	F	Yes
46	15th St/Martin Luther King Jr. Way ^b	B	N/A	N/A	B	N/A	N/A
47	16th St/Martin Luther King Jr. Way ^b	C	N/A	N/A	F	N/A	N/A
48	13th St/G St ^a	F	F	Yes	F	F	Yes
49	SR 99 - 14th St/G St ^a	E	F	No	F	F	Yes
50	16th St/G St ^c	D	N/A	N/A	D	N/A	N/A
51	Olive Ave/G St	F	F	No	F	F	No
52	SR 99 SB On-Ramp/Yosemite Pkwy (SR 140) ^a	C	C	No	F	B	No
53	SR 99 SB Off-Ramp/Yosemite Pkwy (SR 140) ^a	F	F	No	F	F	No
54	SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140) ^a	F	F	Yes	F	F	Yes
55	Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	F	F	Yes	F	F	Yes

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
56	14th St/O St	B	B	No	B	C	No
57	13th St/M St	F	F	Yes	F	F	Yes
58	14th St/M St	D	F	Yes	E	F	No
59	Main St/M St	B	B	No	B	C	No
60	18th St/M St	B	B	No	B	B	No
61	15th St/Canal St ^d	B	B	No	C	C	No
62	16th St/Canal St	F	F	No	F	F	No
63	11th St/Martin Luther King Jr. Way	F	F	Yes	F	F	Yes
64	Main St/Martin Luther King Jr. Way	A	B	No	B	C	No
65	18th St/Martin Luther King Jr. Way	A	A	No	A	A	No
66	16th St/H St ^e	C	D	No	D	D	No
67	Main St/H St	B	F	Yes	B	F	Yes
68	15th St/G St ^f	D	N/A	N/A	F	N/A	N/A
69	Main St/G St	B	D	No	C	E	Yes
70	18th St/G St	A	B	No	A	B	No
71	15th St/D St ^f	D	N/A	N/A	C	N/A	N/A
72	16th St/D St ^f	E	N/A	N/A	E	N/A	N/A

Notes:

^a Unsignalized intersection.

^b Intersection does not exist under project conditions because of proposed Martin Luther King Jr. Way overpass.

^c Intersection does not exist under project conditions because of proposed G Street overpass.

^d Four-legged intersection converted to T-intersection under project conditions because of Canal Street closure at the HST tracks.

^e Intersection signalized under project conditions.

^f Intersection does not exist under project conditions because of proposed D Street closure.

Intersections 11, 12, 13, and 18 do not exist under future conditions.

Intersections with impacts are **highlighted**.

Harris-DeJager HMF Site – Table 3.2-44 presents the result of the intersection analysis for existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the table, one of the six studied intersections would be affected by project-added traffic, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-44

Existing Plus Project Intersection Level of Service Summary near Proposed Harris-DeJager HMF Site

Intersection	AM Peak Hour			PM Peak Hour		
	Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1 SR 59/E Sandy Mush Rd ^a	B	B	No	B	B	No
2 S Bliss Rd/E Sandy Mush Rd ^a	A	A	No	A	A	No
3 SR 99/Sandy Mush Rd ^a	F	F	Yes	F	F	Yes
4 Hemlock Rd/SR 152 ^a	B	B	No	C	C	No
5 Road 13/SR 152 ^a	B	B	No	C	C	No

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

Table 3.2-45 presents the result of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the table, one of the six studied intersections (Intersection 1) would be affected by project-added traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA.

Table 3.2-45

Future (2035) Plus Project Intersection Level of Service Summary near Proposed Harris-DeJager HMF Site

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1 SR 59/E Sandy Mush Rd ^a	E	F	No	F	F	Yes
2 S Bliss Rd/E Sandy Mush Rd ^a	A	A	No	A	A	No
4 Hemlock Rd/SR 152 ^a	F	F	No	F	F	No
5 Road 13/SR 152 ^a	F	E	No	F	F	No
6 Sandy Mush Rd/SR 99 SB Ramps	B	B	No	A	B	No
7 Plainsburg Rd/SR 99 NB Ramps	B	B	No	B	B	No

Notes:
^a Unsignalized intersection.
 Intersection 3 does not exist under future conditions.
 Intersections with impacts are highlighted.

Two intersections (Hemlock Road/SR 152 and Road 13/SR 152) would operate at LOS F conditions during both the AM and PM peak hours under the No Project Alternative; however, even with HST Project traffic, these two intersections do not meet the peak hour signal warrant for either peak hour; therefore, the project would not have impacts at these two locations.

Fagundes HMF Site – Table 3.2-46 presents the result of the intersection analysis for existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that three intersections would be affected by the project traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA.

Table 3.2-46

Existing Plus Project Intersection Level of Service Summary near Proposed Fagundes HMF Site

Intersection	AM Peak Hour			PM Peak Hour		
	Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1 Rd 12/SR152 – Ave 23 ^a	A	A	No	B	C	No
2 Rd 13/SR152 – Ave 23 ^a	B	C	No	C	F	Yes
3 SR 233/SR 152 EB Ramps ^a	A	A	No	A	A	No
4 SR 233/SR 152 WB Ramps ^a	A	A	No	A	A	No
5 SR 233/Ave 24½ ^a	B	B	No	B	C	No
6 SR 233/Ave 25	C	E	Yes	C	F	Yes
7 SR 99 SB Ramps/SR 233 – Ave 26 ^a	C	D	No	C	D	No
8 SR 99 NB Ramps/SR 233 – Ave 26 ^a	D	E	Yes	D	E	Yes

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

Table 3.2-47 presents the result of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the table, four intersections would be affected by the project-added traffic, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-47

Future (2035) Plus Project Intersection Level of Service Summary near Proposed Fagundes HMF Site

Intersection	AM Peak Hour			PM Peak Hour		
	2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1 Rd 12/SR152 – Ave 23 ^a	C	C	No	F	F	No
2 Rd 13/SR152 – Ave 23 ^a	E	F	Yes	F	F	Yes

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
3	SR 233/SR 152 EB Ramps ^a	B	B	No	B	B	No
4	SR 233/SR 152 WB Ramps ^a	B	B	No	B	B	No
5	SR 233/Ave 24½ ^a	C	D	No	C	D	No
6	SR 233/Ave 25 ^a	F	F	Yes	F	F	Yes
7	SR 99 SB Ramps/SR 233 – Ave 26 ^a	F	F	Yes	F	F	Yes
8	SR 99 NB Ramps/SR 233 – Ave 26 ^a	F	F	Yes	F	F	Yes
9	SR 99 SB Ramps/Sandy Mush Rd	B	B	No	A	B	No
10	SR 99 NB Ramps/Sandy Mush Rd	B	B	No	B	A	No

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

Gordon-Shaw HMF Site – Table 3.2-48 presents the result of the intersection analysis for existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that one intersection would be affected with the project traffic, which would result in an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-48

Existing Plus Project Intersection Level of Service Summary near Proposed Gordon-Shaw HMF Site

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1	SR 99 SB Ramps/Ave 20½ ^a	A	A	No	B	B	No
2	SR 99 NB Ramps/Ave 20½ ^a	A	B	No	A	A	No
3	Rd 24/Ave 20½ ^a	A	A	No	A	A	No
4	Rd 24/Ave 19 ^a	A	E	Yes	A	D	No
5	Rd 24/Ave 18½ ^a	A	C	No	A	C	No
6	SR 99 SB Ramps/Ave 18½ ^a	B	C	No	C	C	No
7	SR 99 NB Ramps/Ave 18½ ^a	B	C	No	B	D	No

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

Table 3.2-49 presents the result of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the table, five intersections would be affected from the project-added traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA.

Table 3.2-49

Future (2035) Plus Project Intersection Level of Service Summary near Proposed Gordon-Shaw HMF Site

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1	SR 99 SB Ramps/Ave 20½ ^a	B	B	No	F	F	Yes
2	SR 99 NB Ramps/Ave 20½ ^a	C	C	No	B	B	No
3	Rd 24/Ave 20½ ^a	A	A	No	A	A	No
4	Rd 24/Ave 19 ^a	A	F	Yes	B	F	Yes
5	Rd 24/Ave 18½ ^a	B	E	Yes	B	D	No
6	SR 99 SB Ramps/Ave 18½ ^a	F	F	Yes	F	F	Yes
7	SR 99 NB Ramps/Ave 18½ ^a	F	F	Yes	F	F	Yes

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

Kojima Development HMF Site – Table 3.2-50 presents the result of the intersection analysis for existing plus project conditions and compares against existing conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. It can be noted from the table that two intersections would be affected with the project traffic, which would result in an impact with substantial intensity under NEPA and in a significant impact under CEQA.

