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 *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

The HST program incorporates several project engineering and design features intended to avoid or reduce the potential impacts of implementing the new HST System between Fresno and Bakersfield. The *Final Program Environmental Impact Report Environmental Impact Statement (EIR/EIS) for the Proposed California High-Speed Train System* (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 substantial increases in traffic or travel time.

Authority and FRA Decision Documents Available for Public Review

All of the documents mentioned in this chapter are available on-line at:

http://www.cahighspeedrail.ca.gov/library.aspx

Available documentation includes the 2005 Final Program EIR/EIS for the Statewide HST System, FRA's 2005 Record of Decision, the 2008 Final Program EIR/EIS for the Bay Area to Central Valley HST, FRA's 2008 Record of Decision, the Authority's 2010 Revised Final Program EIR for the Bay Area to Central Valley HST, and its 2010 decision documents.

3.2.2 Laws, Regulations, and Orders

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

A. 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.

B. 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 congestion management agency. The Kings County Association of Governments (KCAG) and Tulare County Association of Governments (TCAG) are the regional transportation authorities for the two counties, and the Kern Council of Governments (Kern COG) is the congestion management authority for Kern County. Table 3.2-1 lists relevant regional and local transportation plans and policies that guide regional and local transportation planning, funding, and project implementation. The local plans and policies were considered in the preparation of this analysis.

Table 3.2-1
Regional and Local Plans and Policies

Policy Title	Summary
San Joaquin Corridor Strategic Plan (Caltrans 2008)	The *San Joaquin Corridor Strategic Plan* (Caltrans 2008) formalizes the short- (3 to 5 years), medium- (6 to 10 years), and long-term (11 to 25 years) vision for passenger rail service through the Central Valley.
Fresno County[a]	
2011 Fresno Forward 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, 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 Study Guidelines	States that all intersections and roadway segments will operate at a 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.
[a] Fresno COG has established LOS D as the minimum system wide LOS traffic standard for Fresno County.	
Kings County	
Kings County Association of Governments 2011 Regional Transportation Plan (KCAG 2010)	Provides a vision for transportation in Kings County through 2035.
Kings County General Plan (Amended 1997)	The General Plan establishes policies and goals to ensure the efficient movement of people and goods, accommodate land uses, and improve air quality. The plan identifies a standard of LOS D for all intersections within the county.

Table 3.2-1
Regional and Local Plans and Policies

Policy Title	Summary
City of Hanford General Plan Updated (2002)	The General Plan establishes policies and goals to maintain a circulation system that is consistent with land uses and is safe and efficient for vehicles as well as bicycles and pedestrians. The Plan also seeks to provide adequate parking, encourage alternative means of transportation, and contribute towards air quality improvements. The plan has established LOS C as the general standard for street and highway improvements, with a peak hour LOS of D, or better, where physical constraints exist.
Kern County	
Kern Council of Governments Regional Transportation Plan (Kern COG 2010)	Specifies how approximately $5.3 billion in anticipated federal, state, and local transportation funds will be spent in Kern County during the next 25 years. Includes approximately $112 million in transit-oriented projects primarily to improve bus service in the Bakersfield Metropolitan Area and other parts of the county.
Kern County Congestion Management Plan	The CMP includes performance measures to evaluate system performance and promotes alternative transportation strategies and consistency between land use decisions and regional transportation planning. The plan has established LOS E as the minimum system wide LOS traffic standard.
Kern County General Plan (2009)	The General Plan established policies and goals to make sure transportation facilities are provided to support planned development and avoid traffic degradation, provide mobility to all users, accommodate planned land use, reduce environmental impacts without reducing quality of life, and coordinate with Caltrans and Kern County cities. The plan established a standard of LOS D for all roads within the county.
Metropolitan Bakersfield General Plan (City of Bakersfield and Kern County 2007)	The plan includes policy and goals to provide a safe and efficient street and highway system for all people and goods, promote alternative transportation, minimize the impacts of truck traffic, provide streets that create a positive image of the city, and support designated land uses. The City has designated LOS C as the standard for intersections and roadway segments.
Tulare County	
Tulare County Association of Governments 2011 Transportation Plan (TCAG 2007)	Provides a vision for transportation in Tulare County through 2035

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, Road Crossings. Information on railroad modifications, crossings, and closures as a result of the proposed HST Alternatives is presented in Appendix 2-B, Railroad Crossings. 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.

A. TRAFFIC OPERATION 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 (Caltrans 2010a). 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: Transportation Research Board (HCM) 2000.		

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 4 seconds per signal phase.[1] In downtown areas, high bus and

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

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 don't 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.
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 Definition 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.	

B. 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 approximately 10 years and would not reach full operation for approximately 25 years, use of only existing conditions as a baseline for traffic LOS impacts would be misleading. 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 that existing traffic conditions will remain perfectly unchanged over the next 10 to 25 years. For example, as stated in Section 3.2.5.A, Regional Transportation Plans (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 would reach a 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, 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 *Woodwark Park Homeowners Assn. 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. Impact results for both baselines (and mitigation where required) are presented in this section in summary format; further details (including regarding mitigation) are presented in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

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. Very detailed analysis results, including extensive LOS calculation tables, are contained in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

Mitigation for both baseline scenarios is not required, of course (mitigation for only one is required); the dual-baseline approach is just two 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 that existing traffic conditions will remain perfectly unchanged over the next 10 to 25 years. Accordingly, mitigation for the future-plus-Project impact scenario would be more appropriate.

The analysis of traffic impacts involved identification of study areas and consultation with local and regional transportation agencies, collection of data, quantitative modeling of existing and future traffic conditions, evaluation of the modeling results with respect to changes in levels of service, and identification of potential measures that would mitigate or otherwise improve future traffic operating conditions.

First, the configuration of the study area roadways and intersections was inventoried to define the existing geometry (e.g., number of through and turning lanes) and traffic controls (e.g.,

signals, stop signs, or no restrictions). Traffic counts were conducted in November 2009 to collect turning movement volumes during the peak-hour traffic periods (generally 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m.). Using the traffic counts/volumes and the configuration of the intersections, Synchro software was used to estimate the intersection delay and level of service. V/C ratio was used to estimate the level of service for the roadway segments.

The forecasts of future traffic growth and changes in travel patterns were estimated using regional travel demand models, using factors including regional and local population forecasts, employment, and trip generation and distribution. These future travel forecasts were completed for the year 2035 without the HST (No Project), and with the train system in operation (Plus Project). Traffic growth from the implementation of the project was projected based on the modeling performed by Cambridge Systematics. The 2035 study year represents long-term cumulative growth conditions approximately 15 years following the estimated start of operations. The daily forecasted trips at each of the stations were used to determine how many station-related trips would occur during the peak hour.

It is important to note that in accurately predicting future expected 2035 conditions, Fresno, Kings, Tulare, and Kern 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 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 BSNF Alternative, Corcoran Elevated and Corcoran Bypass alternatives, the Allensworth Bypass, Wasco-Shafter Bypass, and Bakersfield South alternatives. This helped determine the current adequacy of the roads, and 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 project construction impacts caused by road closures, are evaluated only against existing conditions.

C. OPERATIONAL/PROJECT IMPACTS

Vehicle Trip Generation at the Stations

The forecasted daily trips to/from each of the stations were distributed on the transportation network based on the results of the travel demand model and access to and from the proposed station areas. As with the existing conditions analysis, the Synchro software was used to define the future traffic operating conditions on study area roads and intersections for level of service and delay for the 2035 No Project and 2035 Plus Project conditions. The results provided the change (or no change) in operating conditions (both as compared to existing conditions and as compared to 2035 No Project conditions) used to determine the severity of the project impact. Trip generation estimated that 15% of the total daily trips would occur during the peak hour. Table 3.2-5 summarizes the daily, AM peak hour, and PM peak-hour vehicle trips generated by the proposed HST stations.

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
Fresno	4,370	456	196	652	196	456	652
Kings/Tulare	1,730	181	77	258	77	181	258
Bakersfield	4,590	479	205	684	205	479	684
Source: Cambridge Systematics 2007.							

Vehicle Trip Generation at the Heavy Maintenance Facility Sites

Trip generation for the Heavy Maintenance Facility (HMF) sites was based on the estimated number of employees, work shifts and parking requirements for the proposed facility. It is projected that approximately 1,500 jobs with 24/7 operations and 3 shifts would be generated at the proposed HMF sites. It is projected that each HMF site would generate approximately 3,000 daily trips with approximately 300 trips occurring during the AM and PM peak hours. Roadway segment analysis to evaluate the impacts of the trips generated from the proposed HMF sites was conducted. The *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011) provides more information on the HMF trip generation.

D. METHODS FOR EVALUATING IMPACTS UNDER NEPA

Pursuant to Council on Environmental Quality 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. The severity of the effect is examined in terms of the type, quality, and sensitivity of the resource involved; the location and extent of the effect; the duration of the effect (short- or long-term) and other consideration of context. Intensity means the degree or magnitude of a potential adverse effect where the effect is determined to be negligible, moderate, or substantial. For transportation, the terms are defined as follows:

A negligible impact on transportation is defined as a worsening in transportation service levels that is measureable, but not perceptible to the transportation system user. A moderate impact on transportation is defined as a worsening in transportation service levels that is measurable and perceptible to the transportation service user. A substantial impact on transportation is defined as an adverse effect on transportation service levels.

E. CEQA SIGNIFICANCE CRITERIA

Operational Phase

The traffic impact criteria used in evaluating traffic LOS[2] for roadway segments, signalized and unsignalized intersections during the project operation phase are presented below.

[2] LOS analysis is conducted for traffic in the study area affected by project construction and operations of the HST project. Construction impacts are based on a worst-case assessment, 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. Impacts from project construction focus on safety and access during construction.

For roadway segments, the significance criteria are based on the change in V/C ratio, 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 segments 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 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.
- 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 for the worst approach or movement at an intersection by 5 seconds or more, and if the intersection satisfies one or more traffic signal warrants[3] for more than one hour of the day.

The project also would have a significant effect on the environment if it would do any of 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 would 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] Traffic signal warrants define minimum conditions under which signal installation may be justified.

F. STUDY AREA FOR ANALYSIS

The alternatives have the greatest potential to have long-term impacts to traffic at and near the proposed stations, which would attract and concentrate traffic that is entering or exiting the station parking lots and drop-off areas. Therefore, the primary study area for traffic analysis consists of the potentially affected intersections and roadways surrounding each of the three proposed station sites, as identified in the figures in this section. The study areas for the analysis were defined for each of the station area sites in consultation with representatives at the public works and transportation planning agencies for Kings, Tulare, and Kings counties; the cities of Fresno and Bakersfield; and Caltrans (District 6). Traffic around the HMF sites also could be affected by the project, so the study area also includes the vicinity of the HMFs.

The extent of each station study area was established by considering the potential for impacts on roadway segments and at intersections from new station-related traffic. Between stations, the HST corridor would cross most local roadways on separated grade or elevated tracks, allowing for continued passage of vehicles, bicycles, and pedestrians, and avoiding or minimizing traffic impacts. For the instances where alterations to the road network are proposed, local impacts on traffic were studied.

3.2.4 Affected Environment

This section describes the affected environment related to transportation. The greatest potential for project-related transportation impacts is associated with traffic around HST stations. Therefore, the study area is defined by three sub-areas where stations may be constructed. The existing conditions in the three station areas (Fresno, east of Hanford, and Bakersfield) 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 should be considered in the setting, and to identify impacts.

There is one applicable regional plan pertaining to transportation within the Fresno to Bakersfield Section study area; the San Joaquin Corridor Strategic Plan (Caltrans 2008).

A. REGIONAL TRANSPORTATION SYSTEM

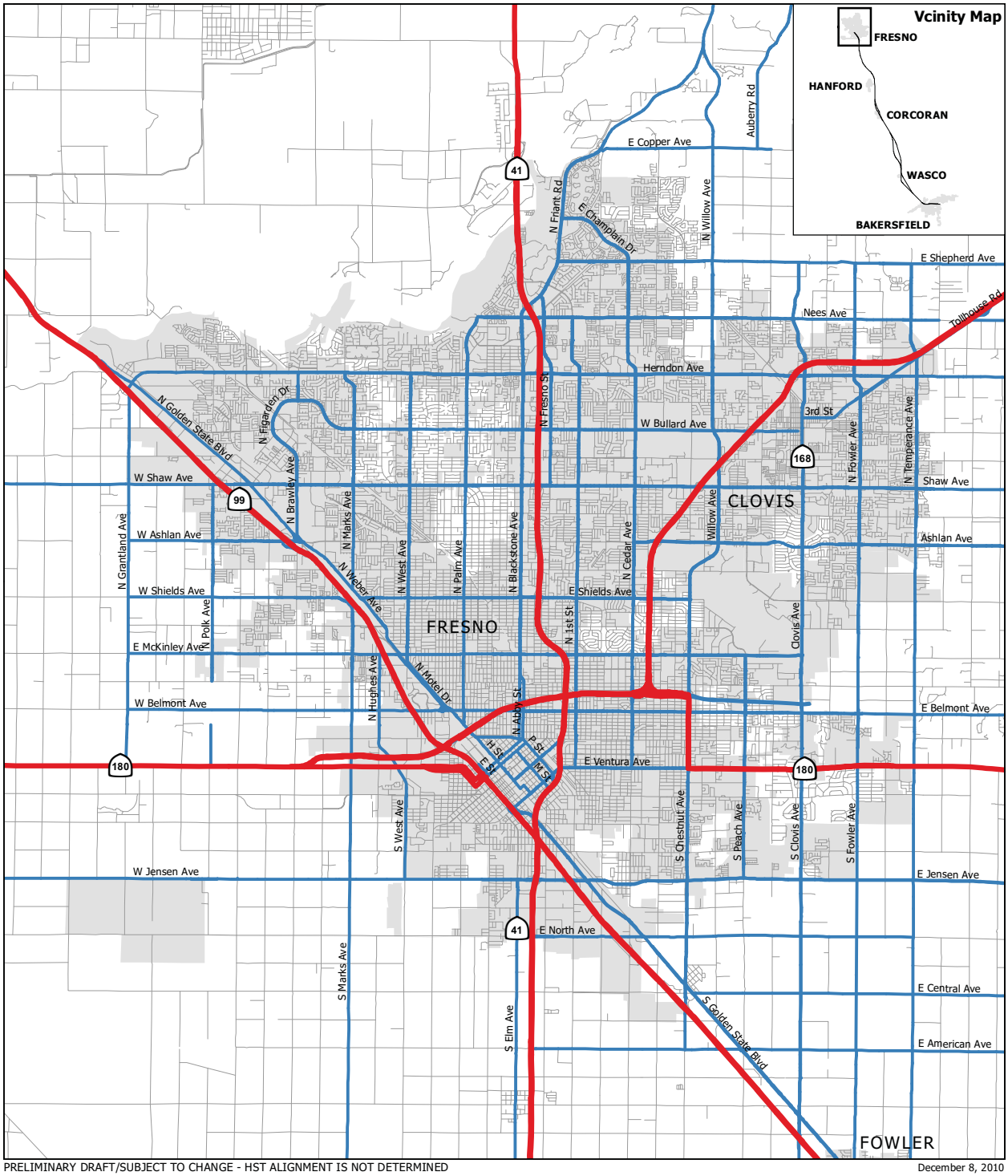
Chapter 1, Project Purpose, Need, and Project Objectives, records the deficits of the existing transportation conditions, including limitations of the connectivity between the Central Valley and other metropolitan areas of the state. The following subsections summarize the transportation network and facilities in the Fresno to Bakersfield 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 Fresno to Bakersfield corridor. Figures 3.2-1 through 3.2-4 illustrate state routes and other regionally important roadways in this corridor.

Air Travel

The Fresno Yosemite International Airport is 4.5 miles northeast of the proposed station site in downtown Fresno. With respect to the proposed HST service, the airport began providing commercial passenger flights as of July 2010 to Sacramento, Los Angeles, and San Diego. The Fresno Chandler Executive Airport is considered a “reliever” general aviation airport (noncommercial planes).



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
December 8, 2010
State route source: U.S. and Canada Streets Cartographic, Esri, 2003
Local road source: Council of Fresno County Govenrments 2011 RTP, 2011

N

0 1 2
Miles

0 2 4
Kilometers

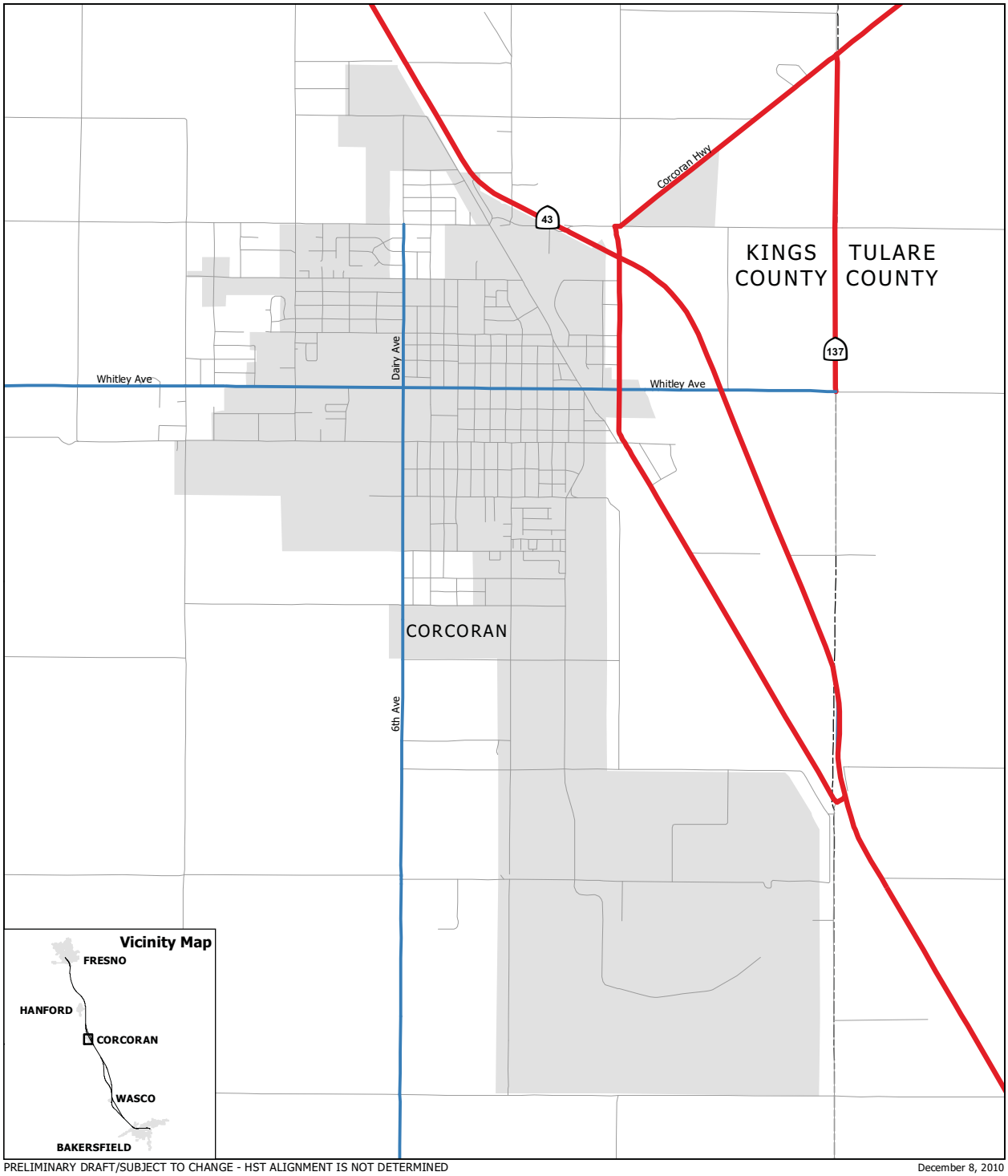
Regionally significant roadways

State route

Local road

Community/Urban area

Figure 3.2-1
Regionally significant roads in Fresno



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
State route source: U.S. and Canada Streets Cartographic, Esri, 2003
Local road source: 2011 Kings County RTP, 2011