Table 3.2-50
 Existing Plus Project Intersection Level of Service Summary near
 Proposed Kojima Development HMF Site

Intersection		AM Peak Hour			PM Peak Hour		
		Existing LOS	Existing + HST LOS	Impact	Existing LOS	Existing + HST LOS	Impact
1	SR 99 SB Ramps/E Robertson Blvd ^a	C	F	Yes	C	E	Yes
2	SR 99 NB Ramps/E Robertson Blvd ^a	D	F	Yes	D	F	Yes
3	Rd 19/Ave 26 ^a	A	B	No	A	B	No
4	Santa Fe Dr/Ave 26 ^a	A	D	No	A	C	No
5	Rd 22/Santa Fe Dr ^a	A	B	No	A	A	No
6	Rd 22/Ave 24 ^a	B	D	No	A	C	No
7	SR 99 NB Ramps/Ave 24 ^a	B	B	No	B	B	No
8	SR 99 SB Ramps/Ave 24 ^a	B	C	No	B	C	No

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

Table 3.2-51 presents the result of the intersection analysis for future (2035) plus project conditions and compares against future (2035) No Project conditions. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides more information on LOS and delay calculations. As shown in the table, six intersections would be affected from project-added traffic, which would result an impact with substantial intensity under NEPA and a significant impact under CEQA.

Table 3.2-51
 Future (2035) Plus Project Intersection Level of Service Summary near
 Proposed Kojima Development HMF Site

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
1	SR 99 SB Ramps/E Robertson Blvd ^a	F	F	Yes	F	F	Yes
2	SR 99 NB Ramps/E Robertson Blvd ^a	F	F	Yes	F	F	Yes
3	Rd 19/Ave 26 ^a	A	B	No	A	B	No
4	Santa Fe Dr/Ave 26 ^a	B	F	Yes	B	F	Yes
5	Rd 22/Santa Fe Dr ^a	A	B	No	A	A	No

Intersection		AM Peak Hour			PM Peak Hour		
		2035 No Project LOS	2035 No Project + HST LOS	Impact	2035 No Project LOS	2035 No Project + HST LOS	Impact
6	Rd 22/Ave 24 ^a	C	F	Yes	B	E	Yes
7	SR 99 NB Ramps/Ave 24 ^a	F	F	Yes	D	F	Yes
8	SR 99 SB Ramps/Ave 24 ^a	F	F	Yes	C	F	Yes

Notes:
^a Unsignalized intersection.
 Intersections with impacts are highlighted.

3.2.6 Project Design Features

The Authority and FRA have considered avoidance and minimization measures consistent with the commitments in the Program EIR/EIS documents. During project design and construction, the Authority and FRA would implement measures to reduce impacts on transportation. These measures are considered to be part of the project and are described in the following text.

- 1) **Off-Street Parking for Construction-Related Vehicles.** Provide adequate off-street parking for all construction-related vehicles throughout the construction period. If adequate parking cannot be provided on the construction sites, designate a remote parking area and use a shuttle bus to transfer construction workers to the job site.
- 2) **Maintenance of Pedestrian Access.** Prepare specific construction management plans to address maintenance of pedestrian access during the construction period. Pedestrian access-limiting actions would include, but not be limited to, sidewalk closures, bridge closures, crosswalk closures or pedestrian rerouting at intersections, placement of construction-related material within pedestrian pathways or sidewalks, and other actions that may affect the mobility or safety of pedestrians during the construction period. If sidewalks are maintained along the construction site frontage, provide covered walkways. Pedestrian access should be maintained unless maintaining access would be unsafe for pedestrians.
- 3) **Maintenance of Bicycle Access.** Prepare specific construction management plans to address maintenance of bicycle access during the construction period. Bicycle access-limiting actions would include, but not be limited to, bike lane closures or narrowing, closure or narrowing of streets that are designated bike routes, bridge closures, placement of construction-related materials within designated bike lanes or along bike routes, and other actions that may affect the mobility or safety of bicyclists during the construction period. Bicycle access should be maintained unless maintaining access would be unsafe for bicyclists.
- 4) **Restriction on Construction Hours.** Construction activities, such as material deliveries and construction employees arriving and departing the site, would generally occur outside the AM and PM peak periods of travel on weekdays in areas that experience congestion during those hours.
- 5) **Construction Truck Routes.** Deliver all construction-related equipment and materials on the local-government-designated truck routes. Prohibit heavy construction vehicles from accessing the site via other routes.
- 6) **Protection of Public Roadways and Railways (freight and passenger rail) during Construction.** Repair any structural damage to public roadways and railways (freight and passenger rail), returning any damaged sections to their original structural condition. Survey the condition of the public roadways along truck routes providing access to the proposed project site both before

construction and after construction is complete. For railways, a “shoofly” track would be constructed within the right-of-way, where necessary, to allow existing train lines to bypass any areas closed for construction activities. Upon completion, tracks would be opened and repaired; or new mainline track would be constructed, and the “shoofly” would be removed. Complete a before-and-after survey report and submit to the Authority for review, indicating the location and extent of any damage.

- 7) Maintenance of Public Transit Access and Routes.** Coordinate with the appropriate transit jurisdiction before limiting access to public transit or limiting movement of public transit vehicles. Potential actions that would impact access to transit include, but are not limited to, relocating or removing bus stops, limiting access to bus stops or transfer facilities, or otherwise restricting or constraining public transit operations. Public transit access and routing would be maintained where feasible.
- 8) Construction Transportation Plan.** The design-builder will prepare a detailed Construction Transportation Plan for the purpose of minimizing the impact of construction and construction traffic on adjoining and nearby roadways. The Construction Transportation Plan will be prepared in close consultation with the pertinent city or county, and will be reviewed and approved by the Authority prior to commencing any construction activities. This plan will address in detail the activities to be carried out in each construction phase, with the requirement of maintaining traffic flow during peak travel periods. Such activities include, but are not limited to, the routing and scheduling of materials deliveries, materials staging and storage areas, construction employee arrival and departure schedules, employee parking locations, and temporary road closures, if any. The plan will provide traffic controls pursuant to the *California Manual on Uniform Traffic Control Devices* sections on temporary traffic controls (Caltrans 2012) and would include a traffic control plan that includes, at minimum, the following elements:
- Temporary signage to alert drivers and pedestrians to the construction zone.
 - Flag persons or other methods of traffic control.
 - Traffic speed limitations in the construction zone.
 - Temporary road closures and provisions for alternative access during the closure.
 - Detour provisions for temporary road closures. Alternating one-way traffic will be considered as an alternative to temporary closures where practical and where it would result in better traffic flow than a detour.
 - Identified routes for construction traffic.
 - Provisions for safe pedestrian and bicycle passage, or convenient detour.
 - Provisions to minimize access disruption to residents, businesses, customers, delivery vehicles, and buses to the extent practical. Where road closures are required during construction, limit to the hours that are least disruptive to access for the adjacent land uses.
 - Provisions for farm equipment access.
 - Provisions for 24-hour access by emergency vehicles.
 - Safe vehicular and pedestrian access to local businesses and residences during construction. The plan will provide for scheduled transit access where construction would otherwise impede such access. Where an existing bus stop is within the work zone, the design-builder will provide a temporary bus stop at a convenient location away from where construction is occurring. Adequate measures will be taken to separate students and parents walking to and from the temporary bus stop from the construction zone.

- Advance notification to the local school district of construction activities and rigorously maintained traffic control at all school bus loading zones, to ensure the safety of school children
- Project Design Features 1-7 and 9-10.

9) Construction during Special Events. Provide a mechanism to prevent roadway construction activities from reducing roadway capacity below pre-project capacity during major athletic events or other special events that attract a substantial number of visitors. Mechanisms to maintain roadway capacity include police officers directing traffic, special event parking, and use of traffic cones and within-the-curb parking or shoulder lanes for through traffic.

10) Additional Features in the cities of Merced and Fresno. In addition to the measures listed above, the Authority will also perform the following in the cities of Merced and Fresno:

- During construction, vehicle detection will be maintained on the existing, temporary, and/or new roadway alignment for all intersection approaches that have existing detection.
- Changeable message signs (CMSs) will be employed to advise motorists of lane closures or detours ahead. The CMSs will be deployed 7 days prior to the start of construction at that location.
- Where project construction would cause delays on major roadways during the construction period, the project will provide for a network of CMS locations to provide adequate driver notification. For example, construction-related delays at the railroad grade separations that lead to SR 99 freeway interchanges will require CMS placement to the east to allow drivers to make alternate route decisions. In the case of work on Shaw Avenue in Fresno, recommended placement would be a CMS at Shaw Avenue just east of State Route 41 and a CMS at Shaw Avenue just east of Palm Avenue. Similar CMS usage will be required along Ashlan Avenue, Clinton Avenue, McKinley Avenue, Olive Avenue, and Belmont Avenue.
- The Authority, in conjunction with the City of Fresno Public Works Department and the City of Merced, will develop a traffic management plan on the surface transportation network to ensure minimum public safety service levels.
- During project construction, the alignment of roadways will be grade-separated and freeway overpasses to be reconstructed will be offset from the existing alignment to facilitate staged construction wherever possible.

In Fresno in particular, Clinton Avenue over SR 99 and Ashlan Avenue over UPRR will be offset from their existing alignments to allow for the existing roadway to remain open while the new structure is being built. This type of staging may necessitate temporary ramps to and from SR 99 during various phases of construction. Four travel lanes will be maintained from 7 a.m. to 9 a.m. and from 4 p.m. to 6 p.m. on Shaw Avenue from Cornelia to Blythe Avenue (at UPRR), on Ashlan Avenue from Parkway to Valentine Avenue (at UPRR), and on Clinton Avenue from Marks Avenue to Weber Avenue (at SR 99).

- The Veterans Boulevard overpass and construction of new alignments of Golden State Boulevard and Bullard Avenue will be completed and open to traffic prior to the closure of the Carnegie Avenue at-grade railroad crossing.
- During any Belmont Avenue closures that are determined to be necessary, the adjacent crossings of Olive Avenue and Divisadero Street will remain open with no lane closures at the two crossings.
- With regard to the existing railroad crossings at Divisadero, Tuolumne, and Stanislaus streets, two of the three crossings will remain open during construction.

3.2.7 Mitigation Measures

The mitigation measures below are intended to compensate for impacts that cannot be minimized or avoided. None of these mitigation measures will result in secondary significant impacts. All the measures are physically feasible. In addition, the various cities and/or counties may implement some of these mitigation measures prior to the construction of the HST System because of planned development adjacent to affected intersections or roadways. Mitigation measures not in place prior to development of the HST construction plans will be implemented by the Authority when the associated project element or aspect occurs that requires the mitigation. For example, if project construction requires a permanent road closure and the closure would redirect existing traffic to an intersection that would experience resulting significant LOS/congestion impacts, the associated mitigation would be implemented at the time of the closure (the mitigation would be based on the existing conditions plus project analysis given that construction is scheduled to commence soon). As another example, intersections experiencing significant impacts only once HST station traffic occurs (i.e., after the station opens) would be implemented when the associated station opens (the mitigation would be based on the future no build plus project analysis as explained in Section 3.2.3.2).

The following mitigation measures are designed to reduce transportation system impacts to intersections and roadways that are significant under CEQA and have substantial intensity under NEPA to less than significant levels under CEQA and less than substantial intensity under NEPA.

3.2.7.1 Mitigation Measures for Potential Road Closures

TR MM#1: Access Maintenance for Property Owners. Maintain access for owners to property within the construction area to a level that maintains pre-project viability of the property for its pre-project use. If a proposed road closure restricts current access to a property, provide alternative access via connections to existing roadways. If adjacent road access is not available, prepare new road connections, if feasible. If alternative road access is not feasible, the property will be considered for acquisition.

3.2.7.2 Mitigation Measures for SR 99 Realignment Freeway Impacts

TR MM#2: Add Southbound Auxiliary Lane to SR 99. Add southbound auxiliary lane south of the Clinton Avenue on-ramp to Olive Avenue.

3.2.7.3 Mitigation Measures for HST Intersection and Roadway Impacts

TR MM#3: Modify Signal Phasing. Modify traffic signal phasing sequence to improve operations at a signalized intersection.

TR MM#4: Add Signal to Intersection to Improve LOS/Operation. Add traffic signals to affected unsignalized intersections in order to improve LOS and intersection operation. Intersections proposed for signalization must meet traffic signal warrants in order to be considered as impacted. This condition occurs in 2035 for the identified intersections, but the warrant criteria may be met at earlier dates, such as the completion of construction or HST station opening. Therefore, the signalization mitigation will only be required at such time as the warrant is met. The mitigation summary indicates any locations where this mitigation will be justified after 2020. These intersections will have to be monitored once a year to determine if/when the warrant is met. Unless otherwise noted in the mitigation summary, this mitigation is justified before 2020.

TR MM#5: Restripe Intersections. Restripe specific intersections surrounding proposed HST station locations in order to improve LOS and intersection operations.

TR MM#6: Modify Signal Timing. Modify signal timing (to optimize cycle length and/or splits) at specific intersections surrounding proposed HST station locations in order to improve LOS and intersection operations.

TR MM#7: Widen Approaches to Intersections. Widen approaches in order to improve LOS and intersection operation.

TR MM#8: Add Exclusive Turn Lanes to Intersections. Add exclusive turn lanes at specific intersections in order to improve LOS and intersection operations.

TR MM#9: Convert Two-Way Stop to Four-Way Stop. Convert two-way stop controlled intersection to an all-way stop controlled intersection.

TR MM#10: Grade Separate Through Movements. Modify the intersection to provide an overpass for through movements to improve LOS and intersection operations.

TR MM#11: Add Lanes to the Segment. Add travel lanes to the roadway segment in order to increase capacity and improve roadway operations.

Mitigation Measures in Fresno between Herndon Avenue and Shaw Avenue

Table 3.2-52 presents the specific mitigation measures recommended for impacted locations in Fresno because of the Carnegie Avenue closure and the new overpass at Shaw Avenue under existing plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-52

Existing Plus Project Mitigation Measures – Between Herndon Avenue and Shaw Avenue

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
3 - Cornelia Ave/Shaw Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation	Signalize intersection.
5 – Blythe Ave/Shaw Ave	TR MM#7: Widen Approaches to Intersections TR MM#8: Add Exclusive Turn Lanes to Intersections	Widen eastbound approach to provide a second left-turn lane.
Roadways		
No roadway segments are impacted under existing plus project conditions.		

Table 3.2-53 presents the specific mitigation measures recommended for impacted locations (intersections and roadway segments) in Fresno because of the Carnegie Avenue closure and the new overpass at Shaw Avenue under future (2035) plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-53
 Future (2035) Plus Project Mitigation Measures – Between Herndon Avenue and Shaw Avenue

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 – Golden State Blvd/Santa Ana Ave	<p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation;</p> <p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Signalize intersection (meets signal warrant in 2035).</p> <p>Widen northbound approach to provide dual left-turn lanes and one through lane.</p> <p>Widen downstream on Santa Ana Avenue from one receiving lane to two receiving lanes to accommodate the dual left-turn lanes from northbound approach on Golden State Boulevard.</p>
3 – Cornelia Ave/Shaw Ave	<p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation;</p> <p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Signalize intersection.</p> <p>Restripe eastbound approach to provide one left-turn lane, two through lanes, and one right-turn lane.</p> <p>Widen westbound approach to provide two left-turn lanes, two through lanes and one right-turn lane.</p> <p>Widen northbound approach to provide one left-turn lane, one through lane, and one channelized right-turn.</p> <p>Widen southbound approach to provide one left-turn lane, one through lane, and one right-turn.</p> <p>Widen downstream on Cornelia Avenue from one receiving lane to two receiving lanes to accommodate the second left-turn lane from westbound approach on Shaw Avenue.</p>
5 – Blythe Ave/Shaw Ave	<p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Widen eastbound approach to provide a second left-turn lane.</p>
7 – Cornelia Ave/Golden State Blvd	<p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation.</p>	<p>Signalize intersection (meets signal warrant in 2035).</p>
9 – Figarden Dr/Bullard Ave	<p>TR MM#5: Restripe Intersections.</p>	<p>Restripe westbound approach to provide two left-turn lanes, one through lane and one right-turn lane.</p>
14 – Veterans Blvd/Bullard Ave	<p>TR MM#5: Restripe Intersections;</p> <p>TR MM#6: Modify Signal</p>	<p>Grade separate through movement on Veterans Boulevard.</p> <p>Restripe eastbound approach to provide one</p>

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	Timing; TR MM#10: Grade Separate Through Movements.	left-turn lane and two right-turn lanes. Restripe northbound approach to provide three left-turn lanes and one through lane. Modify signal timing.
15 – Veterans Blvd/Golden State Blvd Connector	TR MM#3: Modify Signal Phasing; TR MM#5: Restripe Intersections.	Restripe eastbound approach to provide one left-turn lane and four through lanes. Widen westbound approach to provide additional left-turn lane and a through lane. Modify northbound and southbound right-turn as free movements.
Roadways		
5 – Veterans Blvd between Golden State Blvd and Bullard Ave	TR MM#11: Add Lanes to the Segment.	Add one lane in each direction.