December 8, 2010

N

0 0.25 0.5
Miles

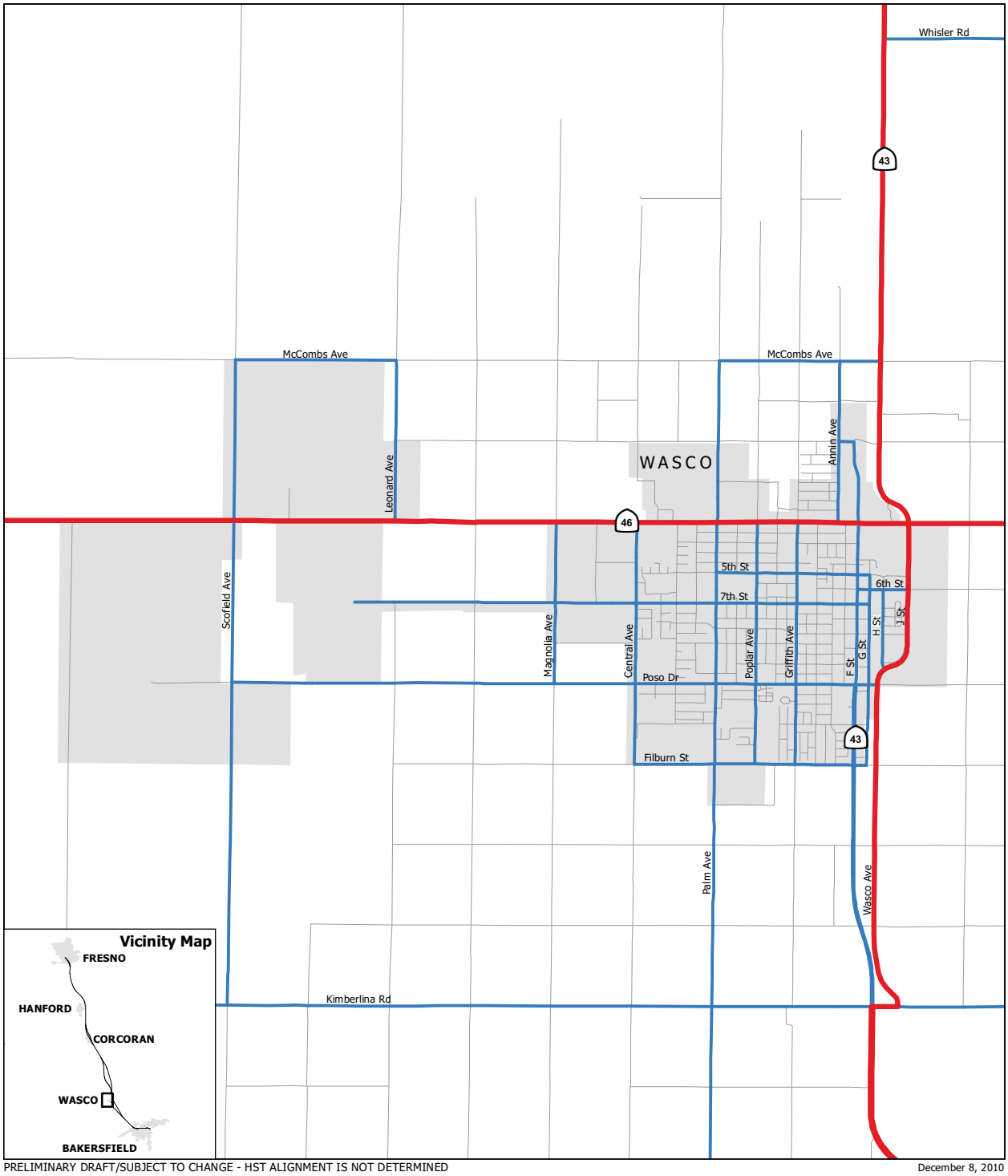
0 0.5 1
Kilometers

Regionally significant roadways

- State route
- Local road

- Community/Urban area
- County boundary

Figure 3.2-2
Regionally significant roads in Corcoran



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
State route source: U.S. and Canada Streets Cartographic, Esri, 2003
Local road source: Teleatlas and Caltrans, 1984-2006

December 8, 2010

N

0 0.5 1
Miles

0 1 2
Kilometers

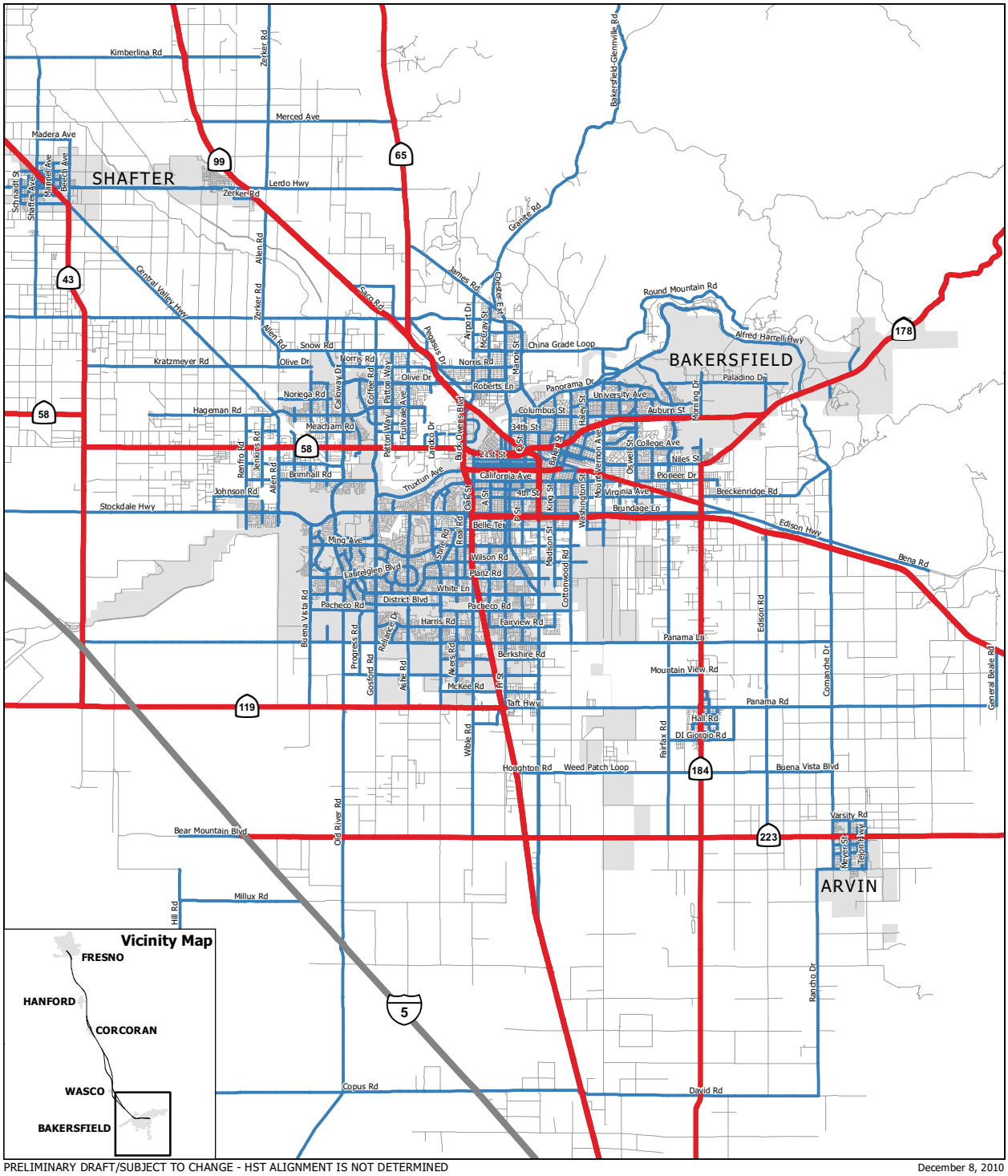
Regionally significant roadways

State route

Local road

Community/Urban area

Figure 3.2-3
Regionally significant roads in Wasco



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
State route source: U.S. and Canada Streets Cartographic, Esri, 2003
Local road source: Teleatlas and Caltrans, 1984-2006

December 8, 2010

N

0 2 4
Miles

0 4 8
Kilometers

Regioanlly significant roadways

- Interstate
- State route
- Local road

Community/Urban area

Figure 3.2-4
Regionally significant roads in Bakersfield

The Hanford Municipal Airport can accommodate business jets and general aviation but does not provide any commercial flight service. It is located approximately 1.5 miles southeast of the Hanford business district, off E. Hanford-Armona Road.

Bakersfield Meadows Field provides commercial service to San Francisco and Los Angeles. It is located about 4.6 miles northwest of the proposed Bakersfield HST station site. The Bakersfield Municipal Airport is a general aviation airport (noncommercial) located approximately 3.5 miles south of downtown Bakersfield.

Rail Freight

The BNSF Railway provides freight rail service to Fresno and Bakersfield, and the UPRR serves Fresno, Hanford, and Bakersfield. The San Joaquin Valley Railroad (State Railways Incorporated) operates a regional rail freight service between Tulare, Fresno, and Kings counties on 125 track miles of leased UPRR branch lines connecting outlying areas to mainline carriers (Caltrans et al. 2008). The frequency of freight service varies, but it has been reported in Fresno at 42 to 47 trains per day for the BNSF Railway, 25 to 30 per day for the UPRR, and 1 per day in Hanford for the San Joaquin Valley Railroad (Fresno COG 2010).

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.

- BNSF is the primary owner of the railroad right-of-way used within the San Joaquin Valley. The railroad owns 276 route miles of the San Joaquin Corridor from Bakersfield to Port Chicago. The railroad along this corridor is primarily single track, with 26.10 miles of double track divided among five segments, totaling 302.10 track miles.
- The UPRR owns a 49-mile section of the San Joaquin Corridor on UPRR track from Sacramento to Stockton, with 9.30 miles of double track in two segments, and a 39-mile section between Oakland and Port Chicago.
- The San Joaquin Valley Railroad (SJVRR) is one of several short-line railroad companies, and it operates about 207 miles of track on several lines in California's Central Valley/San Joaquin Valley, primarily near Fresno and Bakersfield. The SJVRR has trackage rights over the UPRR from Fresno – Goshen Junction – Famoso – Bakersfield – Algoso. The SJVRR also operates for the Tulare Valley Railroad (TVRR) from Calwa to Corcoran and Famoso. Currently, the SJVRR interchanges with the BNSF Railway at Fresno and Bakersfield, and with the Union Pacific at Fresno and Goshen Junction (Caltrans 2008b).

Passenger Rail Service

Amtrak's San Joaquin route runs several times a day between the San Francisco Bay Area, Sacramento, and Bakersfield, with bus connections to Southern California. Other stops include Stockton, Modesto, Merced, Martinez, and Fresno. It is possible to use the San Joaquin line to connect to other destinations. The Bakersfield station provides connections to Santa Barbara, Los Angeles, Las Vegas, and Palm Springs. 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 (Caltrans 2008b).

Intercity Passenger Bus Service

The primary bus service in the region is Greyhound, which provides service to locations nationwide. Greyhound-Trailways also provides charter service to Yosemite Valley. Transportes InterCalifornias provides additional regional bus service in the Fresno area. This service provides daily round trip service from Fresno to Stockton, San Jose, and Los Angeles with connecting services onward to Santa Ana, San Ysidro, and Tijuana. Certain areas of the region are also served by Orange Belt Stages and Airport Bus of Bakersfield, which serves areas between Bakersfield and Los Angeles.

B. FRESNO STATION AREA

This section discusses existing transportation conditions around the proposed Fresno station in more detail than the previous regional discussion because of the potential changes in local traffic conditions related to a downtown HST station.

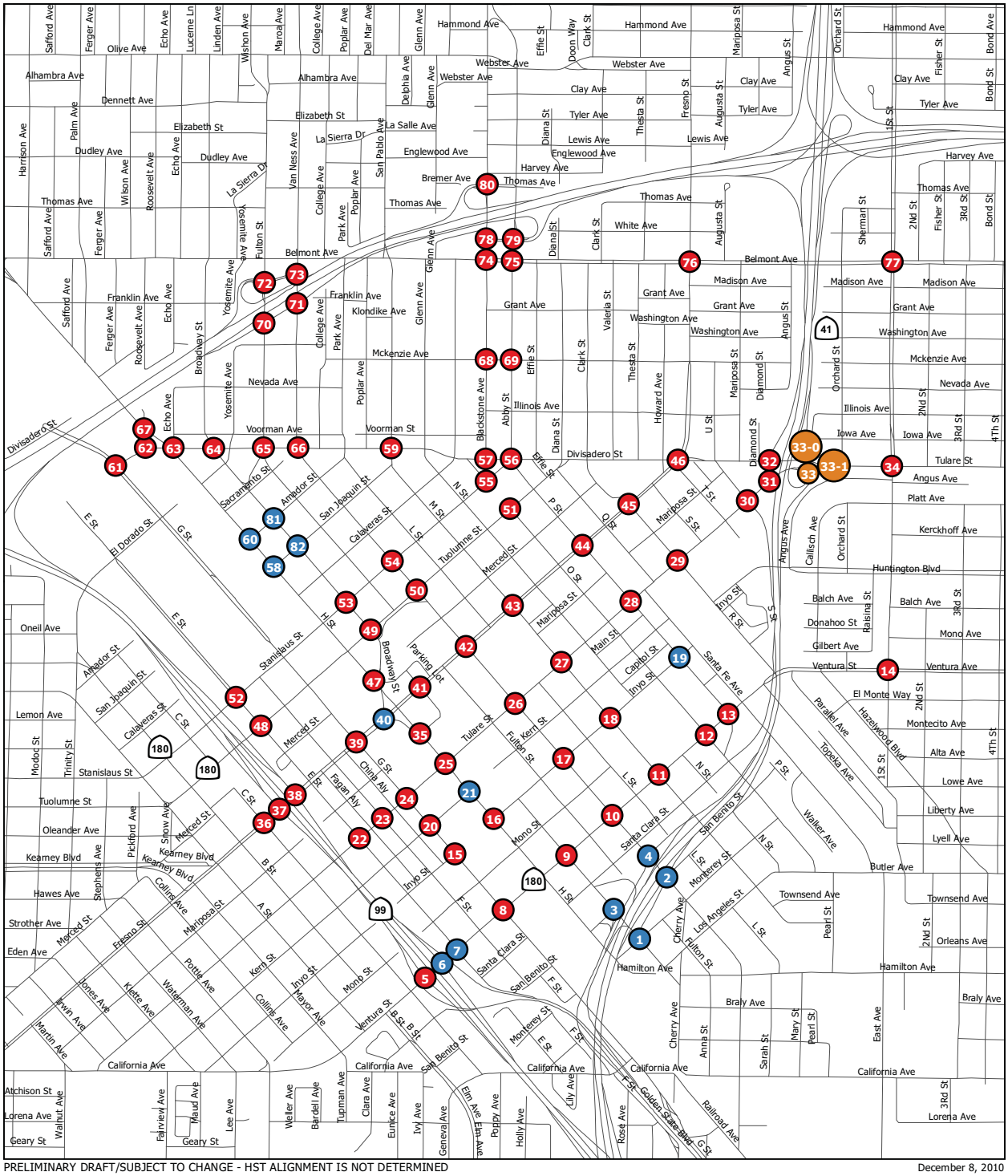
Highways and Roadways

The proposed Fresno HST alternative station sites are located in the area bounded by Merced, Santa Clara Street to the southeast, G, and H streets. The study area is regionally served by State Route (SR) 41, SR 99, and SR 180, and locally by a connecting grid pattern of expressways, arterials, collector roads, and local roads.

There are 41 roadway segments in the vicinity of the Fresno HST station. Figure 3.2-5 shows the study intersections in the area, Figure 3.2-6 shows the existing roadway designations, and Figure 3.2-7 shows the average daily traffic (ADT), number of lanes, and speed for these roadway segments. The methodology explained in Section 3.2.3 was used to evaluate the existing operating conditions for the study area's roads, and determined that all 41 roadway segments currently operate at LOS D or better except for the roadway segment of Tulare Street between SR 41 Ramps and N. First Street (LOS F). More details on LOS analysis for roadway segments are included in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

Intersections

There are 104 intersections in the vicinity of the Fresno HST Station study area, as shown on Figure 3.2-5. Figure 3.2-8 shows the existing intersection operating conditions in terms of level of service. The methodology explained in Section 3.2.3 was used to evaluate the existing operating conditions for the study area's intersections. With the exception of four intersections shown in Table 3.2-6, the 104 study area intersections currently operate at LOS D or better. More details on LOS analysis at the study intersections are included in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

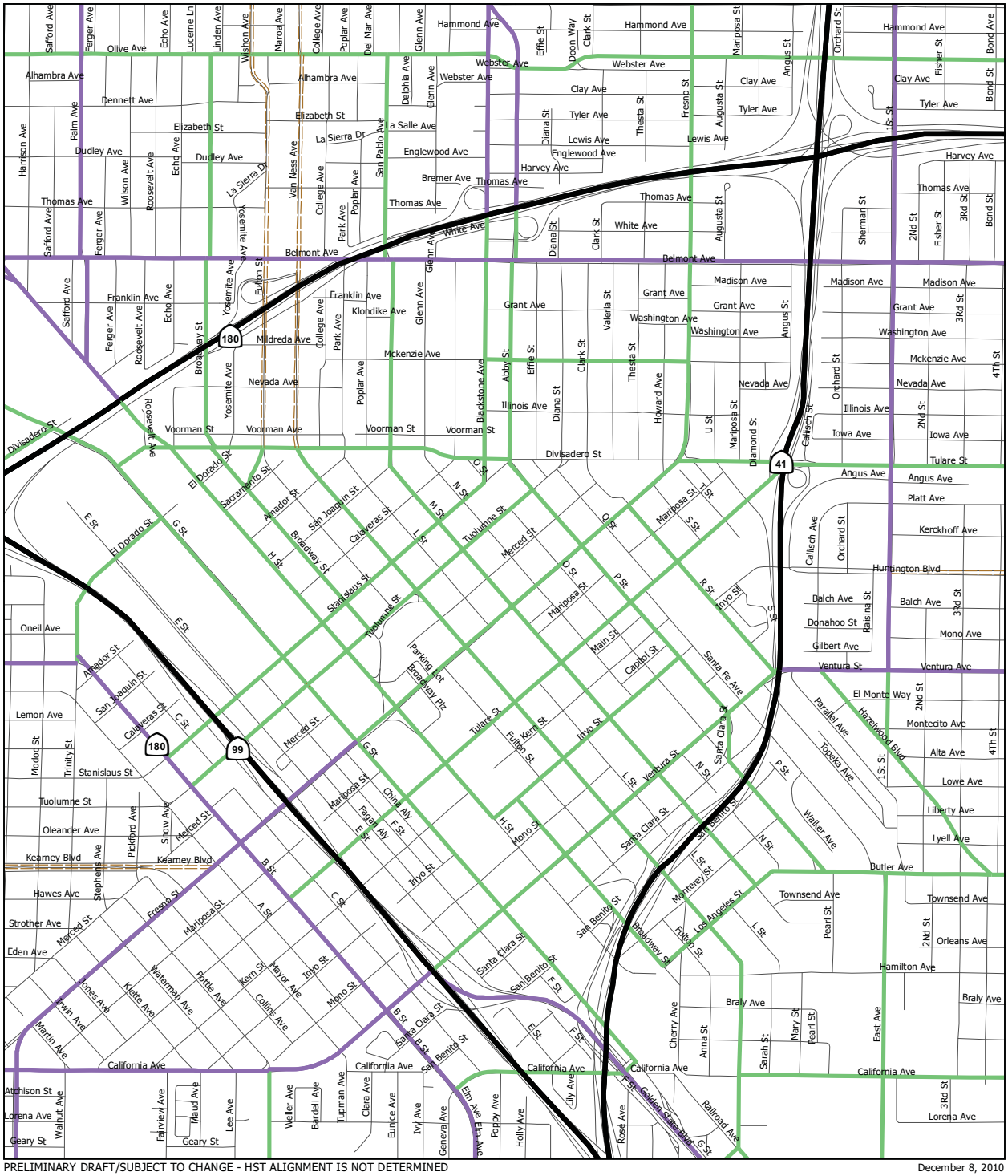


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

December 8, 2010

Source: URS, 2010

Figure 3.2-5
Study intersections - Fresno Station area



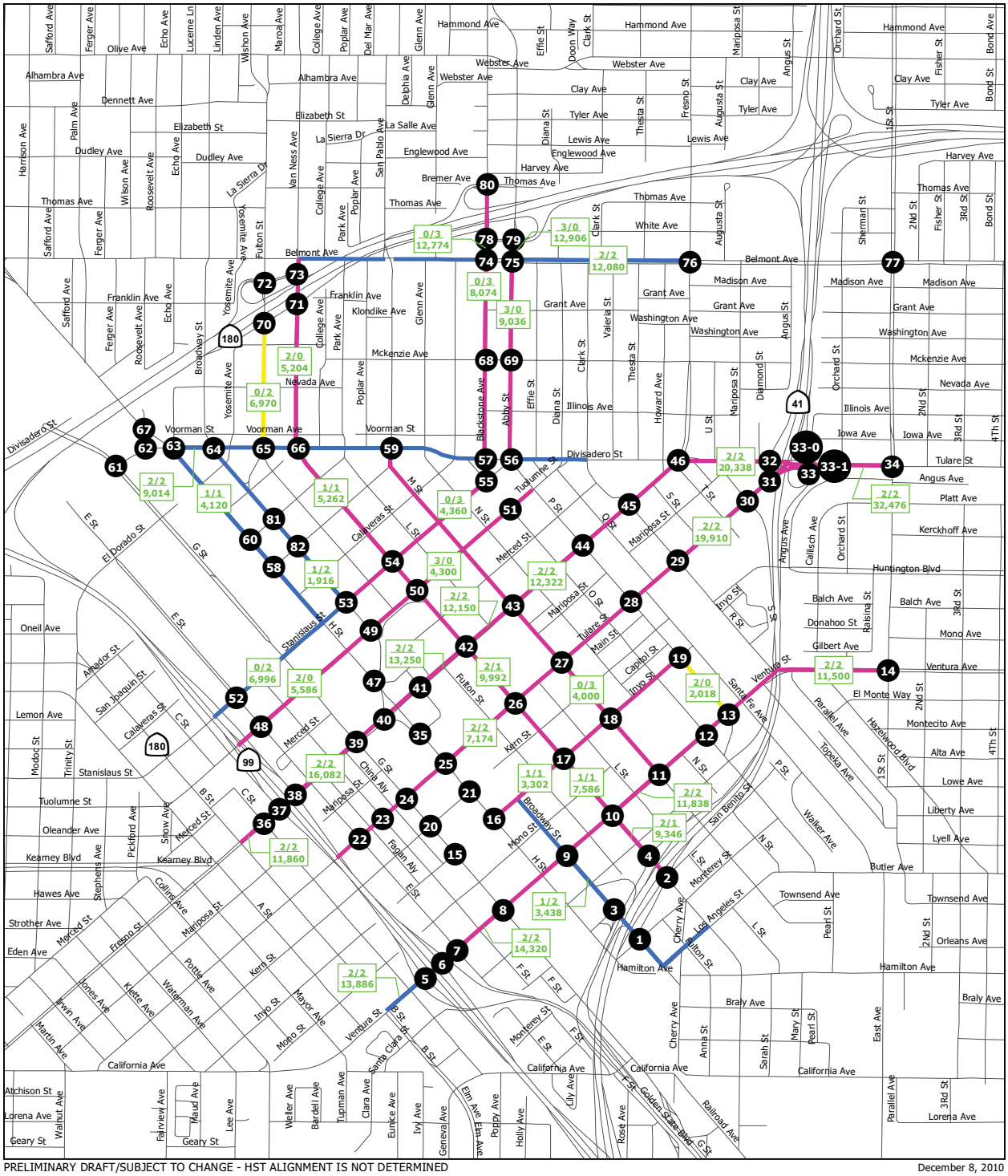
PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