Mitigation Measures in Fresno between McKinley Avenue and SR 180

Table 3.2-54 presents the specific mitigation measures recommended for impacted locations in Fresno between McKinley Avenue and SR 180 under existing plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-54
 Existing Plus Project Mitigation Measures – Between McKinley Avenue and SR 180

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
5 – W Olive Ave /SR 99 SB Ramps	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection.
10 – W Belmont Ave /SR 99 SB Ramps	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection. Provide protected phasing for westbound left-turn movement.
11 –W Belmont Ave /SR 99 NB Ramps	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection.

Table 3.2-55 presents the specific mitigation measures recommended for impacted locations in Fresno between McKinley Avenue and SR 180 under future (2035) plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-55
 Future (2035) Plus Project Mitigation Measures – Between McKinley Avenue and SR 180

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
5 – W Olive Ave /SR 99 SB Ramps	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach to provide additional left-turn lane.
6 – W Olive Ave /SR 99 NB Ramps	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen northbound approach to provide exclusive left-turn lane
7 – W Olive Ave/N West Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection.
10 – W Belmont Ave /SR 99 SB Ramps	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection.
11 –W Belmont Ave /SR 99 NB Ramps	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection.
Roadways		
8 – W Olive Ave, between SR 99 Ramps and N West Ave	TR MM#11: Add Lanes to the Segment.	Add one lane in each direction.
12 – W Belmont Ave, between N Arthur Ave and SR 99 Ramps	TR MM#11: Add Lanes to the Segment.	Add one lane in each direction.

Queuing analysis was performed at the ramp terminal intersections, and it was found that the project with the above mitigation would not lengthen or worsen queue lengths. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides detailed queuing analysis and results.

SR 99 Realignment Intersection Mitigation Measures

Table 3.2-56 presents the specific mitigation measures recommended for impacted locations in Fresno because of the SR 99 realignment under existing plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-56
 Existing Plus Project Mitigation Measures – SR 99 Realignment

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
11 - Clinton Ave/Weber Ave	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach to provide second left-turn lane. Widen eastbound approach to provide second left-turn lane.
16 - Dakota Ave/Brawley Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Restripe northbound approach to include exclusive left-turn lane and shared through-right-turn lane. Widen southbound approach to include exclusive left-turn, through and exclusive right-turn lanes.

Table 3.2-57 presents the specific mitigation measures recommended for impacted locations in Fresno because of the SR 99 realignment under future (2035) plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-57
 Future (2035) Plus Project Mitigation Measures – SR 99 Realignment

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
5 - Clinton Ave/Brawley Ave	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach to provide second left-turn lane.
6 - Clinton Ave/Marks Ave	TR MM#5: Restripe Intersections;	Widen northbound approach to provide exclusive northbound right-turn lane.



Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe southbound approach to include two left-turn lanes and one shared through-right-turn lane.
8 - Clinton Ave/SR 99 SB Ramps	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen eastbound approach to provide exclusive eastbound right-turn lane.
10 - Clinton Ave/Weber Ave	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach to provide second left-turn lane. Widen eastbound approach to provide second left-turn lane.
14 - Shields Ave/Brawley Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
15 - Dakota Ave/Brawley Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Restripe northbound approach to include exclusive left-turn lane and shared through-right-turn lane. Restripe westbound approach to include exclusive left-turn lane and shared through-right-turn lane. Widen southbound approach to include exclusive left-turn, through and exclusive right-turn lanes. Widen eastbound approach to include exclusive left-turn and shared through-right-turn lane.
16 - Ashlan Ave – SR 99 SB Ramps/Parkway Dr	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Add second northbound right-turn lane.

Queuing analysis was performed at the ramp terminal intersections, and it was found that the project with the above mitigation would not lengthen or worsen queue lengths. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides detailed queuing analysis and results.

Downtown Merced Station

Table 3.2-58 presents the specific mitigation measures recommended for impacted locations surrounding the Downtown Merced Station under existing plus project conditions for Parking Options A and B. These mitigation measures are applicable to all project alternatives. It can be noted from the table that mitigation measures at Intersection 14 (15th Street/M Street) and on the roadway segment along V Street west of 13th Street are required only under Option A. These locations are not impacted by project traffic under Option B. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-58
 Existing Plus Project Mitigation Measures – Merced Station

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 - 16th St/SR 59	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
14 – 15th St/M St (Option A only)	TR MM#7: Widen Approaches to Intersections.	Widen eastbound and westbound approaches to provide one left-through lane and one right-through lane.
22 – 14th St/Martin Luther King Jr. Way	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach to provide left-turn lane.
25 – 13th St/G St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
31 - SR 99 NB Off-Ramp/SR 140	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
39 – 16th St/Canal St	TR MM#5: Restripe Intersection.	Restripe eastbound approach from one shared-through left lane and one exclusive right-turn lane to one exclusive left-turn lane and a shared through-right lane.
44 – Main St/H St	TR MM#9: Convert Two-Way Stop to Four-Way Stop.	Convert two-way stop controlled intersection to an all-way stop controlled intersection.
Roadways		
M St Between 13th St and 16th St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
V St West of 13th St (Option A only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.

Queuing analysis was performed at the ramp terminal intersections, and it was found that the project with the above mitigation would not lengthen or worsen queue lengths. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides detailed queuing analysis and results.

Table 3.2-59 presents the specific mitigation measures recommended for impacted locations surrounding the Downtown Merced Station under future (2035) plus project conditions for Parking Options A and B. These mitigation measures are applicable to all project alternatives. It can be noted from the table that the mitigation measure at Intersection 33 (14th Street/O Street) is required for Option A only and the mitigation measure on the roadway segment along V Street west of 13th Street to 16th Street is required

under Option B only. Applying these mitigation measures will reduce the project impact a to less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-59
 Future (2035) Plus Project Mitigation Measures – Merced Station

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 - 16th St/SR 59	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Widen northbound approach to add second right-turn lane. Widen westbound approach to add second left-turn lane. Provide signal phasing to “overlap” northbound right-turn movement with westbound left-turn movement and westbound right-turn with southbound left-turn movement.
3 - 13th St – SR 99 SB Off-Ramp/V St	TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe the southbound approach (SR 140) from left-turn, through, shared through-right-turn lane to left-turn, shared through-left-turn, and shared through-right-turn lane. Widen SR 99 SB off-ramp to add exclusive right-turn lane.
6 - 16th St/V St	TR MM#6: Modify Signal Timing.	Modify signal timing.
14 - 15th St/M St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
18 - Childs Ave/Martin Luther King Jr. Way	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach on Childs Avenue to provide exclusive right-turn lane.
20 - SR 99 SB Ramps/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
21 - SR 99 NB Ramps/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
22 - 14th St/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
24 - 16th St/Martin Luther King Jr. Way	TR MM#3: Modify Signal Phasing.	Change northbound/southbound split phasing to protected phasing
25 – 13th St/G St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Signalize intersection. Restripe northbound approach from single lane to shared left-through and right-turn

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	<p>TR MM#5: Restripe Intersections;</p> <p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>lane.</p> <p>Widen eastbound approach to provide a second through lane.</p> <p>Restripe westbound approach from an exclusive right-turn lane to a shared through-right-turn lane.</p>
26 - SR 99 SB Off-Ramp/14th St/G St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
31 - SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140)	<p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation;</p> <p>TR MM#5: Restripe Intersections;</p> <p>TR MM#7: Widen Approaches to Intersections.</p>	<p>Signalize intersection.</p> <p>Restripe eastbound approach to provide a second through lane.</p> <p>Widen westbound approach to add a second through lane.</p>
32 - Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	<p>TR MM#5: Restripe Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	Restripe southbound approach to provide exclusive right-turn lane and restripe eastbound approach (SR 140) from exclusive right-turn lane to a shared through-right-turn lane.
33 -14th St/O St (Option A only)	TR MM#9: Convert Two-Way Stop to Four-Way Stop.	Convert two-way stop controlled intersection to an all-way stop controlled intersection.
34 – 13th St/M St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
35 – 14th St/M St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
38 – 15th St/Canal St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
40 – 11th St/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
44 – Main St/H St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
46 – Main St/G St	TR MM#6: Modify Signal Timing.	Optimize cycle length.
Roadways		
Main St Between Yosemite Pkwy (SR 140) and G St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction on Main St.

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
16th St Between R St and Martin Luther King Jr. Way	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction on 16th St.
V St (Option B only) West of 13th St to 16th St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction on V St.
M St Between 13th St and 16th St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction on M St.
Martin Luther King Jr. Way Between Childs Ave and 13th St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction on Martin Luther King Jr. Way.
G St Between 13th St and 16th St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction on G St.

Queuing analysis was performed at the ramp terminal intersections, and it was found that the project with the above mitigation would not lengthen or worsen queue lengths. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides detailed queuing analysis and results.

Downtown Fresno Station

Table 3.2-60 presents the specific mitigation measures recommended for impacted locations surrounding the Downtown Fresno Station under existing plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-60
 Existing Plus Project Mitigation Measures – Fresno Station

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
6 - SR 99 NB Ramps/Ventura Ave	TR MM#5: Restripe Intersection. TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe the northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane at the intersection.
33-0 - Divisadero Street/SR 41 NB Ramps/Tulare Street	TR MM#6: Modify Signal Timing.	Re-time the existing signal.
63 - H Street/Divisadero Street	TR MM#6: Modify Signal Timing.	Re-time the existing signal in AM.
80 -N Blackstone Ave/SR 180 WB Ramps	TR MM#15: Modify Signal Timing.	Re-time the existing signal in AM.
86 - H St/Ventura St (Tulare St Underpass Option Only)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
109 – Stanislaus St/F St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
117 - Stanislaus St/N St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
Roadways		
No roadway segments are impacted under this scenario.		

Table 3.2-61 presents the specific mitigation measures recommended for impacted locations surrounding the Downtown Fresno Station under future (2035) plus project conditions. These mitigation measures are applicable to all project alternatives. Applying these mitigation measures will reduce the project impact to less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-61
 Future (2035) Plus Project Mitigation Measures – Fresno Station

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
2 - Van Ness Ave/SR 41 NB Ramp	TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe the eastbound approach to provide one exclusive left-turn lane and one shared left/through/right-turn lane at the intersection.
6 - SR 99 NB Ramps/Ventura Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
7 - E St/Ventura Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
9 - Broadway Ave/Ventura Ave	Tulare Street Underpass Option: TR MM#3: Modify Signal Phasing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections Tulare Street Overpass Option: TR MM#3: Modify Signal Phasing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections	Tulare Street Underpass Option: Widen the northbound approach to add one exclusive right-turn, one left-turn lane, and one through lane. Modify signal phasing to provide protected left-turn phases for the northbound and southbound approaches. Tulare Street Overpass Option: Widen the eastbound approach to add two exclusive left-turn lanes, two through lanes, and one exclusive right-turn lane. Modify signal phasing to provide protected left-turn phases for the northbound and southbound approaches.

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
10 - Van Ness Ave/Ventura St	TR MM#3: Modify Signal Phasing.	Modify the existing traffic signal phasing to provide protected left-turn phases for the northbound and southbound approaches.
21 - H St/Kern St (Tulare Street Underpass Option only)	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide one exclusive left-turn lane and one exclusive right-turn lane at the intersection.
22 – E St/Tulare St (Tulare Street Overpass Option only)	TR MM#3: Modify Signal Phasing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections	Widen the southbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane. Widen the westbound approach to provide one exclusive left-turn lane, one through lane, and one exclusive right-turn lane. Modify signal phasing to provide protected left-turn phases for the eastbound and westbound approaches.
23 – F St/Tulare St (Tulare Street Underpass Option only)	TR MM#3: Modify Signal Phasing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections	Widen the northbound approach to provide one exclusive left-turn and one shared through/right-turn lane. Widen the southbound approaches to provide one exclusive left-turn lane, and one shared through/right-turn lane. Widen the westbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and one through lane. Modify signal phasing to provide protected left-turn phases for all approaches.
25 - H St/Tulare St (Tulare Street Underpass Option only)	TR MM#3: Modify Signal Phasing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen westbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes. Widen northbound approach to provide one exclusive right-turn lane, one exclusive left-turn lanes, and two through lanes. Widen southbound approach to provide one exclusive right-turn lane, one exclusive left-turn lane, and two through lanes. Modify signal phasing to provide protected left-turn phases for all approaches.
26 - Van Ness Ave/Tulare St (Tulare Street Underpass Option only)	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the westbound approach to provide one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane at the intersection.
30 - U St/Tulare St	TR MM#3: Modify Signal Phasing.	Modify the existing traffic signal phasing to provide protected left-turn phases for the eastbound and westbound approaches.
37 - SR 99 SB Ramps/Fresno St	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide two exclusive through lanes and one exclusive right-turn lane at the intersection.

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
38 - SR 99 NB Ramps/Fresno St	<p>Tulare Street Underpass Option: TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p> <p>Tulare Street Overpass Option: TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Tulare Street Underpass Option: Restripe the eastbound approach to provide two exclusive left-turn lanes and one exclusive through lane.</p> <p>Tulare Street Overpass Option: Restripe the westbound approach to provide one through lane, one shared through/right-turn lane, and one exclusive right-turn lane.</p>
42 - Van Ness Avenue/Fresno St	<p>Tulare Street Underpass Option: TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p> <p>Tulare Street Overpass Option: TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Tulare Street Underpass Option: Widen the southbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one exclusive right-turn lane at the intersection.</p> <p>Tulare Street Overpass Option: Widen the northbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane. Widen the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.</p>
46 - Fresno St/Divisadero St	<p>TR MM#3: Modify Signal Phasing.</p>	<p>Modify the existing traffic signal to provide split phases for the eastbound and westbound approaches at the intersection.</p>
50 - Van Ness Ave/Tuolumne St	<p>TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Widen eastbound approach to provide one exclusive left-turn lane, one through lane and one exclusive right-turn lane</p>
52 - E St/Stanislaus St (Tulare Street Overpass Option only)	<p>TR MM#3: Modify Signal Phasing; TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Restripe the westbound approach to provide one shared left/through lane, one through lanes, and one shared through/right-turn lane.</p> <p>Restripe the southbound approach to provide one shared left/through lane and one exclusive right-turn lane.</p> <p>Modify signal phasing to provide split phasing on eastbound and westbound approaches.</p>
53 - Broadway St/Stanislaus St (Tulare Street Overpass Option only)	<p>TR MM#3: Modify Signal Phasing; TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive</p>	<p>Restripe the southbound approach to provide shared left/through lane and one exclusive right-turn lane.</p> <p>Modify signal phasing to provide permissive phase on northbound and southbound approaches.</p>

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	Turn Lanes to Intersections.	
54 – Van Ness Ave/Stanislaus St (Tulare Street Underpass Option only)	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane
58 – H St/San Joaquin St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
60 - H St/Amador St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Widen southbound approach to provide one exclusive left-turn lane and one through lane.
63 – H St/Divisadero St	TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe the westbound approach to provide one shared through/right/left-turn lane and two exclusive right-turn lanes. Widen the northbound approach to provide two exclusive left-turn lanes and one shared through/right-turn lane. Widen the southbound approach to provide additional left-turn lane (on H St).
66 - Van Ness Ave/Divisadero St	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane at the intersection. Widen the westbound approach to provide one shared left/through lane, one exclusive through lane, and one exclusive right-turn lane at the intersection.
67 – H St/Roosevelt St	TR MM#7: Widen Approaches to Intersection; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the westbound approach (H St) to provide one shared through/right-turn lane, one exclusive through lane, and one exclusive left-turn lane.
68 - N Blackstone Ave/E McKenzie Ave	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the westbound approach to provide one exclusive left-turn lane and one exclusive through lane.
71 - Van Ness Ave/SR 180 EB Ramps	TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe the northbound approach to provide one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane at the intersection.
73 - Van Ness Ave/SR 180 WB Ramps	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive	Widen the eastbound approach to provide one additional exclusive left-turn lane at the intersection.