December 8, 2010

Source: URS, 2010

Figure 3.2-6

Roadway classifications - Fresno Station area

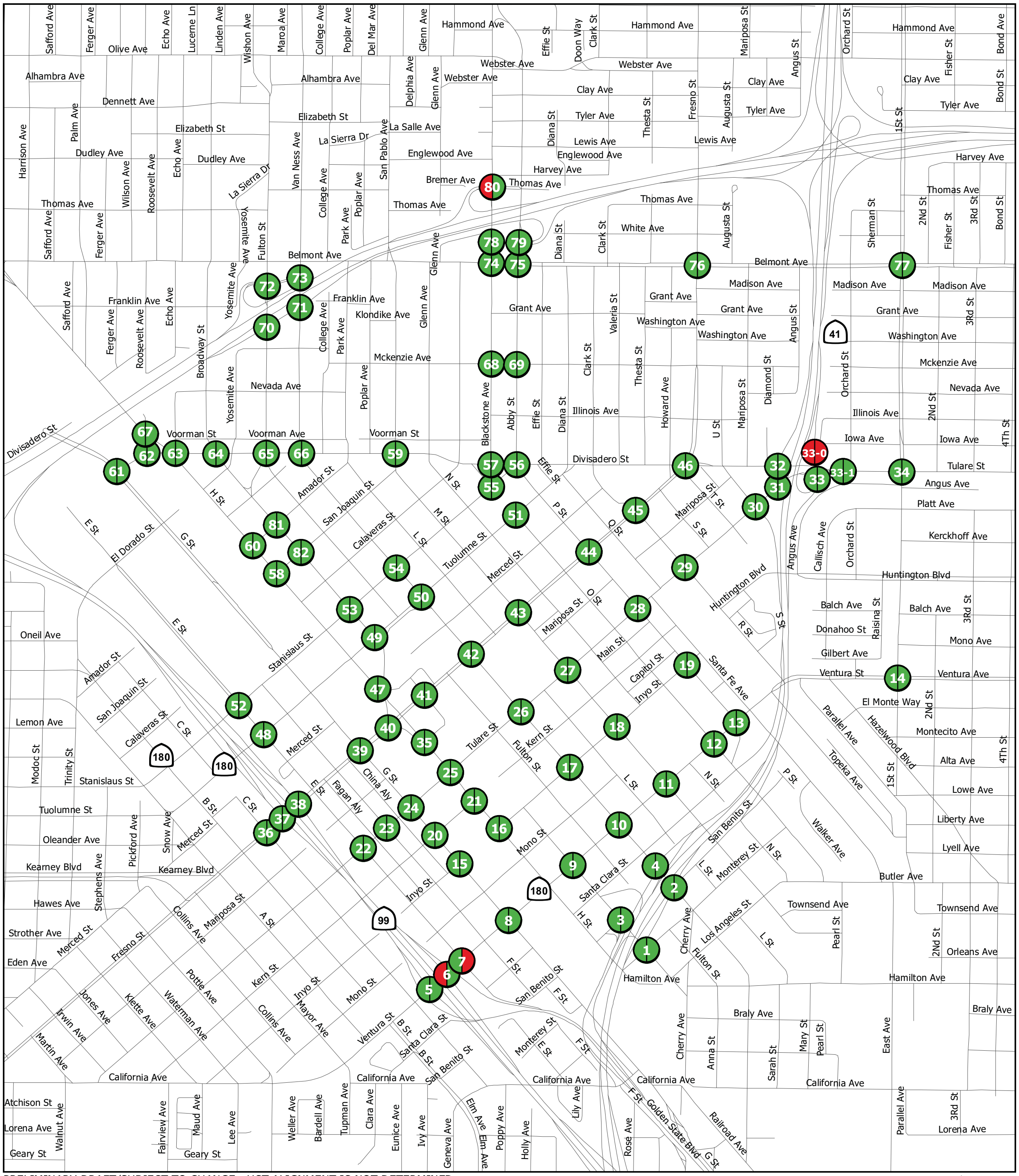


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

December 8, 2010

Source: URS, 2010

Figure 3.2-7
Average daily traffic, number of lanes, and speed - Fresno Station area



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

Source: URS, 2010

December 8, 2010

Level of service

AM|PM

A-D

E-F

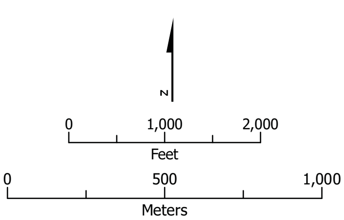


Figure 3.2-8

Intersection level of service - Fresno Station area

Table 3.2-6
Intersections Operating at LOS E or F near the Proposed Fresno Station

Int ID	Intersection	Control	Existing Conditions			
			AM Peak		PM Peak	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS
6	SR 99 Northbound Ramps/Ventura Ave	One-way Stop	**> 50.0**	**F**	34.5	D
7	E St/Ventura Ave	Two-way Stop	32.1	D	**35.7**	**E**
33	Divisadero St/SR 41 Northbound Ramps/Tulare St	Signalized	**> 80.0**	**F**	**> 80.0**	**F**
80	N. Blackstone Ave/SR 180 Westbound Ramps	Signalized	**> 80.0**	**F**	**17.4**	**B**

Source: (Authority and FRA 2011).

Delay is in average delay per vehicle at signalized intersections and maximum average delay per vehicle at STOP controlled approaches

The Council of Fresno County Governments' *2007 Regional Transportation Plan* (RTP) is the applicable plan for future transportation improvements to the regional and local roadway system (Fresno COG 2007). The nearest project in the RTP is on H Street between Belmont Avenue and Ventura Street, which is identified for widening from 2 to 4 lanes.

Transit

The Fresno Area Express is the city of Fresno's transit line; it has 13 routes that serve the proposed HST station area, as shown in Table 3.2-7. The proposed station area is also served by the Greyhound bus line.

Table 3.2-7
City of Fresno Bus Routes and Weekday Service Frequency

Bus Routes – Fresno	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

Table 3.2-7
City of Fresno Bus Routes and Weekday Service Frequency

Bus Routes – Fresno	Weekday Service Frequency (Minutes)
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 2011).	

Non-Motorized Facilities

The city of Fresno's *Bicycle Master Plan* includes objectives to establish and promote an accessible bikeway system throughout the metropolitan area (City of Fresno 2010). Two existing bikeways are within 1 mile of the proposed Fresno HST 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 sites. Sidewalks are present on most of the streets in the vicinity of the station site alternatives.

Parking Facilities

There are 10 city-owned and operated parking lots and garages in the Fresno downtown area that provide event, monthly, and/or daily parking. There are approximately 4,700 parking spaces within these 10 lots and garages. Most are in the vicinity of H Street and Van Ness Avenue, approximately 0.5 mile or less from the proposed station sites.

C. KINGS/TULARE STATION AREA

This section discusses existing transportation conditions around the potential Kings/Tulare Station because of the potential changes in local traffic conditions generated by the HST station.

Highways and Roadways

The potential Kings/Tulare Regional Station site is located in rural agricultural lands 3 miles east of Hanford. The site is situated adjacent to the San Joaquin Valley Railroad and northeast of (and would be accessed from) the SR 43 and SR 198 interchange. SR 198 is two lanes in each direction west of SR 43, and one lane in each direction east of SR 43. SR 43 is one lane in each direction within the study area.

The Kings/Tulare Regional Station study area includes 13 roadway segments. Figure 3.2-9 shows the existing roadway designations for this area, and Figure 3.2-10 shows the average daily traffic

(ADT), number of lanes, and speed for these roadway segments. A summary of the roadway segments is included in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

Intersections

The Kings/Tulare Regional Station study area includes nine study intersections, as shown in Figure 3.2-11. Figure 3.2-12 shows the existing LOS for each intersection. Three of the nine intersections function at LOS E or F, as shown in Table 3.2-8. Summary of LOS analysis at the study intersections is included in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

Table 3.2-8
Intersections Operating at LOS E or F near the Proposed Kings/Tulare Station

Int ID	Intersection	Control	Existing Conditions			
			AM Peak		PM Peak	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS
4	7th St/SR 198	Two-way Stop	**> 50.0**	**F**	**> 50.0**	**F**
6	6th St/SR 198	Two-way Stop	**> 50.0**	**F**	**> 50.0**	**F**
7	2nd Ave/SR 198	Two-way Stop	29.6	D	**> 50.0**	**E**

Source: (Authority and FRA 2011).

Delay is in average delay per vehicle at signalized intersections and maximum average delay per vehicle at STOP controlled approaches

Transit

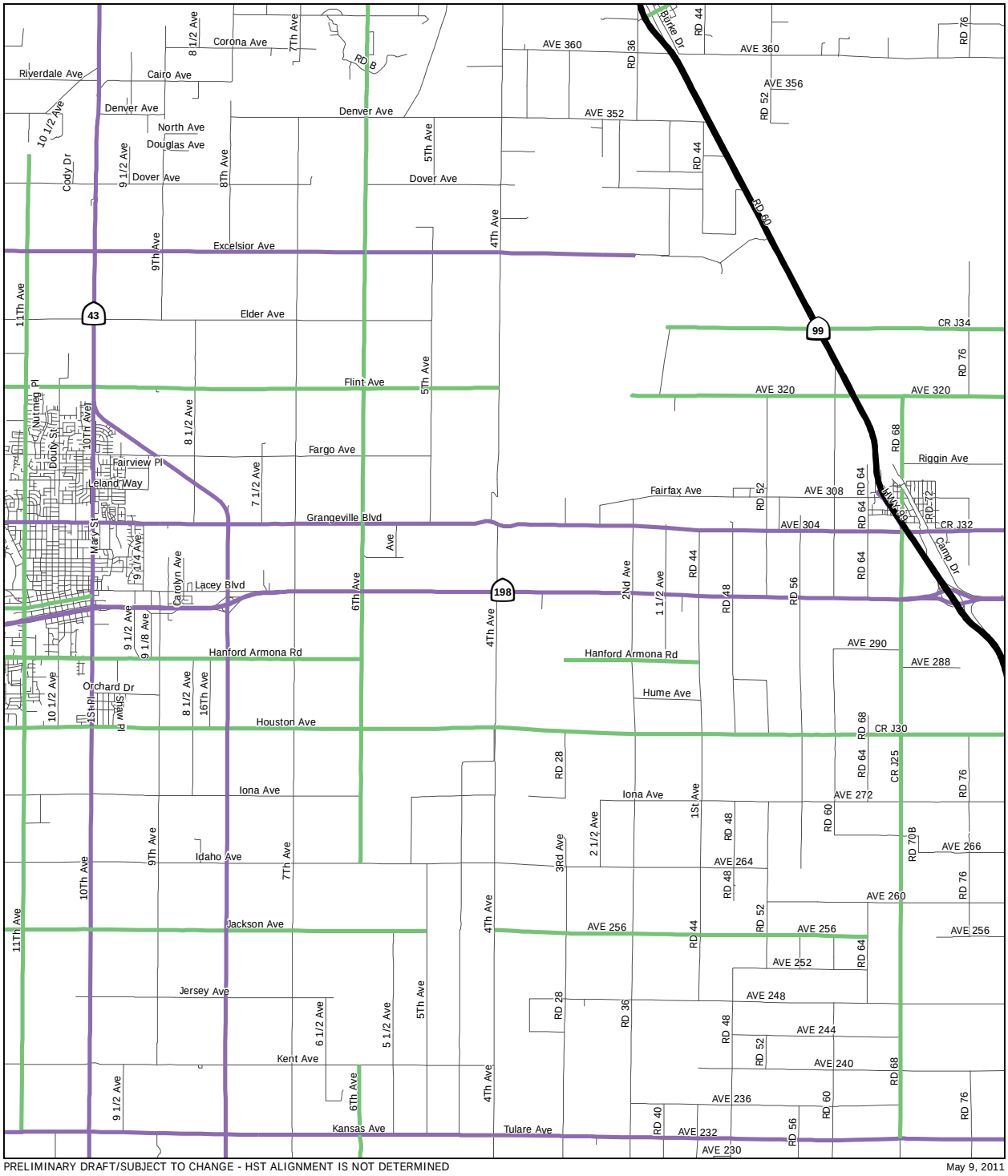
Kings Area Rural Transit (KART) operates an regional bus system with routes that begin and end at its intermodal transfer facility on 7th Street, just west of the Amtrak Hanford station. KART also operates the Hanford-Corcoran bus route that travels from the intermodal transfer facility to SR 43 (in the vicinity of the Kings/Tulare Regional Station area), and then south to Corcoran. Greyhound and Orange Belt Stages have limited bus service connecting to the intermodal facility.

Non-Motorized Facilities

The Kings/Tulare Regional Station study area, located northeast of the SR 198 and SR 43 interchange, is in a rural area with no existing bike or pedestrian facilities.

Parking Facilities

There are no existing parking facilities near the Kings/Tulare Regional Station study area.



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

May 9, 2011

Source: URS, 2010

Freeway

Arterial

Collector

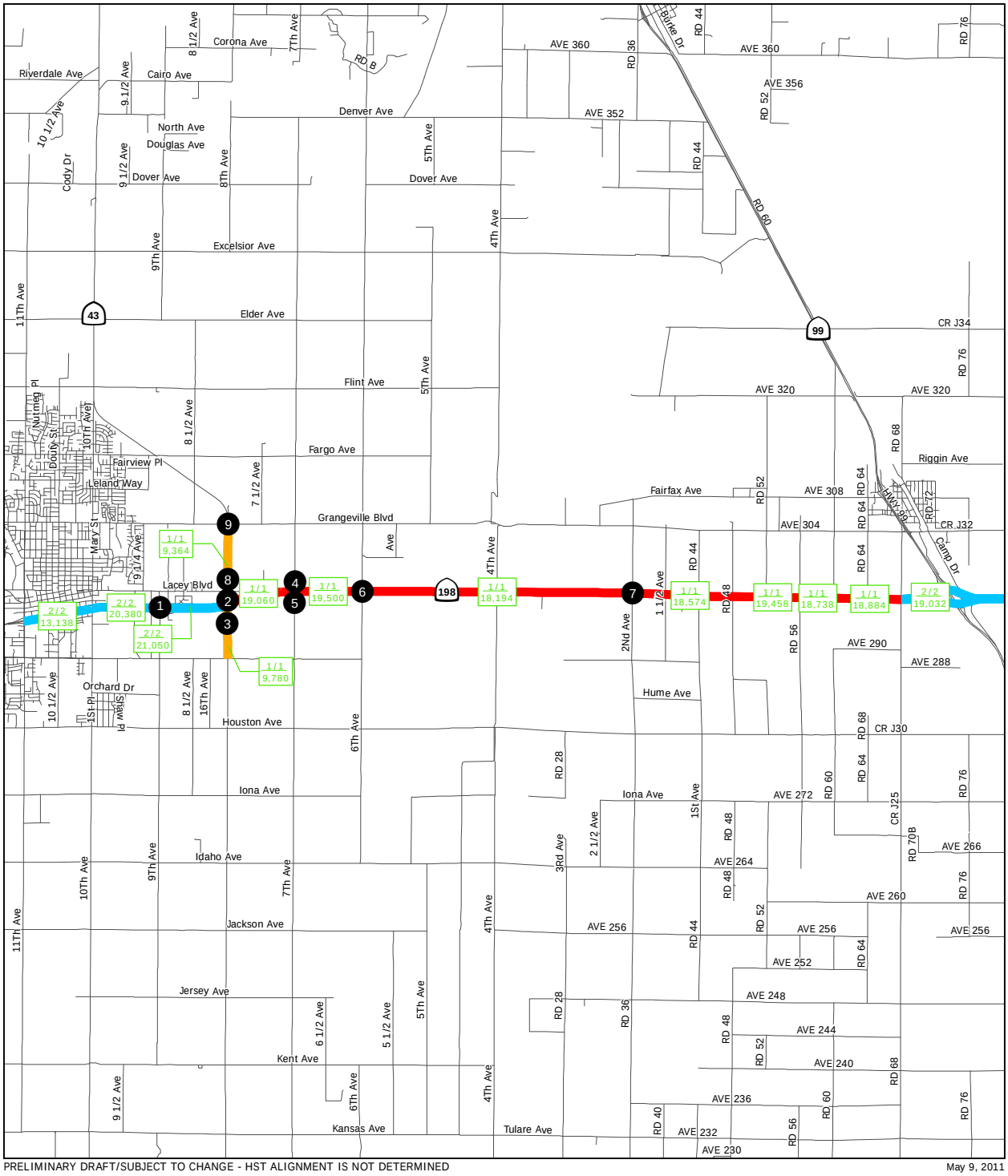
Local street

N

0 1 2
Miles

0 2 4
Kilometers

Figure 3.2-9
Roadway classifications - Kings/Tulare Station area

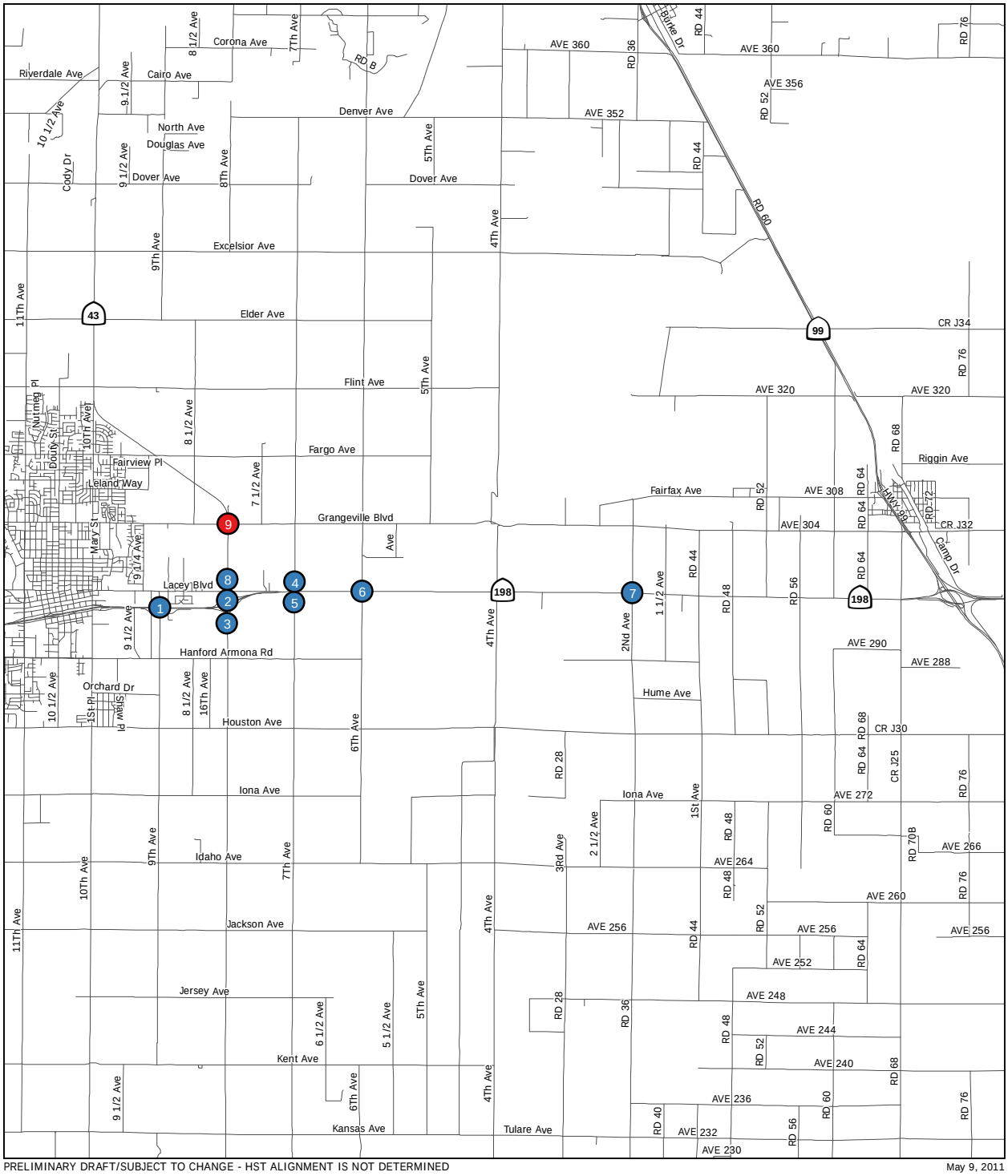


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

May 9, 2011

Source: URS, 2010

Figure 3.2-10
Average daily traffic, number of lanes, and speed - Kings/Tulare Station area