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	Turn Lanes to Intersections.	
74 - N Blackstone Ave/E Belmont Ave	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the southbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane at the intersection.
79 - N Abby St/SR 180 EB Ramps	TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Re-stripe the northbound approach to provide one shared left/through lane, one exclusive through lane, one shared through/right-turn lane, and one exclusive right-turn lane at the intersection.
80 -N Blackstone Ave/SR 180 WB Ramps	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide one additional exclusive right-turn lane at the intersection.
81 - Broadway St/Amador St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
83 – Fresno St/F St	<p>Tulare Street Underpass Option: TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p> <p>Tulare Street Overpass Option: TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Tulare Street Underpass Option: Restripe the northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane. Widen the westbound approach to provide one exclusive left-turn lane, two through lanes, and one exclusive right-turn lane. Widen the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.</p> <p>Tulare Street Overpass Option: Restripe the northbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one shared through/right-turn lane. Widen the westbound approach to provide one exclusive left-turn lane, one through lane, one share through/right-turn lane, and one exclusive right-turn lane. Widen the eastbound approach to provide two exclusive left-turn lanes, one through lane, and one shared through/right-turn lane.</p>
86 – H St/Ventura St (Tulare Street Underpass Option only)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
84 – G St/Mono St (Tulare Street Underpass Option only)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
92 - S Van Ness Ave/E California Ave	<p>TR MM#3: Modify signal phasing;</p> <p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation;</p> <p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Signalize intersection.</p> <p>Widen northbound approach to provide exclusive left-turn lane.</p> <p>Widen southbound approach to provide exclusive left-turn lane.</p> <p>Modify signal phasing on northbound and southbound approaches to provide protected plus permissive left-turn phasing.</p>
96 - Golden State Blvd/E Church Ave	<p>TR MM#3: Modify signal phasing;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Provide an exclusive right-turn lane in the northbound direction.</p> <p>Modify signal phasing on all approaches to provide protected plus permissive left-turn phase.</p>
101 - S East Ave/Golden State Blvd	<p>TR MM#6: Modify signal timing.</p>	<p>Increase cycle length (in the PM Peak Hour only).</p>
102 - Golden State Blvd/E Jensen Ave	<p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Provide an exclusive right-turn lane for both northbound and southbound approaches.</p>
109 – Stanislaus St/F St (Tulare Street Overpass Option only)	<p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Widen the northbound approach to provide one exclusive left-turn lane and two exclusive right-turn lanes.</p>
110 – Tuolumne St/F St (Tulare Street Overpass Option only)	<p>TR MM#5: Restripe Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Restripe the eastbound approach to provide one exclusive left-turn lane, one shared left/through lane and one exclusive right-turn lane.</p>
113 – Stanislaus St/L St	<p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Widen the northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane.</p>
115 – Stanislaus St/M St	<p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Widen the southbound approach to provide one shared left/through lane and one exclusive right-turn lane.</p>
117 – Stanislaus St/N St	<p>TR MM#7: Widen Approaches to Intersections;</p> <p>TR MM#8: Add Exclusive Turn Lanes to Intersections.</p>	<p>Widen the westbound approach to provide one exclusive left-turn lane, one through lane and one shared through/right-turn lane.</p>
Roadways		
H St Between East Divisadero St and Stanislaus St	<p>TR MM#11: Add Lanes to the Segment.</p>	<p>Add one travel lane in each direction.</p>
Stanislaus St	<p>TR MM#11: Add Lanes to</p>	<p>Add one travel lane in each direction.</p>

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Between Broadway St and E St	the Segment.	
Fresno St Between Van Ness Ave and Broadway St (Tulare Street Overpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Fresno St Between G St and SR 99 NB Ramps	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Tulare St Between Broadway St and Van Ness Avenue (Tulare Street Underpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Divisadero St Between N. Fresno St and SR 41 Ramps	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Van Ness Ave Between Ventura Ave and SR 41 Ramps (Tulare Street Overpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Stanislaus St Between E St and F St (Tulare Street Overpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
F St Between Stanislaus St and Tuolumne St (Tulare Street Overpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Stanislaus St Between G St and H St (Tulare Street Overpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Stanislaus St Between Broadway St and Fulton St	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.
Stanislaus St Between L St and M St (Tulare Street Underpass Option only)	TR MM#11: Add Lanes to the Segment.	Add one travel lane in each direction.

Queuing analysis was performed at the ramp terminal intersections, and it was found that the project with the above mitigation would not lengthen or worsen queue lengths. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides detailed queuing analysis and results.

Castle Commerce Heavy Maintenance Facility

Table 3.2-62 presents the specific mitigation measures recommended for impacted locations surrounding the Castle Commerce Center HMF under existing plus project conditions for Parking Options A and B. However, it should be noted that under existing plus project conditions, Intersection 11, which is impacted with project traffic, would not exist under future conditions because of the construction of the Atwater-Merced Expressway. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-62
 Existing Plus Project Mitigation Measures – Castle Commerce Center HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
11 – Ashby Rd/Buhach Rd	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
25 - 16th St/SR 59	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
37 - 15th St/M St	TR MM#7: Widen Approaches to Intersections.	Widen eastbound and westbound approaches to provide one left-through lane and one right-through lane.
45 – 14th St/Martin Luther King Jr. Way	*	*
48 – 13th St/G St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
54 – SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
62 - 16th St/Canal St	TR MM#5: Restripe Intersection.	Restripe eastbound approach from one shared-through left lane and one exclusive right-turn lane to one exclusive left-turn lane and a shared through-right lane.
67 – Main St/H St	TR MM#9: Convert Two-Way Stop to Four-Way Stop.	Convert two-way stop controlled intersection to an all-way stop controlled intersection.
Notes: * Intersection 45, 14th Street/Martin Luther King Jr. Way, does not meet the signal warrants, and widening the approaches at the intersection does not improve LOS. These locations meet signal warrants under the future conditions and can be signalized under that scenario (see Table 3.2-55).		

Table 3.2-63 presents the mitigation measures for impacted locations near the Castle Commerce Center HMF under future (2035) plus project conditions for Parking Options A and B. However for Option B, no

mitigation is required for intersections 43 (SR 99 Southbound Ramps and Martin Luther King Jr. Way), 56 (14th St and O St), and 61(15th St and Canal St), as these intersections are not affected under Option B. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-63
 Future (2035) Plus Project Mitigation Measures – Castle Commerce Center HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
2 - Atwater Blvd/Winton Way	TR MM#3: Modify signal phasing; TR MM#5: Restripe Intersections; TR MM#6: Modify signal timing; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe the eastbound approach from shared through-left-turn lane and shared through-right-turn lane to exclusive left-turn lane and shared through-right-turn lane. Change eastbound, westbound movements from split phasing to protected left-turn movements. Optimize signal timing.
4 - Sycamore Ave/Applegate Rd	TR MM#6: Modify signal timing; TR MM#7: Widen Approaches to Intersections.	Widen the westbound approach from one lane to shared through-left-turn and shared through-right-turn lanes. Optimize signal timing.
16 - Santa Fe Dr/W Avenue 2	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Widen eastbound approach from one shared left-right-turn lane to one exclusive left-turn and one exclusive right-turn lane. “Overlap” eastbound right-turn movement with northbound left-turn movement.
19 - Santa Fe Dr/Belcher Ave	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
20 - Santa Fe Dr/W Olive Ave/SR 59	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen eastbound approach to provide a second right-turn lane
25 - 16th St/SR 59	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Widen northbound approach to add second right-turn lane. Widen westbound approach to add second left-turn lane. Provide signal phasing to “overlap” northbound right-turn movement with westbound left-turn movement and westbound right-turn with southbound left-turn movement.
26 - 13th St – SR 99 SB Off-Ramp/V St	TR MM#5: Restripe Intersections; TR MM#7: Widen	Restripe the southbound approach (SR 140) from left-turn, through, shared through-right-turn lane to left-turn, shared through-

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	left-turn, and shared through-right-turn lane. Widen SR 99 SB off-ramp to add exclusive right-turn lane.
29 - 16th St/V St	TR MM#6: Modify Signal Timing.	Optimize cycle length.
37 - 15th St/M St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection (meets signal warrant between 2020 and 2025). Widen northbound, eastbound and westbound approaches to provide left-turn lanes.
38 - 16th St/M St	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen northbound and southbound approaches to provide second left-turn lanes.
41 - Childs Ave/Martin Luther King Jr. Way	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen southbound approach on Childs Avenue to provide exclusive right-turn lane.
43 - SR 99 SB Ramps/Martin Luther King Jr. Way (Option A only)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
44 - SR 99 NB Ramps/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
45 - 14th St/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
48 – 13th St/G St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Restripe northbound approach from single lane to shared left-through and right-turn lane. Widen eastbound approach to provide a second through lane. Restripe westbound approach from an exclusive right-turn lane to a shared through-right-turn lane.
49 - SR 99 SB Off-Ramp/14th St/G St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
54 - SR 99 NB Off-Ramp/Yosemite Pkwy (SR 140)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen	Signalize intersection. Restripe eastbound approach to provide a second through lane. Widen westbound approach to add a second through lane.