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

May 9, 2011

Source: URS, 2010

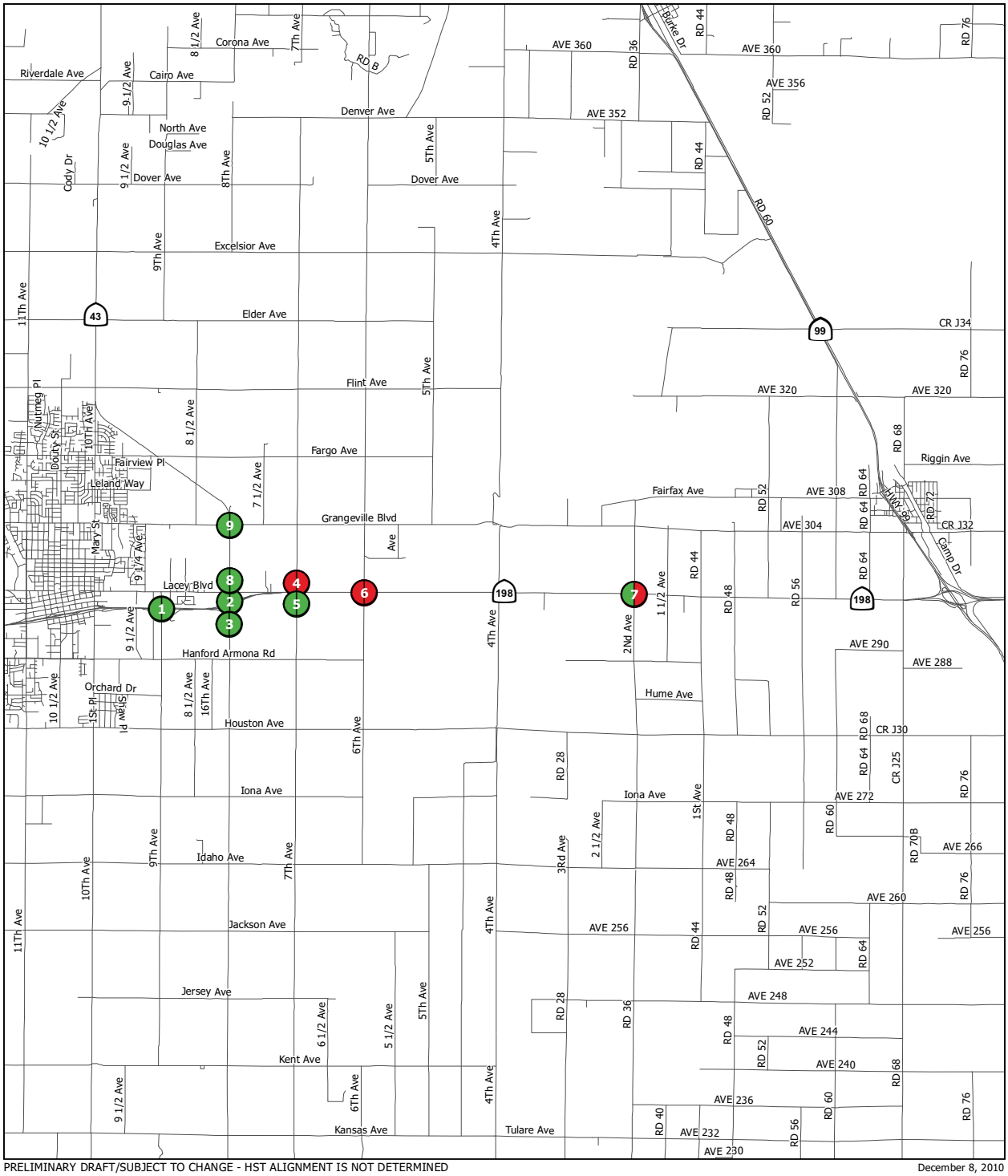
Signalized intersection

Unsignalized intersection

N

0 1 2
Miles
0 2 4
Kilometers

Figure 3.2-11
Study intersections - Kings/Tulare Station area



PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED
Source: URS, 2010

December 8, 2010

Level of service

AM|PM

A-D

E-F

N

0 1 2
Miles

0 2 4
Kilometers

Figure 3.2-12
Intersection level of service - Kings/Tulare Station area

D. BAKERSFIELD STATION AREA

This section discusses existing transportation conditions around the potential Bakersfield station because of the potential changes in local traffic conditions generated by the Downtown HST station.

Highways and Roadways

The general location of the Bakersfield Station site is west of Union Street, between Truxtun and California avenues. Each of these roadways has 2 to 3 lanes in each direction, generally with divided medians except near intersections. Union Street has an undercrossing at the BNSF Railway line. The site and vicinity include the Bakersfield Amtrak station and a BNSF freight service yard.

Several new freeway corridors are included in the *Metropolitan Bakersfield General Plan*, although these projects are not funded and may still require adoption of the corridors (City of Bakersfield and Kern County 2007). The planned freeways nearest to the proposed Bakersfield Station site, which may potentially cross the proposed BNSF Alignment, are the Crosstown Freeway (also called the Centennial Corridor), which would extend from SR 178 to SR 99; the Westside Parkway (a continuation of the Crosstown Freeway) from SR 99 to Interstate 5; and the widening of SR 58 from SR 99 to Cottonwood Road.

The Bakersfield Station study area includes 46 roadway segments. Figure 3.2-13 shows the existing roadway designations for the area; and Figure 3.2-14 shows the ADT, number of lanes, and speed for these roadway segments. All but five of the 46 roadway segments operate at LOS C or better. More details on LOS analysis of the roadway segments are included in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report (*Authority and FRA 2011).

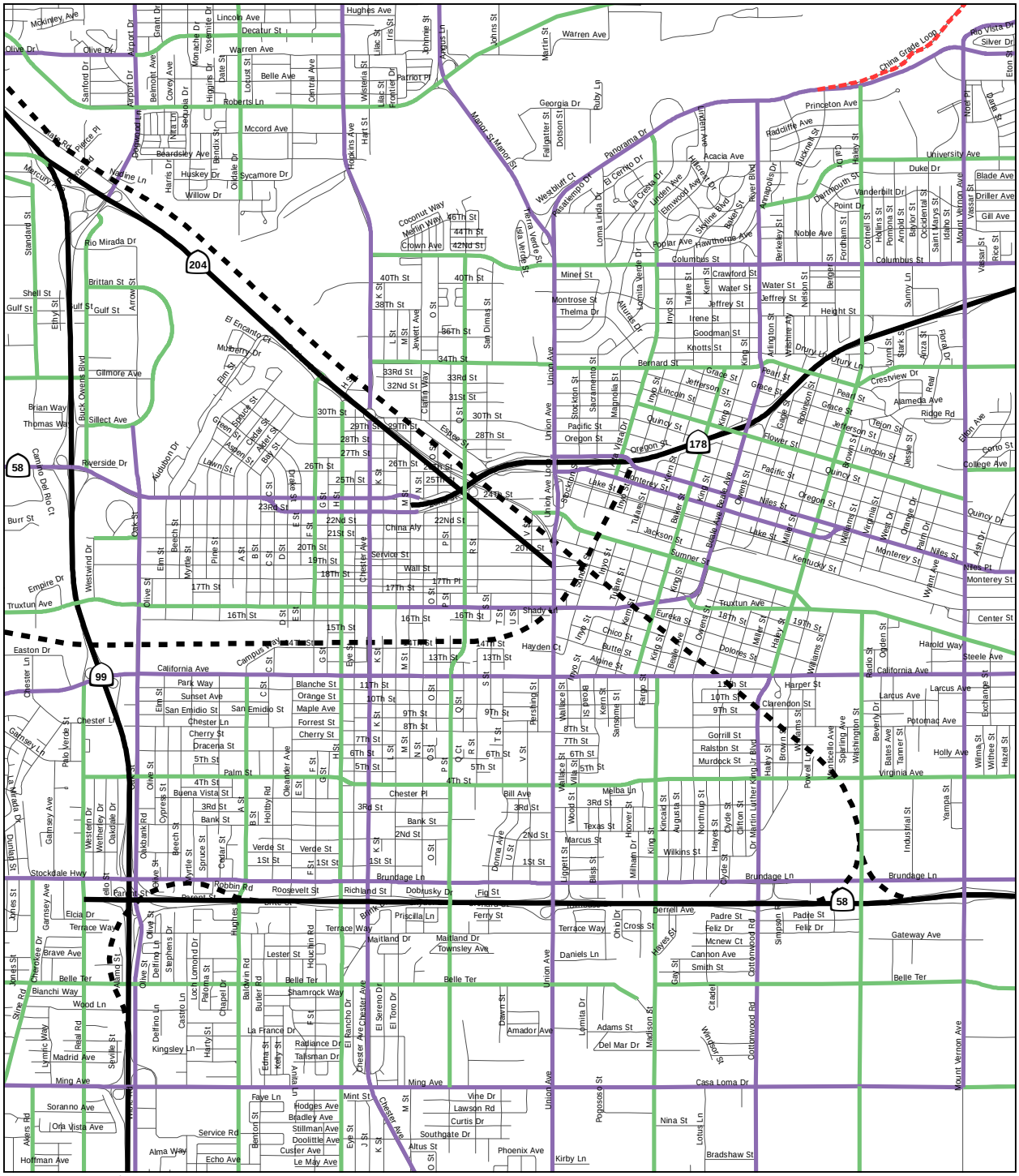
Intersections

The Bakersfield Station study area includes 67 intersections. Figure 3.2-15 shows the intersections analyzed in the Bakersfield Station area. Figure 3.2-16 shows the existing intersection operating conditions in terms of level of service. All but 10 of the intersections operate at LOS D or better, as shown in Table 3.2-9. More details on LOS analysis at the study intersections are included in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

Transit

Public transportation in metropolitan Bakersfield includes local buses, benef buses, Amtrak trains, and paratransit services. The largest local bus transit system operator is Golden Empire Transit (GET). GET operates 18 routes throughout the Metropolitan area and carries approximately 24,000 passengers per day. This amounts to 1% of total travel in the city of Bakersfield.

Intercity bus operators are Greyhound, Orange Belt Stages, Airport Bus of Bakersfield, and Kern County. Kern Regional Transit provides service between Bakersfield and rural communities, such as Lamont and the Kern River Valley, while the private carriers serve other major cities. Paratransit providers include the taxicab system and various social service agencies that provide specialized transportation to their clients.



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

May 9, 2011

Source: URS, 2010

Freeway

Freeway - planned

Arterial

Collector

Expressway

Local street

N

0 2,000 4,000

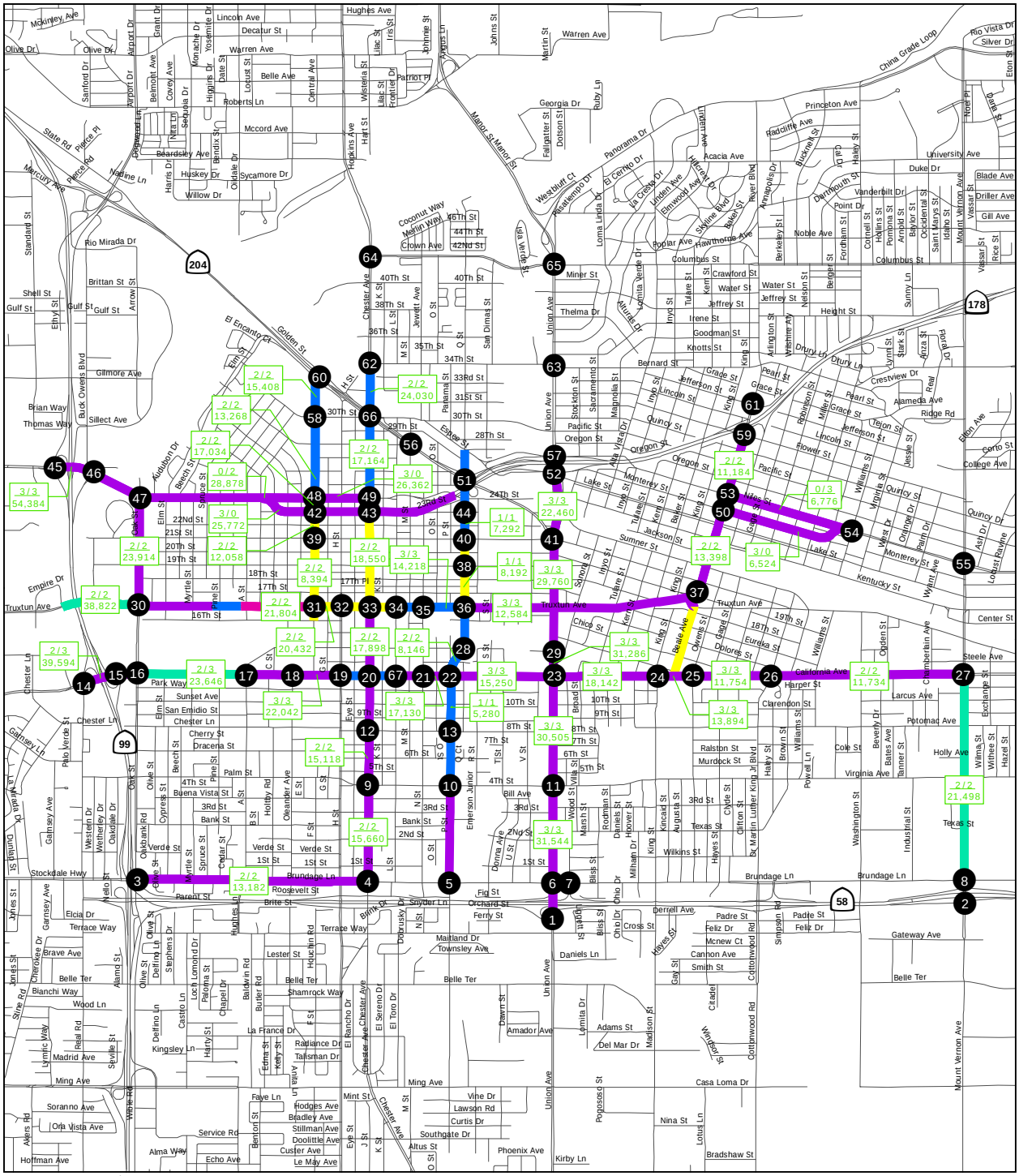
Feet

0 1,000 2,000

Meters

Figure 3.2-13

Roadway classifications - Bakersfield Station area

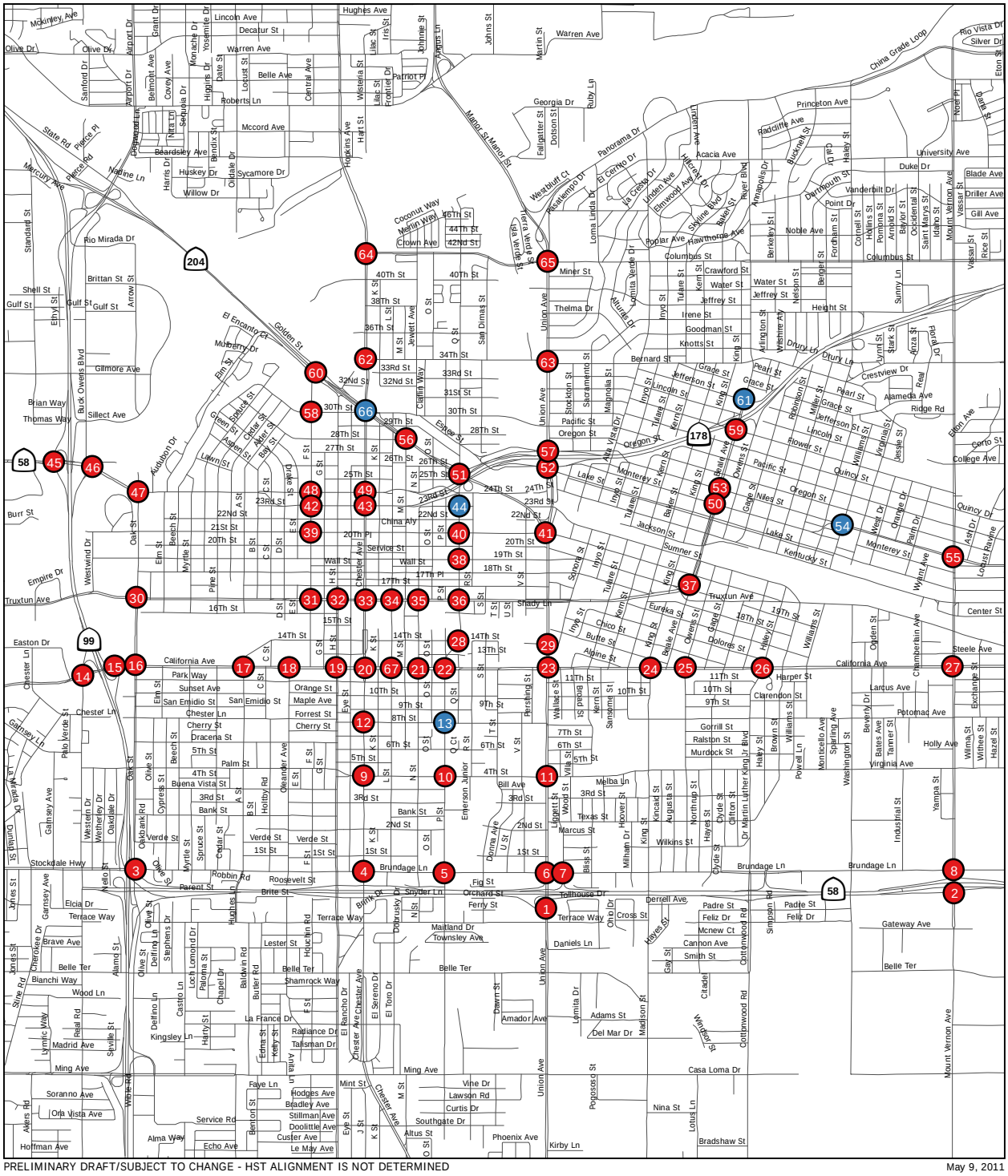


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

May 9, 2011

Source: URS, 2010

Figure 3.2-14
Average daily traffic, number of lanes, and speed - Bakersfield Station area



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

May 9, 2011

Source: URS, 2010

Signalized intersection

Unsignalized intersection

N

0 2,000 4,000

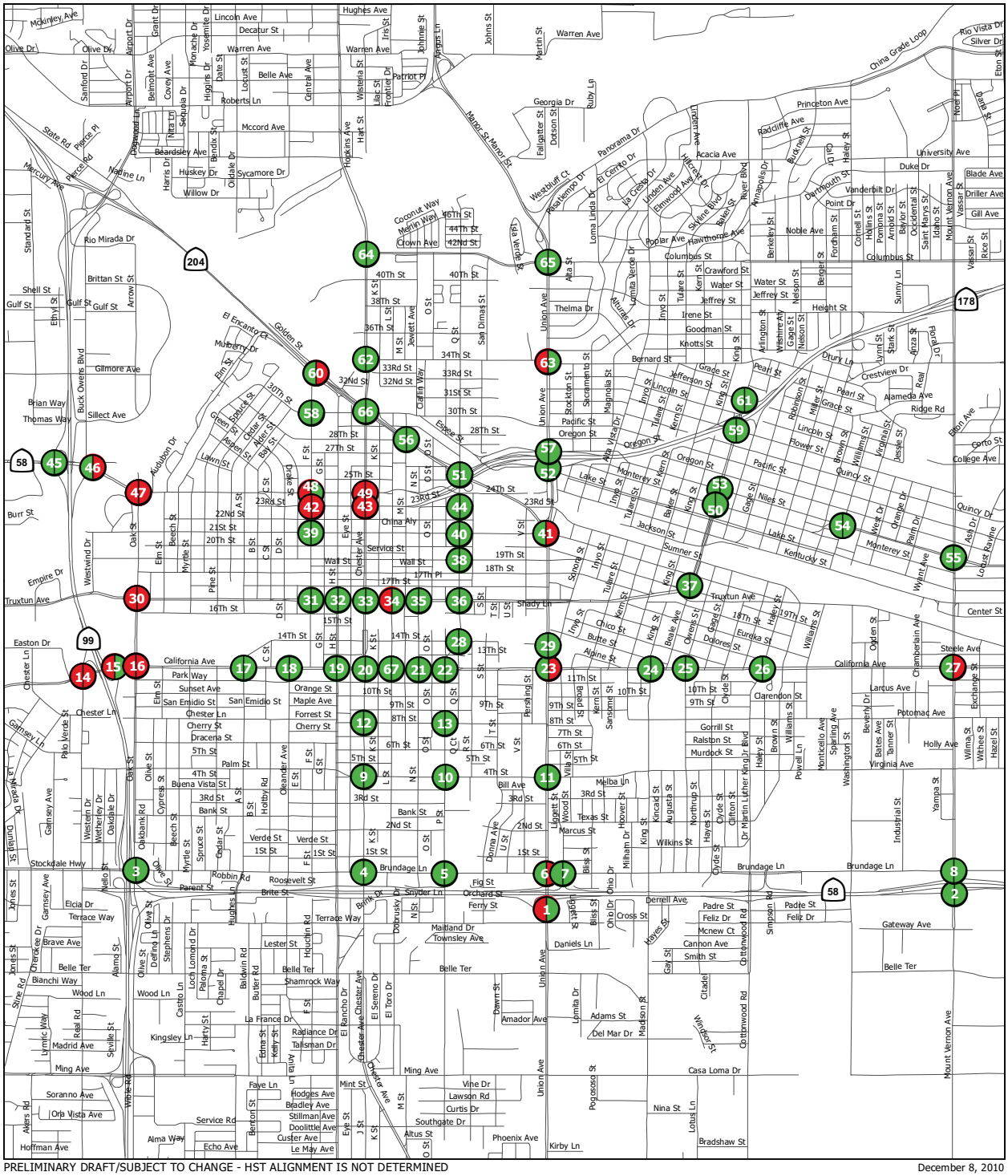
Feet

0 1,000 2,000

Meters

Figure 3.2-15

Study intersections - Bakersfield Station area



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

December 8, 2010

Source: URS, 2010

Level of service

AM|PM

A-C

D-F

0 1,000 2,000 Feet

0 500 1,000 Meters

Figure 3.2-16

Intersection level of service - Bakersfield Station area

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

Int ID	Intersection	Control	Existing Conditions			
			AM Peak		PM Peak	
			Delay (Seconds)	LOS	Delay (Seconds)	LOS
1	S. Union Ave/Eastbound SR 58 Ramps	Signalized	> 80.0	F	12.5	B
14	Real Rd/California Ave	Signalized	48.2	D	60.7	E
15	SR 99 Ramps/California Ave	Signalized	73.8	E	22.9	C
16	Oak St/California Ave	Signalized	75.2	E	63.5	E
30	Oak St/Truxtun Ave	Signalized	> 80.0	F	72.0	E
41	Union Ave/Golden State Ave/21st St	Signalized	25.8	C	> 80.0	F
43	Chester Ave/23rd St	Signalized	61.3	E	> 80.0	F
46	SR 178/ SR 99 Ramps/Buck Owens Blvd	Signalized	31.0	C	58.8	E
47	Oak St/ SR 178	Signalized	> 80.0	F	72.3	E
49	Chester Ave/24th St	Signalized	60.4	E	59.0	E

Source: (Authority and FRA 2011).

Delay is in average delay per vehicle at signalized intersections and maximum average delay per vehicle at STOP controlled approaches

E. GOLDEN EMPIRE TRANSIT DISTRICT

The City of Bakersfield operates the Golden Empire Transit District: this is the main bus line. The District was formed in 1973 and serves the Bakersfield metropolitan area: 160 square miles (414.4 square kilometers) with a population of 437,236. GET has an active fleet of 81 buses, plus 19 GET-A-Lift buses that are fueled by compressed natural gas, an alternative fuel that helps reduce pollution emissions. All buses are equipped with wheelchair lifts and bike racks.

Each weekday, approximately 24,000 citizens ride one of GET's 81 buses. The latest survey shows 56% of the riders have no other mode of transportation. Table 3.2-10 below illustrates the Bus Routes for the Bakersfield Transit System, GET (Golden Empire Transit District, 2009).

Table 3.2-10
Proposed Bakersfield HST station Bus Routes and Weekday Service Frequency

Bus Routes – Bakersfield	Frequency (min) Weekdays
Route 1 – Olive Dr./Bakersfield College	40
Route 2 – Chester Ave./Oildale	20
Route 3 – Downtown	30
Route 4 – Bakersfield College/Downtown	20
Route 5 – Bakersfield College/Valley Plaza	20
Route 6 – Valley Plaza/East Hills	60
Route 7 – Stockdale High/Kern Medical Center	30
Route 8 – Foothill High/Valley Plaza	30
Route 9 – Foothill/Half Moon	30
Route 16 – (replaced by Route 10)	40
Route 11 – Cal State/Bakersfield College	30
Route 12 – Westchester	45
Route 14 – Rosedale/Cal State	45
Route 15 – Mervyn's/Valley Plaza	60
Route 17 – Crosstown Express	30
Source: (Authority and FRA 2011).	

Non-Motorized Facilities

There are no existing bike facilities in the immediate vicinity of the Bakersfield station sites. The nearest existing or planned bike lanes are on Chester Avenue, P and Q streets, and 21st Street (City of Bakersfield and Kern County 2010). Pedestrian sidewalks are present on Truxtun, Union, and California avenues in the vicinity of the proposed station sites.

Parking Facilities

There are four parking lots located in the vicinity of the proposed station sites. All four parking lots are located approximately 0.5 mile, or less, from the proposed station sites.

F. HEAVY MAINTENANCE FACILITY ALTERNATIVES

Traffic volumes along the study roadway segments around each of the proposed HMF sites were collected from the travel demand model. Based on these traffic volumes, LOS was calculated for the roadway segments. Full information is provided in Section 5.4.4.2 of the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

The results of the analysis indicated that three intersections operate at LOS E or F under existing conditions. Of these, all three intersections are in the vicinity of the proposed Fresno HMF site.

Table 3.2-11 summarizes the LOS and delay information for these locations. All other intersections and road segments in the vicinity of proposed HMF locations operate under existing conditions 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

Int ID	Intersection	Intersection Control	Existing Conditions			
			AM Peak Hour		PM Peak Hour	
			LOS	Delay (seconds)	LOS	Delay (seconds)
Fresno Works–Fresno HMF						
2	SR 99 SB off-ramp/ E Central Avenue	Unsignalized[a]	F	**197.2**	D	25.1
4	SR 99 NB off-ramp/ S. Chestnut Avenue	Unsignalized[a]	F	371.9	C	20.9
11	Clovis Avenue / SR 99 SB on-ramp	Unsignalized[a]	E	46.9	E	37.9

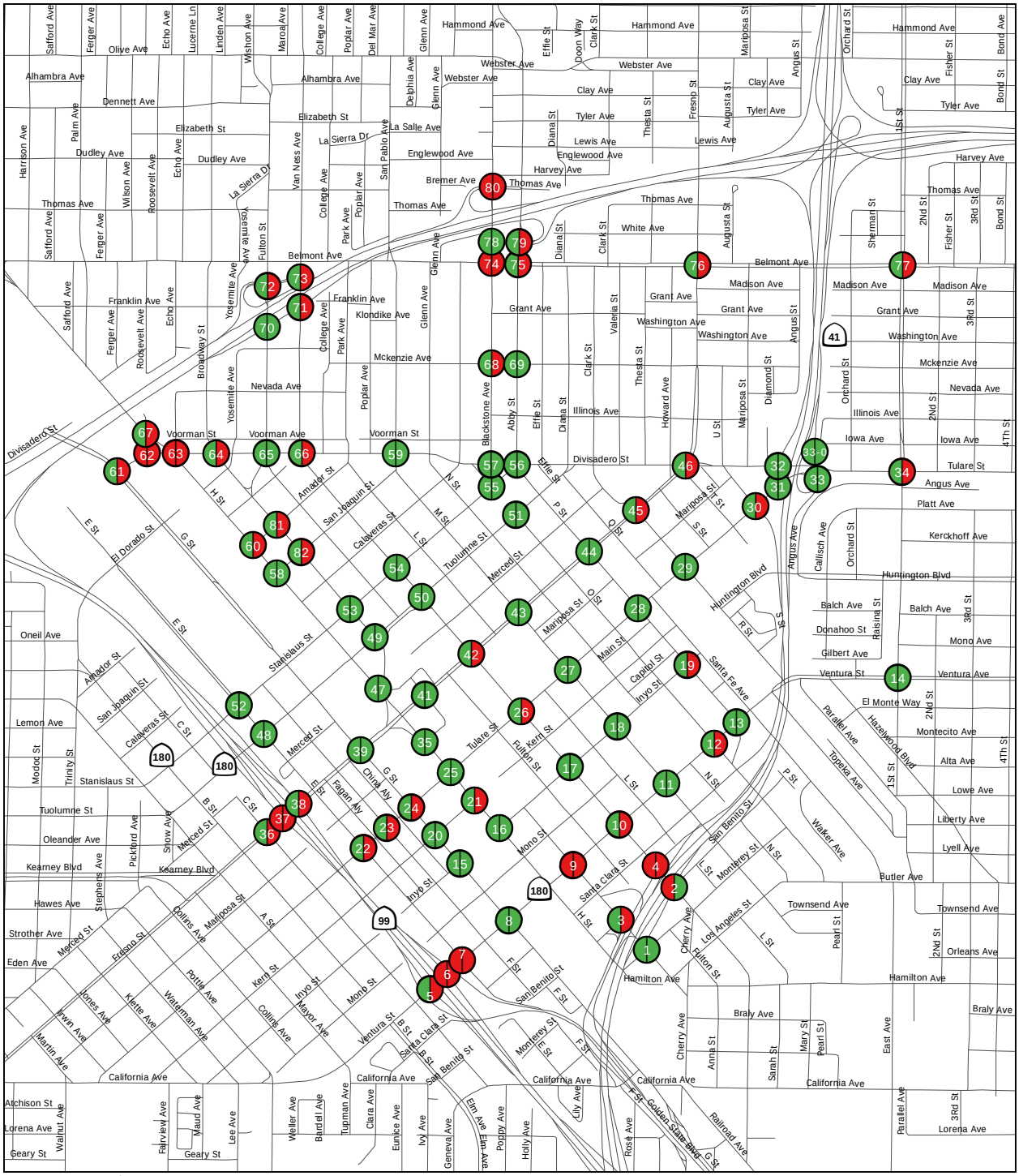
Source: (Authority and FRA 2011).
[A] One-way or two-way stop-controlled intersection. LOS and delay reported for the worst movement.

3.2.5 Environmental Consequences

A. OVERVIEW

This section describes the impacts related to transportation for the proposed project and alternatives. Chapter 1, Project, Purpose, Need, and Objectives, provides additional 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.

Some localized effects would result from the project, such as local road closures and intersection impacts at the Fresno, Kings/Tulare, and Bakersfield station areas. Local roads that serve the proposed station sites would have increased traffic as people redirect their travel routes. Under existing plus project conditions, four intersections would be impacted in Fresno, three roads and four intersections in the Kings/Tulare station area, and four intersections in Bakersfield. With future year 2035 plus project conditions, two roadway segments and 30 intersections would be impacted in Fresno, one road and seven intersections in the Kings/Tulare area, and 10 intersections in Bakersfield (Figures 3.2-17 through 3.2-19).

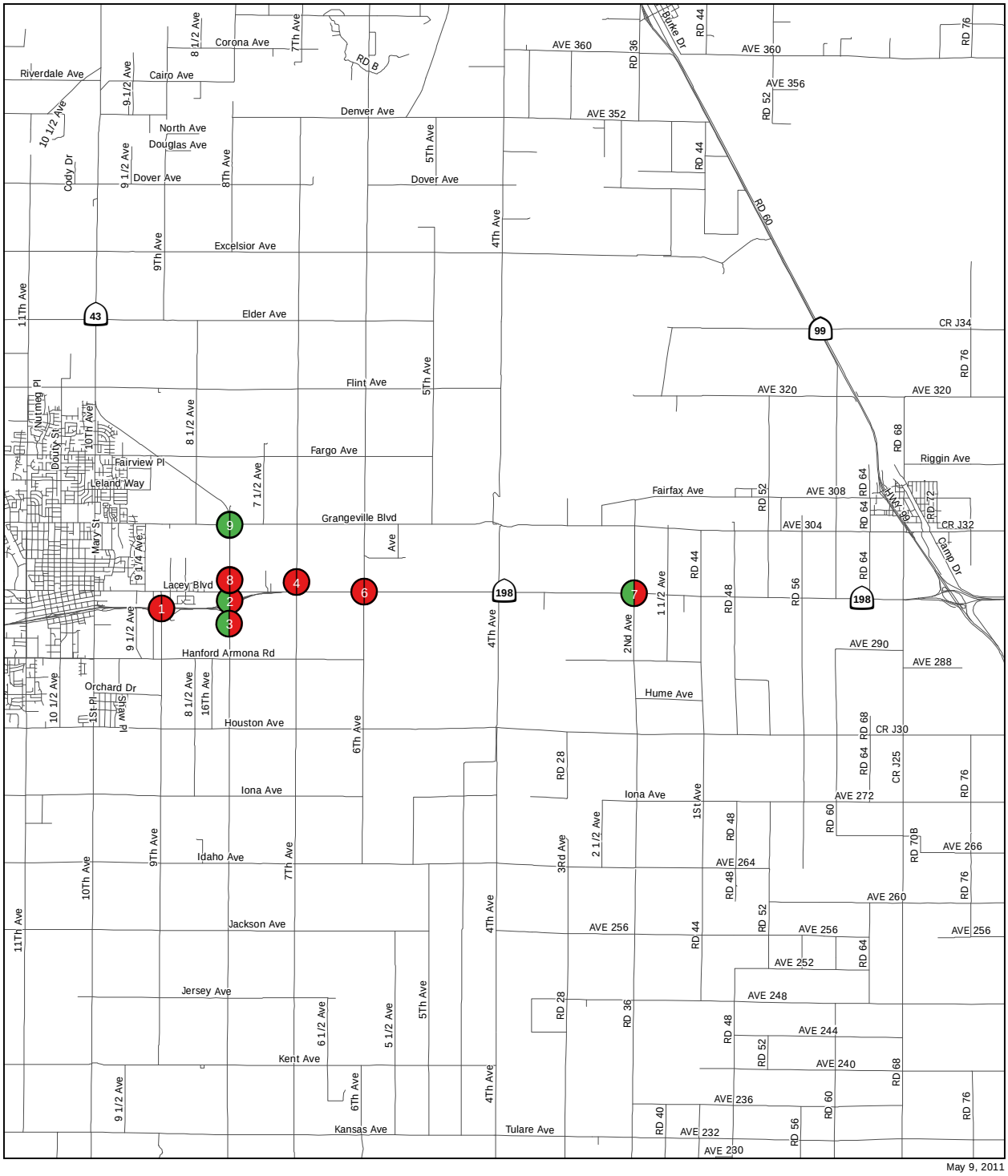


PRELIMINARY DRAFT/SUBJECT TO CHANGE - HST ALIGNMENT IS NOT DETERMINED

May 9, 2011

Source: URS, 2010

Figure 3.2-17
Future (2035) Plus Project
Intersection LOS in the Fresno Station Area



Level of service

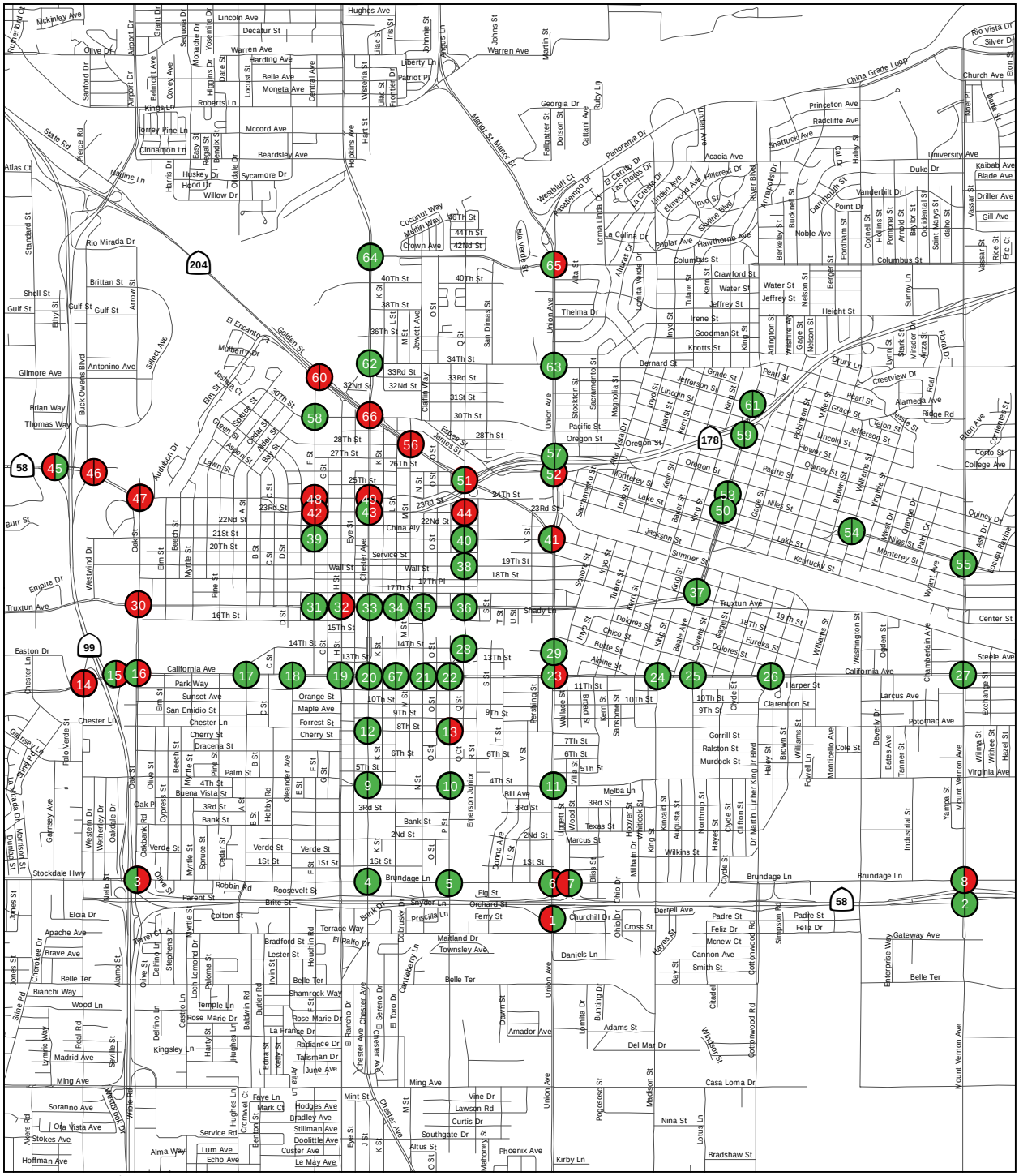
AM|PM

A-D

E-F

0 1 2 Miles

Figure 3.2-18
Future (2035) Plus Project Intersection LOS in the Kings/Tulare Station Area



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

May 9, 2011

Source: URS, 2010

Level of service

AM|PM

A-C

D-F

0 1,000 2,000

Feet

0 500 1,000

Meters

Figure 3.2-19

Future (2035) Plus Project Intersection LOS in the Bakersfield Station Area

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.