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
	TR MM#7: Widen Approaches to Intersections.	
55 - Motel Dr/Glen Ave/Yosemite Pkwy (SR 140)	TR MM#5: Restripe Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Restripe southbound approach to provide exclusive right-turn lane and restripe eastbound approach (SR 140) from exclusive right-turn lane to a shared through-right-turn lane.
56 -14th St/O St (Option A only)	TR MM#9: Convert Two-Way Stop to Four-Way Stop.	Convert two-way stop controlled intersection to an all-way stop controlled intersection.
57 – 13th St/M St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2020 and 2025).
58 – 14th St/M St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2030 and 2035).
61 – 15th St/Canal St (Option A only)	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2030 and 2035).
63 – 11th St/Martin Luther King Jr. Way	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2025 and 2030).
67 – Main St/H St	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant between 2030 and 2035).
69 – Main St/G St	TR MM#6: Modify Signal Timing.	Optimize cycle length.

Harris-DeJager Heavy Maintenance Facility

Table 3.2-64 presents the specific mitigation measures recommended for impacted locations surrounding the Harris-DeJager HMF under existing plus project conditions. Under existing conditions, SR 99 is an at-grade intersection with Sandy Mush Road. The only feasible mitigation measure is to construct an interchange at this location, as signalization would be an impractical mitigation measure at a freeway intersection. However, this measure is a future planned improvement project already identified and funded by Caltrans, as identified in the Madera County RTP and included in the 2035 No Project definition as described in Chapter 2, Alternatives. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-64
 Existing Plus Project Mitigation Measures – Harris-DeJager HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
3 – SR 99/Sandy Mush Rd	NA*	Construct interchange (as planned by Caltrans and programmed for construction in 2011).
* Not applicable, because a new interchange is already funded at this location.		

Table 3.2-65 presents the mitigation measures recommended for the impacted locations surrounding the Harris-DeJager HMF under future (2035) plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-65
 Future (2035) Plus Project Mitigation Measures – Harris-DeJager HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
1 - SR 59/E Sandy Mush Rd	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection (meets signal warrant in 2035).

Fagundes Heavy Maintenance Facility

Table 3.2-66 presents the specific mitigation measures recommended for impacted locations surrounding the Fagundes HMF under existing plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-66
 Existing Plus Project Mitigation Measures – Fagundes HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
2 - Road 13/SR 152 – Ave 23	*	*
6 – SR 233/Ave 25	*	*
8 - SR 99 NB Ramps/Robertson Blvd – Ave 26	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
Notes: * The two impacted locations (Intersections 2 and 6) do not meet signal warrants, and other mitigation measures such as widening would not bring the LOS to D or better. These locations meet signal warrants under the future conditions and can be signalized under that scenario (see Table 3.2-67).		

Table 3.2-67 presents the specific mitigation measures recommended for impacted locations surrounding the Fagundes HMF under future (2035) plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-67
 Future (2035) Plus Project Mitigation Measures – Fagundes HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
2 - Rd 13/SR 152 – Ave 23	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
6 - SR 233/Ave 25	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection. (meets signal warrant between 2020 and 2025)
7 – SR 99 SB Ramps/SR 233 – Ave 26	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
8 - SR 99 NB Ramps/SR 233 – Ave 26	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.

Gordon-Shaw Heavy Maintenance Facility

Table 3.2-68 presents the specific mitigation measures recommended for impacted locations surrounding the Gordon-Shaw HMF under existing plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-68
 Existing Plus Project Mitigation Measures – Gordon-Shaw HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
4 - Rd 24/Ave 19	TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Widen the northbound approach from one lane to one exclusive left-turn and one through right-turn lane.

Table 3.2-69 presents the mitigation measures for the Gordon-Shaw HMF under future (2035) plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-69
 Future (2035) Plus Project Mitigation Measures – Gordon-Shaw HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
1 - SR 99 SB Ramps/Ave 20½	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection. (meets signal warrant in 2035)
4 - Rd 24/Ave 19	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection. (meets signal warrant in 2035)
5 - Rd 24/Ave 18½	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection. (meets signal warrant in 2035)
6 - SR 99 SB Ramps/Ave 18½	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection. (meets signal warrant between 2020 and 2025)
7 - SR 99 NB Ramps/Ave 18½	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. (meets signal warrant between 2020 and 2025) Widen the northbound approach from one lane to one shared through-left-turn lane and one exclusive right-turn lane.

Kojima Development Heavy Maintenance Facility

Table 3.2-70 presents the specific mitigation measures recommended for impacted locations surrounding the Kojima Development HMF under existing plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-70
 Existing Plus Project Mitigation Measures – Kojima Development HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
1 - SR 99 SB Ramps/E Robertson Blvd	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
2 - SR 99 NB Ramps/E Robertson Blvd	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.

Table 3.2-71 presents the mitigation measures for the Kojima Development HMF under future (2035) plus project conditions. Applying these mitigation measures will reduce the project impact to a less than significant level. The *Merced to Fresno Section Transportation Technical Report* (Authority and FRA 2012) provides LOS and delay calculations with mitigations.

Table 3.2-71
 Future (2035) Plus Project Mitigation Measures – Kojima Development HMF

Intersection/Location Affected	Mitigation Measure(s)	Specific Actions Recommended
1 - SR 99 SB Ramps/E Robertson Blvd	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
2 - SR 99 NB Ramps/E Robertson Blvd	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Signalize intersection. Widen the northbound approach from one lane to one exclusive left-turn and one exclusive right-turn lane.
4 - Santa Fe Dr/Ave 26	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
6 - Rd 22/Ave 24	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
7 – SR 99 NB Ramps/Ave 24	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.
8 - SR 99 SB Ramps/Ave 24	TR MM#4: Add Signal to Intersection to Improve LOS/Operation.	Signalize intersection.

3.2.7.4 Mitigation Measures for Pedestrian and Bike facilities

In the vicinity of Merced station, the project proposes to provide an overcrossing of the HST tracks near D Street due to the restriction of pedestrian/bike movements caused by closure of this street. The new overcrossing will enable access between the areas to the east and west of the tracks.

3.2.8 NEPA Impacts Summary

This section summarizes impacts identified in Section 3.2.5, Environmental Consequences, and evaluates whether they are significant according to NEPA. Under NEPA, project effects are evaluated based on the criteria of context and intensity.

Many of the anticipated NEPA impacts are similar among the project alternatives as they would occur in association with the SR 99 relocation and the Merced and Fresno stations sites, which are common elements to the project alternatives.

NEPA impacts with moderate intensity during construction are anticipated on circulation in the vicinity of the Merced and Fresno stations and HMF sites, adjacent to the freeway mainline along SR 99, and the proposed SR 99 realignment between Clinton and Ashlan Avenues. Impacts due to temporary roadway closures associated with construction would not substantially increase hazards or incompatible uses or result in inadequate emergency access. The implementation of standard construction practices will be used to manage traffic during construction. Construction activities would affect local roadways in both rural and urban settings. Because these impacts are short-term and temporary and delays during these short periods are only expected to be intermittent, they would not be considered significant under NEPA.

Realignment of SR 99 would result in NEPA impacts with substantial intensity. The analysis identified project impacts on the freeway operations and intersections in the vicinity of the freeway shift that would experience increase in traffic due to the changes in the traffic circulation patterns resulting from closure of ramps. With incorporation of the traffic mitigation measures identified in Section 3.2.7, these impacts would be reduced to a moderate intensity. However, because these impacts would occur within the congested urban areas of Fresno, which could extend the duration of peak periods of congestion, the impacts due to SR 99 realignment are to be considered significant under NEPA.