Passengers would access the stations by bus, passenger drop-off by car, walking, and bicycle. These modes would be accommodated at each station, and impacts, if any, would be negligible or beneficial (e.g., non-auto access to the stations that eliminates a car trip is considered a benefit). Proposed improvements are identified that would expand traffic capacity and improve operating conditions to match either pre-project conditions, a level of service of D or better, or reduce project-related delay at an adversely affected intersection to fewer than 5 seconds.

All of the HMF sites would have similar impacts; however, there is some differentiation between each site's impacts on surrounding roadway segments. The Fresno HMF would impact two intersections and one roadway at Future (2035) plus project conditions. The Kings County (Hanford) HMF would result in impacts to three roadways under Existing Plus Project conditions, and two intersections and two roadways segments at Future (2035) Plus Project conditions. The Kern council of Governments (Shafter) HMF and the Wasco sites would both impact one intersection.

B. NO PROJECT ALTERNATIVE

The No Project Alternative represents the year 2035 traffic conditions without the HST project. The regional transportation planning authorities identified in Section 3.2.2 (Fresno COG, KCAG, TCAG, and Kern COG) are responsible for transportation planning and funding, and the forecasted growth in traffic conditions in the year 2035 is based on their regional forecasts for land use and traffic growth. Specific development projects that will contribute to growth in traffic are identified in Section 3.19. Table 2.5-2 in Chapter 2 lists planned transportation improvements by the regional and local transportation authorities and agencies that will improve future No Project Alternative conditions. 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.
- Airport master plans (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 changes in travel patterns for the projected increase in population and employment. As stated in Chapter 2, between 2010 and 2035, VMT is projected to increase by 16% in Fresno County and 67% in Kern County; VMT is expected to decrease by 13% in Tulare County and 5% in Kings County. According to a statewide transportation projection conducted by Cambridge Systematics, the four-county region is projected to increase from approximately 62 million to almost 80 million miles traveled per year in 2035 (Cambridge Systematics 2007). This establishes the background for the following assessment of the transportation infrastructure.

Highway and Roadway Element

Planned highway improvements under the No Project Alternative will partially address the growth in travel, but will not add substantial capacity to the system for intercity travel. The region's residents will experience congested travel conditions that will 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 at key locations with respect to the project corridor.

The forecasted growth in population and traffic that will increase future traffic volumes and the planned improvements that would help reduce congestion were included in estimating the future No Project Alternative conditions, as presented in Tables 3.2-5 through 3.2-9. These tables include intersections and roadway segments that are projected to operate at a LOS of E or F in 2035 under the No Project Alternative, meaning they would be operating at a level of service that is at or below a locally acceptable condition regardless of whether the HST is constructed.

Aviation Element

Chapter 2, Air Travel, describes the trends statewide and at the Fresno Yosemite International Airport (FYI) and Bakersfield (BFL) airports. Although enplanements have grown in number nationally and statewide (at major airports), within the proposed HST service area the FYI and BFL currently serve only San Francisco and Los Angeles international airports, with a limited number of flights per day. However, the 2006 Fresno Yosemite International Airport Master Plan (AMP) project's a growth in future airport usage to 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 FYI and BFL are expected to increase. As stated in Chapter 1, Purpose and Need, passenger demand at these airports is low because of market forces of air fares, automobile use, and alternative airports in the Bay Area, Sacramento, and Los Angeles regions (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 making auto trips to their destination or to other state airports. These projections indicate the potential for growth in future operations at these airports.

Intercity Common Carrier Element

Conventional Passenger Rail

Planned improvements to the San Joaquin Amtrak route are anticipated to reduce travel time to fewer than 6 hours between Bakersfield and Oakland at an average speed of 51.2 mph with the potential to reach speeds of upwards of 79 mph (Caltrans 2008a). The trends in intercity passenger rail service in northern California show that reliable train service, cost effective prices, and additional train service frequencies between business centers results 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 to 16 round trips per day) (Hicks 1994; CCJPA 2010).

Intercity Passenger Bus Service

Greyhound and Trailways bus lines provide 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 Statistics 2010), the local lines between Fresno and Bakersfield have not fluctuated greatly. As noted in Section 1.0, UPRR operates 25 to 30 freight trains per day, and BNSF Railway operates 42 to 47 freight trains per day through Fresno. While trucking is the dominant mode for moving freight in the study area, rail accounted for 11% of the total tonnage of freight movement through the region in 2000.

Both railroads are currently operating near capacity. According to the 2009 Goods Movement Study (Caltrans 2010b), 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.

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 will benefit from the grade separations currently programmed by the counties.

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 Roadway Segment and Intersection Impacts

No Project Alternative roadway segment and intersection analysis was performed for the Fresno Station, Kings/Tulare Station, Bakersfield Station, and 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 and No Project conditions are summarized here and detailed analysis and results for the same are presented in the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

Fresno Station

In the vicinity of the Fresno station, 9 of the 41 roadway segments and 54 of the 104 intersections analyzed would operate at LOS E or F during the AM and/or PM peak hours under the No Project conditions, while only 1 roadway and 7 intersections operate at LOS E or F under existing conditions.

Kings/Tulare Station

At the Kings/Tulare Station, 2 of the 13 roadway segments and 5 of the 9 intersection analyzed would operate at LOS E or F during the AM and/or PM peak hours under the No Project conditions, while 7 roadway segments and 3 intersections operate at LOS E or F under existing conditions.

Bakersfield Station

At the Bakersfield station, 4 of the 46 roadway segments and 23 of the 67 intersections analyzed would operate at LOS E or F during the AM and/or PM peak hours under the No Project

conditions, while 4 of the roadway segments and 6 of the intersections operate at LOS E or F under existing conditions.

Heavy Maintenance Facility Sites

Roadway segments and intersections were also evaluated at the four potential HMF study area locations (five total alternative stations). In the vicinity of the potential HMF site in Fresno, three intersections would operate at LOS E or F conditions in the AM and/or PM peak hours under the existing conditions, and five intersections under the No Project conditions. At the potential HMF site in Hanford, one intersection and one road segment would operate at LOS E under the No Project conditions. At the HMF site in Wasco, one intersection would operate at LOS F with No Project conditions, and in Shafter, one intersection and one roadway segment would operate at LOS F with No Project conditions.

C. 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 3.2.6 describes construction and operation avoidance and minimization measures.

The Construction Schedule is presented in Chapter 2. 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. This type of plan is a standard practice that would incorporate review and comment by affected local agencies.

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 which to pass 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 San Joaquin Corridor Strategic Plan (Caltrans 2008) formalizes the short- (3 to 5 years), medium- (6 to 10 years), and long-term (11 to 25 years) vision for passenger rail service through the Central Valley. The San Joaquin Corridor Strategic Plan includes all San Joaquin Valley counties except Tulare County, and destination cities such as San Francisco, Oakland, Sacramento, and Los Angeles. The purpose of the plan is to develop a program of improvements that will increase rail ridership, revenue, capacity, reliability, and safety within the corridor. Key stakeholders involved in the development of the plan included Amtrak, BNSF Railway, Union Pacific Railroad (UPRR), and the San Joaquin Valley RTP agencies. The plan calls for improved communications between Amtrak and the public regarding service to riders and potential riders, and improved station safety and security over the short-term; more frequent service and more

stations and stops over the medium-term; and passenger rail in the UPRR corridor, as well as direct connections to Los Angeles and the Bay Area in the long-term.

The plan recognizes that the current passenger trains, termed the San Joaquins, have the opportunity to interface with the HST system to serve as a collector/distributor. What will be critical to fulfilling this opportunity are joint stations at major cities such as Fresno, Bakersfield, Sacramento, and Merced. These interchange points will allow for passengers to transfer to and from the San Joaquins to the HST system. Other opportunities will arise for the San Joaquins to "bridge" the HST service while it is under construction in different regions, such as between the Bay Area and Merced, and between Los Angeles and Palmdale. The San Joaquins could act as a Central Valley corridor bridge connecting the HST corridors in the north and south (Caltrans 2008).

The Fresno, Tulare, Kings, and Kern counties RTPs all recognize in the HST as an important state program benefiting the San Joaquin Valley by connecting it to major metropolitan areas.

Construction Period Impacts

The common construction impacts resulting from all HST alternatives are impacts on local circulation and emergency access, which are organized 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.

Because construction impacts would be temporary and terrestrial based (primarily related to road closures, detours, and safety access), these impacts are considered against existing conditions, which would not be likely to change. The Authority and FRA have considered avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program EIR/EIS commitments. During project design and construction, the Authority and FRA would implement measures to reduce impacts on circulation.

Urban Area Construction Impacts on Circulation and Emergency Access

In urban areas, project-related construction traffic would contribute to interference with pedestrians, bicyclists, and transit where existing sidewalks, paths, and transit stops need to be temporarily closed or relocated to allow for construction of new facilities. Similarly, construction activities may create a temporary 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 environments. Impacts would be considered moderate under NEPA and less than significant under CEQA because project construction traffic would be temporary, any associated delays are not considered as impacts. The Authority and FRA have considered avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program EIR/EIS commitments. During project design and construction, the Authority and FRA would implement measures to reduce any associated delays on transportation.

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 access plan would be developed for the project prior to beginning any construction activities. The construction access 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 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.

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 (City of Fresno 2005).

- Divisadero Street from H Street to P Street
- P Street from Abbey Street to CA 41
- Abbey Street from CA 180 to Divisadero Street
- Blackstone Avenue from CA 180 to Divisadero Street
- East 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 CA 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 East 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 peak-hour trips would be added to the Fresno roadway system during construction of the proposed project. While the actual construction schedule is not known and cannot be known until closer to the beginning of construction, an analysis (see Appendix I, *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011) was conducted to assess impacts focused on the impacts of construction-related trips (material hauling, worker trips, etc.). Based on this analysis, the addition of construction traffic from the proposed project is projected to be noticeable at the following intersection in Fresno:

- N. Blackstone Avenue/SR 180 Westbound Ramps

Kings/Tulare Station Construction Impacts on Circulation

The following are the designated truck routes near the proposed Kings/Tulare Regional Station:

- SR 198, between Tenth Avenue and Ninth Avenue
- SR 198, Ninth Avenue and Eighth Avenue/SR 43
- SR 198, between SR 198 Ramps and Seventh Avenue
- SR 198, between Seventh Avenue and Sixth Street
- SR 198, between Second Avenue and Road 48
- SR 198, between Road 48 and Road 56/Seventeenth Avenue
- SR 198, between Road 56/ Seventeenth Avenue and County Road 60
- SR 198, between County Road 60 and County Road J25/Road 68
- SR 198, between County Road J25/Road 68 and SR 99 Ramps

Similar to the Fresno Station, approximately 170 peak-hour trips would be added to the Kings/Tulare station area roadway system during construction of the proposed project. This additional traffic would be noticeable at the following intersections:

- Seventh Street/SR 198.
- Sixth Street/SR 198.
- Second Avenue/SR 198.
- SR 43/Lacey Boulevard.

Bakersfield Station Construction Impacts on Circulation

There are multiple truck routes near the proposed Bakersfield station. The designated truck routes are listed below.

- California Avenue, between Real Road and Oak Street.
- California Avenue, between Oak Street and A Street.
- California Avenue, between N Street and P Street.
- California Avenue, between P Street and Union Avenue.
- California Avenue, between Union Avenue and Beale Avenue.
- California Avenue, between Martin Luther Boulevard and Mount Vernon Avenue.
- Brundage Lane, between Chester Avenue and Oak Street.
- Union Avenue, between Brundage Lane and Fourth Street.
- Union Avenue, between Fourth Street and California Avenue.
- Union Avenue, between California Avenue and Hayden Court.
- Union Avenue, between Hayden Court and Twenty-First Street.
- Union Avenue, between Twenty-First Street and Espee Street.

- Mount Vernon Avenue, between Brundage Lane and California Avenue.
- Chester Avenue, between Thirtieth Street and Thirty-Fourth Street.

Approximately 170 peak-hour trips would be added to the Bakersfield station area roadway system during construction of the proposed project. This additional traffic would be noticeable at the following intersections:

- South Union Avenue/Eastbound SR 58 ramps.
- Oak Street/California Avenue.

For all three proposed stations, depending on the specifics of the construction activities, other intersections could notice increased traffic. 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 be moderate under NEPA and less than significant under CEQA. Moreover, any delays from this additional traffic would not substantially increase hazards or incompatible uses, create safety risks, or result in inadequate emergency access. The figures showing Construction Trips and Synchro Output of construction-phase analysis for HST Stations are provided in Appendix I of the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011). The Authority and FRA have considered avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program EIR/EIS commitments. During project design and construction, the Authority and FRA would implement measures to reduce impacts on circulation.

Heavy Maintenance Facility Alternatives Construction Impacts on Local Circulation

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

Trips for construction workers would generally occur outside of the peak hours for freeway and street traffic. The proposed projects 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. Installing the remote parking lots as the first phase of construction would make them available for construction workers 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 generally 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 HMFs 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. At all five proposed HMF sites (four locations), depending on the specifics of the construction activities, other intersections could receive increased traffic. These construction impacts are based on a worst-case assessment, however, that would likely be reduced through avoidance and minimization measures, and remaining delays are expected to be short-term and temporary. Moreover, because emergency vehicles would be allowed through construction areas, the additional traffic would not substantially increase hazards or incompatible

uses, create safety risks, or result in inadequate emergency access. Therefore, the impacts would be moderate under NEPA and less than significant under CEQA. The figures showing Construction Trips and Synchro Output of construction -phase analysis for HST stations are provided in Appendix I of the *Fresno to Bakersfield Section: Transportation Analysis Technical Report* (Authority and FRA 2011).

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 goal of maintaining traffic flow, especially 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); therefore, impacts would be moderate under NEPA and potentially 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. These impacts would be negligible under NEPA and less than significant under CEQA because the traffic impacts would be temporary and restored, and road closures or detours would not be permanent.

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. As such, there is the possibility of transportation impacts on freeways, local streets, and at-grade railroad crossings.

The effects of the trains (up to one new train per day at each crossing) are expected to be negligible under NEPA and the impacts less than significant under CEQA. Most of the trains would be travelling 50 to 100 miles per trip over mostly rural areas. In these rural locations, the road crossings have 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 one second. Truck trips would cause an increase in traffic volumes on affected highways ranging from 0.05% to 0.5% of ADT on regional highways, which would be negligible 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. The following sections describe changes to intersection and roadway segment levels of service and delay. Impacts to existing transit, non-motorized travel, and parking are also evaluated.

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 inter-city vehicle passenger 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, interstate 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

Chapter 1.0 describes air travel service at Fresno-Yosemite International Airport, and Meadows Field Airport in Bakersfield. Fares for travel from these airports to San Francisco or Los Angeles are relatively high, especially with respect to the cost of travel by automobile. The HST would compete and would be expected to draw an estimated 16 travelers/day that would otherwise take a plane from or to Kern County (Meadows Field), and one flight is predicted to divert from the Fresno/Madera area Airport. The reduction 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 may be adjusted to function as a feeder service to the HST System. With the introduction of HST service, passenger rail service could be discontinued at Hanford, Corcoran, and Wasco. Existing 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. There would be a negligible impact under NEPA and a less-than-significant impact under CEQA because existing passenger rail service would not be limited or worsened as the HST maintain service between major cities on the San Joaquin route.

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 could switch to HST service, although the bus service pricing might help retain some riders. However, there would also be a potential new market providing feeder service to HST. The bus service providers (including Greyhound and Amtrak Thruway) are likely to revise their current operation to better address this market. 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 Fresno, Kings/Tulare, and Bakersfield station areas are discussed in the station sections below. Along some segments, the HST is proposed to operate on an elevated structure that would not restrict pedestrian and bicycle movement. The HST project would also be grade-separated across 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

Because the HST alternatives do not encroach on the freight rail corridors, they would not have a direct effect on freight operations. After construction, freight operation would continue and vehicle miles would change in accordance with service plans of the UPRR and BNSF. No effects on freight rail operations are anticipated.

The freight railroads would also benefit from planned grade separations in several locations, depending on which alternative is selected. Where the HST and freight rail lines are in proximity to each other, proposed grade separations of the HST corridor would also extend over the freight rail lines. Where this is provided, these improvements substantially remove the existing potential for at-grade conflicts where local traffic must stop at gates and flashing lights. These improvements would enhance the speed and capacity of the rail corridor.

Changes in Vehicle Movement on Regional Highway System

Total vehicle miles traveled would be reduced, overall, with the HST System in operation. Table 3.2-12 lists traffic conditions represented by total vehicle miles, forecasted to the 2035 study year. The change in VMT represents total number of vehicle miles driven that would be removed from regional roadways. This is a net benefit to transportation and traffic operations because a reduction in vehicle miles traveled helps maintain or potentially improve the operating conditions of regional roadways. The reduction of ADT on regional roadways is considered beneficial to the project.

Table 3.2-12
Vehicle Trip Reductions

County	VMT No Build (2035) [a]	VMT HST (2035) [a]	Reduction in VMT No Build to HST (2035) [a]
Fresno	27,367,949	24,364,285	11%
Kern	39,240,101	35,149,202	10%
Kings	3,136,720	2,663,113	15%
Tulare	10,112,011	9,648,380	5%

Source: Authority 2010

[a] Based on implementation of Phase 2 of the project

Changes in Vehicle Movements and Flow on Highways and Roadways

All alternatives would result in impacts on highways and roadways between Fresno and Bakersfield. The impacts include crossing over or shifting existing roads, road closures, and freeway operations.

BNSF Alternative Alignment

Roadway Crossings – Chapter 2, Project Alternatives, describes the type of changes that would take place at each roadway crossed by the proposed HST alignments. Specifically, the proposed BNSF Alternative Alignment is described in Section 2.4.2 and other alternative alignments in Section 2.4.3. The majority of the track would be at-grade, crossing local roads and highways where a separated grade roadway crossing would be constructed, or some local roads and streets would be diverted or closed. A detailed list of each roadway crossing and the proposed changes at the roadways and streets are listed and described in Appendix 2-A, Table 2-A-1. Proposed changes at highway crossings are described in Sections 2.4.2 and 2.4.3. The following is a summary of the BNSF Alternative Alignment with respect to extended at-grade and elevated segments.

Within Fresno County, 16 of 17 miles of the track would be at-grade. At the Fresno Station, the BNSF Alternative Alignment would be at-grade and follow the UPRR until East Jensen Avenue. Crossings would be maintained or extended at Stanislaus, Tuolumne, Fresno, Tulare, and Ventura Streets, East Church Avenue, and East Jenson Bypass. SR 41 would pass over the HST. Kern and Mono Streets, East California Street south through East Belgravia Street, South East Avenue, and South Orange Avenue would be closed at or near the HST right-of-way. An elevated segment of the HST would begin over Golden State Boulevard and SR 99, returning to grade at the BNSF Railway at East Malaga Avenue; roads crossing the alignment in this segment would remain open with the exception of East Malaga Avenue, which would be closed and traffic redirected to East Central and East American avenues. The alignment continues generally on grade within Fresno County except at an elevated crossing of the BNSF Railway tracks near East Conejo Avenue. Twenty-five local roads are crossed or impacted within that segment, of which 17 crossings would be maintained and 8 closed, as summarized in Table 2-A-1.

In Kings County, 24.5 of 30 miles of track would be at-grade. South of Fresno, the alignment would leave the BNSF Railway to travel east of Hanford, on the east side of SR 43. Near Jersey Avenue in Hanford, SR 43 would cross beneath the at-grade HST. In northern Kings County, three roads would be closed (9th, North, and Douglas avenues), but all other roads can maintain crossings or would be shifted/modified to avoid the HST within Kings County. There would be an elevated portion of the HST on the east side of Hanford that crosses over the San Joaquin Valley Railroad and SR 198, from just south of Fargo Avenue to just north of Hanford-Armona Road. The alignment continues at-grade east of Hanford, until an elevated crossing from north of Cross Creek and the BNSF Railway, to just north of Nevada Avenue. It continues at-grade on the east side of Corcoran, until again becoming elevated to cross the BNSF Railway south of Corcoran.

Twenty three of 25 miles of track would be at-grade within Tulare County, on the east side of the BNSF Railway right-of-way. Elevated segments are at the Tule River and Alpaugh Railroad spur. Local roads would be maintained, avoided, or realigned except for closures of Angiola Drive (a frontage road for an existing train station with no existing railroad crossing) and Palmer Avenue.

In Kern County, 27 of 40 miles of track would be at-grade. The BNSF Alternative Alignment would generally follow the BNSF Railway right-of-way. There would be four elevated segments within Kern County, between approximately the following local roads:

- Sherwood Avenue and Whisler Road, north of Wasco.
- Margalo Street and just south of Prospect Avenue, Wasco.