The HST project would also result in impacts with substantial intensity in the vicinity of the Merced and Fresno stations. Local roadways and intersections would be affected by project-related traffic, either from the addition of station-generated traffic and/or from the diverted traffic near proposed road closures. Project-related traffic would reduce acceptable levels of services for both roadway segments and intersections based on the threshold criteria identified in Section 3.2.3.4. After applying the mitigation measures discussed in the previous sections, the project impacts would be considered to have moderate intensity under NEPA. However, because these impacts would occur in the congested areas of the cities of Merced and Fresno, which could extend the duration of peak periods of congestion, the effect on the local circulation would be considered significant under NEPA.

Additional impacts are anticipated in conjunction with local road closures necessary as part of each project alternative in the urban and rural areas. The road closures are expected to result in NEPA impacts ranging from negligible to moderate intensity. In the rural areas, the roads proposed for closure have very low traffic volumes and necessary traffic diversions can be accomplished without causing impacts with substantial intensity on travelers. Because these effects would occur in rural areas with low traffic volumes that are generally less than 500 vehicles per day (vpd), they would not be considered significant under NEPA. In the urban areas, the road closures are expected to result in NEPA impacts with moderate intensity. However, because these impacts would occur in the congested urban areas of the cities of Merced and Fresno, which could extend the duration of peak periods of congestion, these project impacts are considered to be significant under NEPA.

Intersection impacts with substantial intensity have also been identified for each of the HMF sites. Because these impacts occur in rural locations with low traffic volumes and minimal peak congestion periods, the impacts would not be considered significant under NEPA.

All HST alternatives would provide benefits to the regional transportation system by reducing vehicle trips on the freeways through the diversion of intercity trips from road trips to high-speed rail. This reduction in future vehicle trips would improve the future LOS of the regional roadway system (and reduce overall VMT) compared to the No Project Alternative. Compared to existing conditions, the HST alternatives also would divert trips from regional road facilities, thereby improving regional roadway LOS. Likewise, interstate commercial air trips would be diverted to HST. The overall reduction of vehicle and air trips and the improvement to regional roadway LOS would contribute to the beneficial impact of the project.

3.2.9 CEQA Significance Conclusions

Table 3.2-72 identifies impacts and their level of significance before and after mitigation for the transportation resource. Table 3.2-72 reports post-mitigation conditions based on a comparison of the project to No Project/future baseline conditions. Comparing the project to existing conditions, all impacts after mitigation would be less than significant under CEQA.

Table 3.2-72
 Summary of Significant Transportation Resource Impacts and Mitigation Measures

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure	CEQA Level of Significance after Mitigation
Project Impacts			
TR #1: Permanent Road Closures.			
UPRR/SR 99 Alternative – 19 to 28 closures BNSF Alternative – 28 to 42 closures Hybrid Alternative – 30 to 36 closures	Significant	TR MM#1: Access Maintenance for Property Owners.	Less Than Significant
TR #2: Fresno Area between Herndon Avenue and Shaw Avenue Intersection Impacts.			
All Alternatives			
Existing plus Project	Significant	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections;	Less Than Significant
Future (2035) plus Project	Significant	TR MM#3: Modify Signal Phasing; TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#6: Modify Signal Timing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections; TR MM#10: Grade Separate Through Movements.	Less Than Significant
TR #3: Fresno Area between Herndon Avenue and Shaw Avenue Roadway Impacts.			
Future (2035) plus Project	Significant	TR MM#11: Add Lanes to the Segment.	Less Than Significant
TR #4: Fresno Area between McKinley Avenue and SR 180 Roadway Impacts.			
All Alternatives			
Future (2035) plus Project	Significant	TR MM#11: Add Lanes to the Segment.	Less Than Significant

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure	CEQA Level of Significance after Mitigation
TR #5: Fresno Area between McKinley Avenue and SR 180 Intersection Impacts.			
All Alternatives			
Existing plus Project	Significant	TR MM#4: Add Signal to Intersection to Improve LOS/Operation;	Less Than Significant
Future (2035) plus Project	Significant	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections;	Less Than Significant
TR #6: SR 99 Relocation Freeway Impacts.			
All Alternatives			
Future (2035) plus Project	Significant	TR MM#2: Add Southbound Auxiliary Lane to SR 99.	Less Than Significant
TR #7: SR 99 Relocation Intersection Impacts.			
All Alternatives			
Existing plus Project	Significant	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Less Than Significant
Future (2035) plus Project	Significant	TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections.	Less Than Significant
TR #8: HST Station Area Roadway Impacts.			
All Alternatives			
Existing plus Project Merced – 2 segments (Option A); 1 segment (Option B)	Significant	TR MM#11: Add Lanes to the Segment.	Less Than Significant

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure	CEQA Level of Significance after Mitigation
<p>Future (2035) plus Project Merced – 6 segments (Option A) 8 segments (Option B) Fresno –7 segments (Tulare St Underpass Option; 10 segments (Tulare St Overpass Option)</p>	Significant	TR MM#11: Add Lanes to the Segment.	Less Than Significant
<p>TR #9: HST Station Area Intersection Impacts. All Alternatives</p>			
<p>Existing plus Project Merced – 7 intersections (Option A), 6 intersections (Option B) Fresno – 6 intersections (Tulare St Underpass Option), 5 intersections (Tulare St Overpass Option)</p>	Significant	<p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#6: Modify Signal Timing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections</p>	Less Than Significant
<p>Future (2035) plus Project Merced – 20 intersections (Option A), 19 intersections (Option B) Fresno – 32 intersections (Tulare St Underpass Option), 30 intersections (Tulare St Overpass Option)</p>	Significant	<p>TR MM#3: Modify Signal Phasing; TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#6: Modify Signal Timing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections; TR MM#9: Convert Two-Way Stop to Four-Way Stop.</p>	Less Than Significant
<p>TR #10: HMF Site Intersection Impacts.</p>			
<p>Existing plus Project Castle Commerce Center HMF – 8 intersections (Options A and B) Harris-DeJager HMF – 1 intersection Fagundes HMF – 3 intersections</p>	Significant	<p>TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn</p>	Less Than Significant

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure	CEQA Level of Significance after Mitigation
Gordon-Shaw HMF – 1 intersection Kojima Development HMF – 2 intersections		Lanes to Intersections; TR MM#9: Convert Two-Way Stop to Four-Way Stop.	
Future (2035) plus Project Castle Commerce Center HMF – 25 intersections (Option A), 22 intersections (Option B) Harris-DeJager HMF – 1 intersection Fagundes HMF – 4 intersections Gordon-Shaw HMF – 5 intersections Kojima Development HMF – 6 intersections	Significant	TR MM#3: Modify Signal Phasing; TR MM#4: Add Signal to Intersection to Improve LOS/Operation; TR MM#5: Restripe Intersections; TR MM#6: Modify Signal Timing; TR MM#7: Widen Approaches to Intersections; TR MM#8: Add Exclusive Turn Lanes to Intersections; TR MM#9: Convert Two-Way Stop to Four-Way Stop.	Less Than Significant

3.2.10 Potential Future Option for Improved Transportation Connectivity in Merced

The existing conventional passenger rail service (e.g., Amtrak San Joaquin Route) stops at a station in the City of Merced that is 0.6 mile from the planned Merced HST station. It may be possible to improve connectivity between the conventional passenger rail service and HST services (particularly for trips north of Merced) during the interim period prior to the HST being extended to Sacramento, which is planned as Phase 2 of the statewide HST system. The Authority is coordinating efforts of various government agencies to evaluate the feasibility of an interim track connection between the BNSF Railway line that the Amtrak San Joaquin service uses and the Downtown Merced HST Station. In concept, an interim track connection could involve construction and operation of a low-speed spur track connection that would allow conventional passenger rail service to stop at the Downtown Merced HST Station. Improving connectivity with the Amtrak San Joaquin Route could have numerous benefits for Phase 1 HST services. Among other benefits, it could increase HST ridership, and it could decrease the number of HST passengers arriving at the Merced HST station by car, thereby decreasing the amount of parking needed and decreasing station area traffic and the need for traffic mitigation measures. Although an interim track connection would have potential benefits, the feasibility of such an option is still being evaluated and it is not a component of the Merced to Fresno Section HST at this time.

As coordination among agencies progresses and the feasibility of an interim track connection is determined, the respective roles of the agencies and the Authority in planning and funding interim improvements to passenger rail services would be clarified. An interim track connection would be a separate project for CEQA/NEPA purposes and would be subject to its own environmental document.