- Madera Avenue and Cherry Avenue, Shafter.
- Palm Avenue and the proposed Bakersfield Station, Bakersfield.

As a result, most Kern County local roads would remain open, but six roads are proposed for closure as listed in the following section and Table 2-A-1.

Road Closures - Along the BNSF Alternative Alignment, 37 local roads would be closed and traffic diverted to adjacent roads. The following road closures are currently proposed at the HST right-of-way:

- Kern Street, Fresno County.
- Mono Street, Fresno County.
- East California Street, Fresno County.
- South Cherry Avenue, Fresno County.
- South Railroad Avenue, Fresno County.
- East Lorena Avenue, Fresno County.
- South Van Ness Avenue, Fresno County.
- East Florence Avenue, Fresno County.
- South Sarah Avenue, Fresno County.
- East Belgravia Avenue, Fresno County.
- South East Avenue, Fresno County.
- South Orange Avenue, Fresno County.
- East Malaga Avenue, Fresno County.
- East Jefferson Avenue, Fresno County.
- East Morton Avenue, Fresno County.
- East Sumner Avenue, Fresno County.
- East Dinuba Avenue, Fresno County.
- East Rose Avenue, Fresno County.
- East Kamm Avenue, Fresno County.
- South Willow Avenue, Fresno County.
- East Clarkson Avenue, Fresno County.
- South Minnewawa Avenue, Fresno County.
- 9th Avenue, Kings County.
- North Avenue, Kings County.
- Jersey Avenue, Kings County.
- Lansing Avenue, Rural Kings County.
- Brokaw Avenue, Kings County.
- Sherman Avenue, Kings County.
- Avenue 136, Rural Tulare County.
- Angiola Drive, Tulare County.
- Palmer Avenue, Tulare County.
- Pond Road, Kern County.
- Blankenship Avenue, Kern County.
- Wasco Avenue, Kern County.
- Madera Avenue, Kern County.
- Mettler Avenue, Kern County.
- F Street, Kern County.

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 are considered to be moderate under NEPA and significant impact under CEQA because local residents and commuters would experience worsening transportation service level due to the need for new access routes or increased travel times and congestion from redirected traffic to adjacent roadways

Corcoran Elevated Alternative Alignment

Roadway Crossings – This alignment alternative would pass through the city of Corcoran on the eastern side of the BNSF Railway on an elevated structure (same as the BNSF Alternative Alignment except elevated). With the elevated structure, most local roads would be avoided or realigned/maintained with the exception of closing Santa Fe Avenue off-ramp east of SR 43. SR 43 would be realigned to the east. A detailed list of the proposed roadway crossings is provided in Chapter 2 Alternatives Appendix 2-A, Table 2-A-2.

Road Closures

- Santa Fe Avenue off-ramp, Corcoran, Kings County

There may be potential impacts associated with property access as a result of this closure depending on the availability of alternative access routes. Because of potential property access issues, the road closure impacts are considered to be moderate under NEPA and a significant impact under CEQA because local residents and commuters would experience worsening transportation service levels due to the need for new access routes or increased travel times and congestion from redirected traffic to adjacent roadways.

Corcoran Bypass Alternative Alignment

Roadway Crossings – The Corcoran Bypass Alternatives would go around the urban area of Corcoran, at-grade. Several grade-separated crossings are proposed in order to maintain current traffic conditions to the extent feasible. Elevated crossings are proposed at Cross Creek and Tule River, and Idaho, Jackson, Kent, Kansas, 5½, Nevada, Waukena, and Whitley avenues, SR 43, and Avenue 144 would be maintained or realigned. A detailed list of the proposed roadway crossings is provided in Chapter 2 Alternatives Appendix 2-A, Table 2-A-3.

Road Closures – Along the Corcoran Bypass Alternative, eight local roads would be closed and traffic diverted to adjacent roads. The following road closures are proposed:

- Jersey Avenue, Corcoran, Kings County
- Lansing Avenue, Rural Kings County
- Newark Avenue, Corcoran, Kings County
- Niles Avenue, Corcoran, Kings County
- 5th Avenue, Corcoran, Kings County
- Orange Avenue, Corcoran, Kings County
-
- Oregon Avenue, Corcoran, Kings County
- Avenue 136, Rural Tulare County

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 are considered to be moderate under NEPA and significant impact under CEQA because local residents and commuters would experience worsening transportation service levels due to the need for new access routes or increased travel times and congestion from redirected traffic to adjacent roadways.

Allensworth Bypass Alternative Alignment

Roadway Crossings – The Allensworth Bypass Alternatives goes around the state park and urban area of Allensworth. Crossings of the HST are proposed in order to maintain most existing

roads and current traffic conditions to the extent feasible. A detailed list of the proposed roadway crossings is provided in Chapter 2 Alternatives Appendix 2-A, Table 2-A-4

Road Closures - Along the Allensworth Bypass Alternative, there would be two roadway closures:

- Woollomes Avenue, Rural Kern County
- Elmo Highway, Rural Kern County

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 are considered to be moderate under NEPA and significant impact under CEQA because local residents and commuters would experience worsening transportation service levels due to the need for new access routes or increased travel times and congestion from redirected traffic to adjacent roadways.

Wasco-Shafter Bypass Alternative Alignment

Roadway Crossings – The Wasco-Shafter Bypass Alternative goes around the urban areas of Wasco and Shafter and remains at-grade as opposed to the BNSF portion of the alignment that is elevated as it passes through Wasco and Shafter. Crossings of the HST route would be maintained or constructed at Poso Creek/SR 46, Poplar Avenue (realignment is necessary), Kimberlina Road, Shafter Avenue, Beech Avenue, East Lerdo Highway, Cherry Avenue, and Kratzmeyer Road. A detailed list of the proposed roadway crossings is provided in Chapter 2 Alternatives Appendix 2-A, Table 2-A-5.

Road Closures – Along the Wasco-Shafter Bypass Alternative, a number of local roads would be closed and traffic diverted to adjacent roads. There would be 19 road closures, a total of 16 additional road closures for the Wasco-Shafter Bypass Alternative when compared to the comparable section of the BNSF Alternative Alignment (Wasco, Madera, and Mettler avenues would be closed). There may be potential impacts associated with property access as a result of these closures depending on the availability of alternative access routes. The following road closures are currently proposed:

- McCombs Avenue, Wasco, Kern County
- Gromer Avenue, Wasco, Kern County
- 6th Street, Wasco, Kern County
- Root Avenue, Wasco, Kern County
- Poso Avenue, Wasco, Kern County
- Filburn Avenue, Wasco, Kern County
- Jackson Avenue, Wasco, Kern County
- Dresser Avenue, Rural Kern County
- Jack Avenue, Shafter, Kern County
- Mannel Avenue, Shafter, Kern County
- Merced Avenue, Shafter, Kern County
- Madera Avenue, Shafter, Kern County
- Fresno Avenue, Shafter, Kern County
- East Tulare Avenue, Shafter, Kern County
- Los Angeles Street, Shafter, Kern County
- Riverside Street, Shafter, Kern County
- Orange Street, Rural Kern County
- Burbank Street, Rural Kern County
- Mendota Street, Rural Kern County

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 are considered to be moderate under NEPA and significant impact under CEQA because local residents and commuters would experience worsening transportation service levels due to the need for new access routes or increased travel times and congestion from redirected traffic to adjacent roadways.

Bakersfield South Alternative Alignment

Roadway Crossings – The Bakersfield South alternative begins at-grade and becomes elevated above Palm Avenue to its southern terminus at the Bakersfield Station, crossing the same roads as the BNSF Alternative Alignment. Within the Bakersfield South Alternative, the crossing at SR 58 would be maintained, but several local road closures are required as detailed below. A detailed list of the proposed roadway crossings is provided in Chapter 2 Alternatives Appendix 2-A, Table 2-A-6.

Road Closures – Along the Bakersfield South Alternative four road closures are required and one street would require a potential lane modification:

- Two unnamed Alleys, Bakersfield, Kern County
- Hayden Court, Bakersfield, Kern County
- Butte Street, Bakersfield, Kern County

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 are considered to be moderate under NEPA and significant impact under CEQA because local residents and commuters would experience worsening transportation service level due to the need for new access routes or increased travel times and congestion from redirected traffic to adjacent roadways.

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

Fresno Station

Two station locations in Fresno were studied:

- Fresno Station – Mariposa Alternative: Centered on Mariposa Street, bordered by Fresno, Tulare, H, and G Streets.

- Fresno Station – Kern Alternative: Centered on Kern Street, between Tulare and Inyo Streets.

Because these two alternative station locations are close together, 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 as the “Fresno Stations.”

Roadway segment and intersection analysis of AM and PM peak hours used the traffic impact criteria described earlier in this section. For each station alternative, the roadway segment analysis is presented followed by the intersection analysis. For roadways and intersections, scenarios are evaluated and compared for Existing Conditions, Future No Project (year 2035), and Future with Project (year 2035). Because the significance criteria described earlier focus on roadways and intersections that are predicted to operate at LOS E and F, or are already operating at LOS E and F, only the roadways and intersections that meet those criteria are listed. All other roadways and intersections are and would continue to operate at LOS D or better, are not significantly impacted, do not require mitigation, and are not listed in this section. All roadways and intersections evaluated are included in the *Fresno to Bakersfield Transportation Analysis Technical Report* (Authority and FRA 2011).

Fresno Station Roadway Segment Impacts – Table 3.2-13 lists the Existing Plus Project levels of service for the Fresno Station study area for roadway segments that would operate below LOS D under Existing or Existing Plus Project conditions: Tulare Street between the SR 41 Ramps and N. First Street. Comparing Existing Plus Project volumes to Existing Conditions, the increase in traffic with the project is a moderate impact under NEPA and less-than-significant impact under CEQA, because the increase in ADT caused by the station would be measurable, but not perceptible to the transportation user.

Table 3.2-13
Existing Plus Project, Roadway Segment Analysis, Fresno Stations

No.	Roadway Segment	ADT		Lanes	Divided/ Un-divided	LOS		Im-pact
		Existing	Existing + Project			Existing	Existing + Project	
23	Tulare Street between SR 41 Ramps and N. First Street	32,476	32,636	2/2	Divided followed by Un-divided	F	F	No

As shown in Table 3.2-14, under future (2035) conditions, nine roadway segments would be operating at LOS E or F under the No Project conditions but would not be further substantially affected by the project conditions. Two roadway segments, Tulare Street (between Broadway Street and Van Ness Avenue) and Divisadero Street are predicted to experience a change in LOS from D to E or F. For these two streets, the impact is considered moderate under NEPA and significant under CEQA because the increase in ADT caused by the Station would cause a measureable and perceptible worsening of roadway operating LOS to the transportation user.

Table 3.2-14
Future (2035) with Project, Roadway Segment Analysis, Fresno Stations

No.	Roadway Segment	ADT		Travel Lanes	Divided / Un-divided	LOS		v/c		Impact
		No-Build	Build			No-Build	Build	No-Build	Build	
3	E. Divisadero Street, between H Street and Broadway Street	32,610	32,610	2/2	Un-divided	F	F			No
4	H Street, between E. Divisadero Street and Stanislaus Street	16,150	16,410	1/1	Un-divided	F	F	1.08	1.09	No
10	E. Belmont Avenue, between N. Fresno Street and N. Abby Street	34,810	34,810	2/2	Divided	F	F			No
11	Stanislaus Street, between Broadway Street, and E Street	24,100	24,120	0/2	One-Way	F	F	1.52	1.52	No

Table 3.2-14
Future (2035) with Project, Roadway Segment Analysis, Fresno Stations

No.	Roadway Segment	ADT		Travel Lanes	Divided / Un-divided	LOS		v/c		Impact
		No-Build	Build			No-Build	Build	No-Build	Build	
18	Fresno Street, between C Street and B Street	34,380	34,510	2/2	Divided	F	F	1.08	1.09	No
20	Tulare Street, between Broadway Street and Van Ness Avenue	30,210	31,640	2/2	Divided	D	F	0.95	1.00	Yes
22	Divisadero Street, between N. Fresno Street and SR 41 Ramps	27,160	29,860	2/2	Divided followed by Un-divided	D	D/E	0.91	1.00	Yes
23	Tulare Street, between SR 41 Ramps and N 1st Street	34,630	34,790	2/2	Divided followed by Un-divided	F	F	1.0924 / 1.1543	1.0981 / 1.1603	No
28	Ventura Avenue, between B Street and C Street	30,390	30,520	2/2	Divided	E	E	0.96	0.96	No
34	N. Blackstone Avenue, between SR 180 EB Ramps and E. Belmont Avenue	26,250	26,590	0/3	One-Way	F	F	1.10	1.12	No
35	N. Abby Street, between SR 180 EB Ramps and E. Belmont Avenue	23,480	23,840	3/0	One-Way	E	F	0.99	1.00	No

Fresno Intersection Impacts – The evaluation of intersections is shown in Tables 3.2-15 and 3.2-16. Five intersections operate at LOS E or F. Comparing Existing Conditions to the Existing Plus Project in Table 3.2-15 shows four intersections that would decline to LOS E or F or would have delays increase by 4 seconds or more. For future conditions (2035), a total of 30 intersections shown in Table 3.2-16 would be impacted by the project, 12 impacted in the AM period, and 27 in the PM period. These intersections would either degrade to LOS E or F, or if already operating LOS E or F would experience an additional delay of four seconds or more. For these intersections, the impact is considered moderate under NEPA and significant under CEQA because the increase in delay caused by the station would cause a measureable and perceptible worsening of intersection operating LOS to the transportation user.

Table 3.2-15
Existing Plus Project, Intersection Operating Conditions, Fresno Stations

No.	Intersection	Existing		Existing plus Fresno Project		In-crease in Delay	Im-pact	Existing		Existing plus Fresno Project		In-crease in Delay	Im-pact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay(s)	LOS	Delay(s)	LOS			Delay(s)	LOS	Delay(s)	LOS		
6	SR 99 Northbound Ramps/Ventura Avenue	137.2	F	142.9	F	5.7	Yes	34.5	D	35.5	E		Yes
33-0	Divisadero Street/SR 41 NB Ramps/Tulare Street	140.9	F	148.4	F	7.5	Yes	375.5	F	394.8	F	19.3	Yes
63	H Street/ Divisadero Street	74.7	E	236.9	F	162.2	Yes	33.7	C	34.6	C		No
80	N. Blackstone Avenue/CA 180 Westbound Ramps	171.1	F	207.8	F	36.7	Yes	17.4	B	18.2	B		No
89	M Street/San Benito - SR 41 NB On-Ramp	11.7	B	11.7	B		No	218.0	F	218	F		No

Table 3.2-16
Future (2035) with Project, Intersection Operating Conditions, Fresno Stations

Int ID	Intersection	2035 No-Build		2035 No-Build plus Fresno Alternative		In-crease in Delay	Im-pact	2035 No-Build		2035 No-Build plus Fresno Alternative		In-crease in Delay	Im-pact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay (s)	LOS	Delay(s)	LOS			Delay (s)	LOS	Delay(s)	LOS		
2	Van Ness Avenue/SR 41 Northbound Ramp	45.8	E	71.3	F	25.5	Yes	19.	C	21.2	C		No
3	Broadway Street/SR 41 Southbound Ramp	27.7	D	27.7	D		No	43.5	E	43.5	E	0.0	No

Table 3.2-16
Future (2035) with Project, Intersection Operating Conditions, Fresno Stations

Int ID	Intersection	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay (s)	LOS	Delay(s)	LOS			Delay (s)	LOS	Delay(s)	LOS		
4	Van Ness Avenue/SR 41 Southbound Ramp	6801.6	F	6801.9	F	0.3	No	6794.9	F	6795.1	F	0.2	No
5	SR 99 Southbound Ramps/Ventura Avenue	29.3	C	30.5	C		No	128.2	F	128.7	F	0.5	No
6	SR 99 Northbound Ramps/Ventura Avenue	2873.9	F	2893.6	F	19.7	Yes	*	F	*	F	*	Yes
7	E Street/ Ventura Avenue	*	F	*	F	*	Yes	*	F	*	F	*	Yes
9	Broadway Street/Ventura Avenue	75.7	E	75.1	E	-0.6	No	110.9	F	110.9	F	0.0	No
10	Van Ness Avenue/Ventura Street	22.2	C	22.8	C		No	83.6	F	89.1	F	5.5	Yes
12	O Street/ Ventura Avenue	24.7	C	24.8	C		No	60.5	E	61.8	E	1.3	No
19	P Street/Inyo Street	16.0	C	16.0	C		No	55.4	F	55.6	F	0.2	No
21	H Street/Kern Street	25.9	D	29.1	D		No	35.8	E	42.6	E	6.8	Yes
22	E Street/Tulare Street	21.7	C	21.6	C		No	301.1	F	301.8	F	0.7	No
23	F Street/Tulare Street	10.7	B	10.7	B		No	145.9	F	145.9	F	0.0	No
24	G Street/Tulare Street	27.1	C	26.7	C		No	266.8	F	285.8	F	19.0	Yes
25	H Street/Tulare Street	12.0	B	16.0	B		No	45.7	D	69.1	E	23.4	Yes
26	Van Ness Avenue/Tulare Street	25.4	C	27.7	C		No	142.3	F	158.3	F	16.0	Yes
30	U Street/Tulare Street	8.7	A	8.9	A		No	79.8	E	84.7	F	4.9	Yes

Table 3.2-16
Future (2035) with Project, Intersection Operating Conditions, Fresno Stations

Int ID	Intersection	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay (s)	LOS	Delay(s)	LOS			Delay (s)	LOS	Delay(s)	LOS		
36	C Street/ Fresno Street	11.5	B	11.5	B		No	96.9	F	97.0	F	0.1	No
37	SR 99 Southbound Ramps/Fresno Street	56.4	E	70.3	E	13.9	Yes	137.7	F	150.2	F	12.5	Yes
38	SR 99 Northbound Ramps/Fresno Street	43.6	D	45.3	D		No	154.2	F	171.7	F	17.5	Yes
42	Van Ness Avenue/Fresno Street	29.1	C	33.6	C		No	70.1	E	92.5	F	22.4	Yes
45	Fresno Street/R Street	23.8	C	24.5	C		No	128.7	F	129.5	F	0.8	No
46	Fresno Street/ Divisadero Street	28.7	C	29.2	C		No	127.1	F	131.8	F	4.7	Yes
60	H Street/ Amador Street	21.5	C	24.5	C		No	215.7	F	251.3	F	35.6	Yes
61	G Street/ Divisadero Street	23.1	C	7.5	A		No	183.7	F	11.4	B		No
62	N. Roosevelt Avenue/E. Divisadero Avenue	308.1	F	-	-		No	*	F	-	-	*	No
63	H Street/ Divisadero Street	156.2	F	388.9	F	232.7	Yes	196.3	F	505.4	F	309.1	Yes
64	Broadway Street/ Divisadero Street	16.7	B	16.7	B		No	57.3	E	57.5	E	0.2	No
66	Van Ness Avenue/ Divisadero Street	24.0	C	25.1	C		No	85.6	F	99.5	F	13.9	Yes
67	H Street/ Roosevelt Street	19.3	B	51.6	D		No	116.1	F	162.6	F	46.5	Yes

Table 3.2-16
Future (2035) with Project, Intersection Operating Conditions, Fresno Stations

Int ID	Intersection	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay (s)	LOS	Delay(s)	LOS			Delay (s)	LOS	Delay(s)	LOS		
68	N. Blackstone Avenue/E. McKenzie Avenue	10.5	B	10.8	B		No	84.9	F	89.8	F	4.9	Yes
71	Van Ness Avenue/CA 180 Eastbound Ramps	33.4	C	36.1	D		No	127.4	F	136.8	F	9.4	Yes
72	Fulton Street/180 Westbound Ramps	48.4	D	48.4	D		No	119.3	F	119.6	F	0.3	No
73	Van Ness Avenue/CA 180 Westbound Ramps	39.3	D	39.9	D		No	96.7	F	103.0	F	6.3	Yes
74	N. Blackstone Avenue/E Belmont Avenue	96.1	F	101.1	F	5.0	Yes	196.0	F	199.5	F	3.5	No
75	N. Abby Street/E. Belmont Street	46.5	D	47.1	D		No	96.5	F	99.6	F	3.1	No
76	Fresno Street/E. Belmont Street	46.2	D	47.2	D		No	199.4	F	200.6	F	1.2	No
77	N. 1st Street/E. Belmont Street	43.6	D	42.3	D		No	126.4	F	127.9	F	1.5	No
79	N. Abby Street/CA 180 Eastbound Ramps	43.4	D	45.0	D		No	86.2	F	91.3	F	5.1	Yes
80	N. Blackstone Avenue/CA 180 Westbound Ramps	197.6	F	214.1	F	16.5	Yes	354.5	F	363.0	F	8.5	Yes
81	Broadway Street/Amador Street	18.6	C	18.8	C		No	*	F	*	F	*	Yes
82	Broadway Street/San Joaquin Street	28.9	D	28.9	D		No	*	F	*	F	*	No

Table 3.2-16
Future (2035) with Project, Intersection Operating Conditions, Fresno Stations

Int ID	Intersection	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact	2035 No-Build		2035 No-Build plus Fresno Alternative		Increase in Delay	Impact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay (s)	LOS	Delay(s)	LOS			Delay (s)	LOS	Delay(s)	LOS		
83	F Street/ Fresno Street	6.0	A	6.2	A		No	87.7	F	91.4	F	3.7	No
84	G Street/Mono Street	10.5	B	9.3	A		No	38.2	E	14.2	B	-24.0	No
86	H Street/ Ventura Street	46.0	E	47.3	E		No	*	F	491.1	F		No
87	O Street/Santa Clara Street - SR 41 SB Off-Ramp	15.0	C	15.1	C		No	69.3	F	70.3	F	1.0	No
89	M Street/San Benito - SR 41 NB On-Ramp	17.7	C	17.7	C		No	*	F	*	F	*	No
92	S. Van Ness Avenue / E. California Avenue	63.1	F	*	F	*	Yes	*	F	*	F	*	Yes
96	Golden State Boulevard / E. Church Avenue	41.8	D	65.3	E	23.5	Yes	185.5	F	261.3	F	75.8	Yes
98	S. East Avenue / E. Church Avenue	260	F	662.5	F	402.5	Yes	*	F	*	F	*	Yes
99	S. Sunland Avenue / E. Church Avenue	56.8	F	62.2	F	5.4	Yes	16.3	C	18.5	C		No
100	S. East Avenue / S. Railroad Avenue	11.5	B	Intersections Closed				36.7	E	Intersection Closed			
101	S. East Ave./ Golden State Blvd.	38.8	D	39.4	D		No	19.4	B	72.3	E	52.9	Yes
102	Golden State Boulevard / E. Jensen Avenue	160.5	F	186	F	25.5	Yes	358.2	F	427.5	F	69.3	Yes
104	S. Golden State Boulevard / S. Orange Avenue	66.4	F	42	E		No	*	F	*	F	*	No

Fresno Parking Impacts – The city of Fresno currently has a large amount of excess public parking within 1 mile of the alternative Fresno station sites. Based on discussions with the city, the FRA and Authority would meet projected 2035 parking demand through a combination of new parking structures near the station plus reliance on existing public spaces (see discussion immediately below). This takes advantage of the substantial public parking available in the vicinity of the station sites. This would result in a negligible impact under NEPA and less-than-significant impact under CEQA because the substantial parking available for use combined with new HST station parking facilities would not cause a perceptible worsening of parking availability.

It is conservatively that 5,900 parking spaces would be required for the Fresno station in 2020, and 7,400 would be required estimated in 2035. Based on (and in combination with) 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 parking spaces provided in four new parking structures built adjacent to the station by 2035. All four structures would not be necessary by 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 existing excess available parking downtown, this would meet 2020 parking demand. Because the HST project includes a plan to provide adequate station parking, minimal level impacts to the existing downtown parking conditions are expected. This would be considered a negligible impact under NEPA and a less-than-significant impact under CEQA because the four new HST station parking facilities would be constructed as needed to avoid perceptible worsening of parking availability.

Fresno Area Transit Impacts – At the Fresno Station, the proposed project is projected to add approximately 700 daily passengers using 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 considered to be a negligible impact under NEPA and a less-than-significant impact under CEQA because there is a measurable but not perceptible increase in peak-hour ridership on existing transit routes.

Fresno Pedestrian and Bicycle 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 (Cambridge Systematics 2007). Impacts to bicycle and pedestrian facilities would be considered a negligible impact under NEPA and less than significant under CEQA because no existing or planned bicycle or pedestrian routes/access would be closed and the station would cause a measurable, but a not perceptible increase of route usage in the vicinity of the station

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 less than significant under impact CEQA because although existing bicycle and pedestrian facilities would receive a measurable increase in usage and trips, new facilities constructed as part of the station would bring the increases to a non-perceptible level.

Fresno Area Freight Impacts – As the proposed HST service would operate on an elevated structure through the Fresno 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. There would be a negligible impact under NEPA and a less-than-significant impact under CEQA because freight rail service would be elevated and therefore not be interrupted or worsened by the HST station.

Kings/Tulare Regional Station

One potential site was studied for the Kings/Tulare Station. Primary access would be from SR 43.

Kings/Tulare Area Roadway Segment Impacts – Tables 3.2-17 and 3.2-18 list the Existing Plus Project, and Future (2035) With Project conditions for roadway segments. Seven roadway segments operate below LOS D under existing conditions. Three of these segments would be impacted when the project is added to existing conditions. In 2035, three roadway segments would operate below LOS D under No Project conditions, and one would be impacted by adding Project traffic. These impacts are considered moderate under NEPA and significant under CEQA because the increase in ADT caused by the Station would cause a measureable and perceptible worsening of roadway operating LOS to the transportation system user.

Table 3.2-17
Existing Plus Project, Roadway Segment Analysis, Kings/Tulare Regional Station

No.	Roadway Segment	ADT		Lanes (NE/SW)	Divided/ Un-divided	LOS		Impact
		Existing	Existing Plus Project			Existing	Existing Plus Project	
6	SR 198 between SR 198 Ramps and 7th Avenue	19,060	19,450	1/2 followed by 1/1 close to the 7th Ave	Divided followed by Un-divided	D or F	D/F	No
7	SR 198 between 7th Avenue and 6th Avenue	19,500	20,310	1/1	Un-divided	F	F	Yes
8	SR 198 between 6th Avenue and 2nd Avenue	18,194	18,954	1/1	Undivided	F	F	Yes
9	SR 198 between 2nd Avenue and Road 48	18,574	19,274	1/1	Undivided	F	F	Yes
10	SR 198 between Road 48 and Road 56/17th Avenue	19,458	19,458	1/1	Undivided	F	F	No
11	SR 198 between Road 56/17th Avenue and County Road 60	18,738	18,738	1/1	Undivided	F	F	No
12	SR 198 between County Road 60 and County Road J25/Road 68	18,884	18,884	1/1	Undivided	F	F	No

Table 3.2-18
Future (2035) with Project, Roadway Segment Analysis, Kings/Tulare Regional Station

No.	Roadway Segment	ADT		Lanes	Divided/ Un-divided	LOS		Impact
		No-Build	Build			No-Build	Build	
1	SR 198 between 11th Avenue and 10th Avenue	46,672	46,672	2/2	Divided	F	F	No
4	8th Avenue/SR 43 between Grangeville Boulevard and SR 198 ramps	12,850	14,960	1/1	Undivided	D	E	Yes
5	8th Avenue/SR 43 between SR 198 ramps and Hanford-Armona Road	14,080	14,340	1/1	Undivided	E	E	No

Kings/Tulare Intersection Impacts – Tables 3.2-19 and 3.2-20 present future conditions (2035) for intersections. Four intersections listed in Table 3.2-19 operate below LOS D, and all four would have increased delays of more than 4 seconds, and two of them would also have a decline in LOS. In 2035, seven intersections would be impacted in either the AM or PM period, or both. These impacts are considered moderate under NEPA and significant under CEQA because the increase in delay caused by the station would cause a measureable and perceptible worsening of intersection operating LOS to the transportation system user.

Table 3.2-19
Existing Plus Project, Intersection Analysis, Tulare/Hanford Station

Int ID	Intersection	Existing		Existing plus Project Conditions		Increase in Delay	Impact	Existing		Existing plus Project Conditions		Increase in Delay	Impact
		AM Peak		AM Peak				PM Peak		PM Peak			
		Delay (s)	LOS	Delay (s)	LOS			Delay (s)	LOS	Delay (s)	LOS		
4	7th Street/ SR 198	239.0	F	496.3	F	257.3	Yes	141.0	F	211.9	F	70.9	Yes
6	6th Street/ SR 198	51.3	F	71.6	F	20.3	Yes	72.8	F	85.8	F	13.0	Yes
7	2nd Avenue/ SR 198	29.6	D	44.4	E	14.8	Yes	55.8	F	78.8	F	23.0	Yes
8	SR 43/ Lacey Blvd.	32.1	D	166.1	F	134.0	Yes	27.4	D	479.6	F	452.2	Yes

Table 3.2-20
Future (2035) with Project, Intersection Operating Conditions, Kings/Tulare Station

Int ID	Intersection	No-Build AM Peak Delay (s)	No-Build AM Peak LOS	Future plus Project Conditions AM Peak Delay (s)	Future plus Project Conditions AM Peak LOS	In-crease in Delay	Impact	No-Build PM Peak Delay (s)	No-Build PM Peak LOS	Future plus Project Conditions PM Peak Delay (s)	Future plus Project Conditions PM Peak LOS	In-crease in Delay	Impact
1	9th Avenue/ SR 198	124.2	F	135.1	F	10.9	Yes	101.9	F	118.7	F	16.8	Yes
2	8th Avenue/ SR 198 Westbound Ramps	13.2	B	14.1	B		No	24.1	C	36.3	E	12.2	Yes
3	8th Avenue/ SR 198 Westbound Ramps	20.0	C	24.3	C		No	27.0	D	84.6	F	57.6	Yes
4	7th Street/ SR 198	432.5	F	574.9	F	142.4	Yes	*	F	*	F	*	Yes
6	6th Street/ SR 198	43.1	E	51.2	F	8.1	Yes	*	F	*	F	*	Yes
7	2nd Avenue/ SR 198	26.5	D	28.6	D		No	94.4	F	114.7	F	20.3	Yes
8	SR 43/ Lacey Blvd.	36.6	E	202.4	F	165.8	Yes	52.8	F	899.3	F	846.5	Yes

Kings/Tulare Parking Impacts – The proposed station would include passenger drop-off area at the entrances to the station or within the parking area. For the purpose of this analysis, it was assumed that the station parking areas would accommodate approximately 1,600 vehicles at the Kings/Tulare Station. These parking facilities would be designed to accommodate demand and to avoid overflow parking on nearby area streets. Since the HST project includes a plan to provide adequate station parking, minimal impacts to the existing downtown parking conditions are expected. This would be a negligible impact under NEPA and a less-than-significant impact under CEQA because the new HST station parking facilities would not cause a perceptible worsening of parking availability on nearby streets or the downtown area.

As discussed in Section 3.13, Station Planning, Land Use, and Development, the FRA's and Authority's goals for the Kings/Tulare Station include creating a station that serves as a regional transportation hub to provide quick transit connections from the station to the downtown areas of Hanford, Visalia, and Tulare; the Authority and FRA have approved $600,000 in planning funds to assist local jurisdictions around the Kings/Tulare Station to plan to make these goals a reality. As part of this effort, the Authority may provide a portion of the Kings/Tulare Regional Station parking in downtown Hanford, Visalia, and/or Tulare. Reducing the number of spaces provided at the station area would allow for more open space areas around the station, discourage growth at the station, encourage revitalization of the downtowns, and reduce the development footprint of the station. Location of station parking in downtown areas would be done in consultation with local communities to avoid traffic congestion.

Kings/Tulare Area Transit Impacts – There is no existing transit service at the proposed Kings/Tulare Station site because it is an undeveloped area, but the station design includes a bus transit pullout and loading area to accommodate future transit service. This would be a negligible

impact under NEPA and a less-than-significant impact under CEQA because there are no exiting transit routes serving the area, and the station would construct facilities for any future transit systems.

Kings/Tulare Pedestrian and Bicycle Impacts – The proposed project would not require the closure of any of the existing or planned bicycle routes or pedestrian access routes in the immediate vicinity of Kings/Tulare Station. The Kings/Tulare Station is not expected to have the same level of demand or use by bicyclists and pedestrians as the stations in Fresno and Bakersfield because it is not in close proximity to the community; however, both pedestrian and bicycle access would be accommodated. This would be a negligible impact under NEPA and a less-than-significant impact under CEQA because no existing or planned bicycle or pedestrian routes/access would be closed and the station would cause a measurable, but a not perceptible increase of route usage in the vicinity of the station.

Kings/Tulare Area Freight Impacts – As the proposed HST service would operate on an elevated structure through the Fresno 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. There would be a negligible impact under NEPA and a less-than-significant impact under CEQA because freight rail service would be elevated and therefore not be interrupted or worsened by the HST station.

Bakersfield Station

Two station locations in Bakersfield were studied:

- North Alternative
- South Alternative

Travel patterns to and from the proposed stations with either the North Alternative or the South Alternative would be same, with the exception of two roadway segments on Union Avenue (Segments #13 and #14), and the intersection of Union Avenue and Hayden Court (Intersection #29), as noted in the following and listed in the accompanying tables, 3.2-21 and 3.2-22.

Bakersfield Roadway Segment Impacts – Four roadway segments would operate at LOS E or F with both Existing and Existing Plus Project conditions, as listed in Table 3.2-21. There would be no adverse change in any LOS when project traffic is added to existing conditions. This would be a negligible impact under NEPA and a less-than-significant impact under CEQA because the increase in ADT caused by the station would cause a measureable, but perceptible worsening of intersection operating LOS to the transportation system user.

Table 3.2-21
Existing Plus Project, Roadway Segment Analysis, Bakersfield Stations

No.	Roadway Segment	ADT			Lanes (NE/SW)	Divided/ Undivided	LOS			Impact
		Existing	Existing + Project (South)	Existing + Project (North)			Existing	Existing + Project (South)	Existing + Project (North)	
16	SR 178 between Oak Street and Buck Owens Boulevard/SR 99 NB Ramps	54,384	54,544	*	3/3	Divided	E	E	*	No
17	SR 178 between 23rd Street and Chester Avenue	28,878	28,878	*	0/3	One way	E	E	*	No
23	Truxtun Avenue between Oak Street and Bahamas Drive	38,822	39,092	*	2/2	Divided	E	E	*	No
31	23rd Street between 24th Street and F Street	25,772	25,772	*	2/0 on connector (up to D St.) and 3/0 after D St.	n/a	F on connector (up to D St.) and D after D St.	F/D	*	No

*Same as South Alternative
** The Metropolitan Bakersfield General Plan (City of Bakersfield and Kern County 2007) has designated LOS C as the standard for intersections and roadway segments. The following road segments would have an LOS D existing plus project operating condition for the South or North Alternative (AM or PM): California Avenue, between Real Road and Oak Street (#1), 23rd Street, between F Street and Chester Avenue (#32).

Table 3.2-22
Future (2035) with Project, Roadway Segment Analysis, Bakersfield Station

No.	Roadway Segment	ADT			Lanes	Divided/ Un-divided	LOS			Im-pact
		No-Build	Build (South)	Build (North)			No-Build	Build (South)	Build (North)	
17	SR 178 between 23rd Street and Chester Avenue	39,260	39,260	*	0/4	One way	E	E	*	No
31	23rd Street, between 24th Street and F Street	36,800	36,800	*	4/0	n/a	E	E	*	No
32	23rd Street, between F Street and Chester Avenue	36,780	36,780	*	4/0	n/a	E	E	*	No
33	Oak Street, between SR 178 and Truxtun Avenue	36,330	36,490	*	2/2	Un-divided	F	F	*	No

*Same as South Alternative
** The Metropolitan Bakersfield General Plan (City of Bakersfield and Kern County 2007) has designated LOS C as the standard for intersections and roadway segments. The following road segments would have a future plus project operating condition of LOS D for the South or North Alternative (AM or PM): Union Avenue, between 21st Street and Espee Street (#15), SR 178, between Oak Street and Buck Owens/ SR 99 Northbound Ramps (#16), and Truxtun Avenue, between Oak Street and Bahamas Drive (#23).

Bakersfield Intersection Impacts – Table 3.2-23 lists 10 intersections that are projected to function at LOS E or F under Existing and Existing Plus Project conditions. Project traffic added to existing conditions would result in a predicted 4 intersections impacted in the AM or PM (or both), where either a level of service of E or F declines or there is an increase in delay of more than 4 seconds. There would be 10 intersections under the Future (2035) conditions that would be similarly impacted, as shown in Table 3.2-24. The impacts to these intersections are the same for both the South and North Alternatives, except for Union Avenue/Hayden Court (#29). This would be a moderate impact under NEPA and a significant impact under CEQA because the increase in delay caused by the station would cause a measureable and perceptible worsening of intersection operating LOS to the transportation system user.

Bakersfield Parking Impacts – The proposed station would include passenger drop-off area at the entrances to the station or within the parking area. The station parking areas would accommodate approximately 2,300 parking spaces at the Bakersfield Station. These parking facilities would be designed to accommodate demand and to avoid overflow parking on nearby area streets. Since the HST project includes a plan to provide adequate station parking, minimal impacts to the existing downtown parking conditions are expected. This would be a negligible impact under NEPA and a less-than-significant impact under CEQA.

Bakersfield Area Transit Impacts – The project is projected to add approximately 900 daily passengers to transit service in the Bakersfield area, including approximately 135 peak-hour passengers. Under existing conditions, approximately 17 transit routes serve the Bakersfield Station area, and the addition of approximately 135 passengers on existing transit routes in the Bakersfield Station area averages about 8 additional passengers per route, assuming equal distribution. The existing transit fleet is expected to be able to accommodate the per route increases associated with the BNSF Alternative. This would be a negligible impact under NEPA and a less-than-significant impact under CEQA because there is a measurable but not perceptible increase in peak-hour ridership on existing transit routes.

Bakersfield Pedestrian and Bicycle Impacts – The proposed project would not require the closure of any of the existing or planned bicycle routes or pedestrian access routes in the immediate vicinity of Bakersfield stations. An estimated 500 passengers would access the Bakersfield Station are on foot or by bicycle each day. Approximately 75 passengers would arrive or depart the station area during the peak hour. The addition of pedestrian and bike trips during the peak hour (an average of about one pedestrian per bike per one minute) in the Bakersfield Station areas would not substantially affect existing pedestrian and bike facilities. This would be a negligible impact under NEPA and a less-than-significant impact under CEQA because no existing or planned bicycle or pedestrian routes/access would be closed and the station would cause a measurable, but a not perceptible increase of route usage in the vicinity of the station.

Table 3.2-23
Existing Plus Project, Intersection Operating Conditions, Bakersfield Stations

Int ID	Intersection	Existing		Existing plus Project South Alternative		Increase in Delay	Existing plus Project North Alternative		Increase in Delay	Impact	Existing		Existing plus Project South Alternative		Increase in Delay	Existing plus Project North Alternative		Increase in Delay	Impact
		AM Peak		AM Peak			AM Peak				PM Peak		PM Peak			PM Peak			
		Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS			Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS		
1	S. Union Avenue /Eastbound SR 58 Ramps	204.0	F	236.0	F	32.0	*	*	*	Yes	12.5	B	14.4	B	1.9	*	*	*	No
15	SR 99 Ramps/ California Avenue	73.8	E	90.5	F	16.7	*	*	*	Yes	22.9	C	25.7	C	2.8	*	*	*	No
16	Oak Street/ California Avenue	75.2	E	76.2	E	1.0	*	*	*	No	63.5	E	67.1	E	3.6	*	*	*	No
29	Union Avenue/ Hayden Court	19.2	B	65.5	E	46.3	37.9	D	18.7	Yes	18.9	B	30.6	C	11.7	23.1	C	4.2	Yes
30	Oak Street/ Truxtun Avenue	111.9	F	114.4	F	2.5	*	*	*	No	72.0	E	73.6	E	1.6	*	*	*	No
41	Union Avenue/ Golden State Avenue/ 21st Street	25.8	C	27.6	C	1.8	*	*	*	No	89.4	F	113.9	F	24.5	*	*	*	Yes
43	Chester Avenue/ 23rd Street	61.3	E	61.3	E	0.0	*	*	*	No	90.7	F	92.2	F	1.5	*	*	*	No
46	SR 178/ SR 99 Ramps /Buck Owens Blvd	31.0	C	31.2	C	0.2	*	*	*	No	58.8	E	60.3	E	1.5	*	*	*	No

Table 3.2-23
Existing Plus Project, Intersection Operating Conditions, Bakersfield Stations

Int ID	Intersection	Existing		Existing plus Project South Alternative		In-crease in Delay	Existing plus Project North Alternative		In-crease in Delay	Im-pact	Existing		Existing plus Project South Alternative		In-crease in Delay	Existing plus Project North Alternative		In-crease in Delay	Im-pact
		AM Peak		AM Peak			AM Peak				PM Peak		PM Peak			PM Peak			
		Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS			Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS		
47	Oak Street/ SR 178	84.6	F	84.9	F	0.3	*	*	*	No	72.3	E	73.1	E	0.8	*	*	*	No
49	Chester Avenue /24th Street	60.4	E	61.3	E	0.9	*	*	*	No	59.0	E	60.0	E	1.0	*	*	*	No

*Same as South Alternative

**Note: The Metropolitan Bakersfield General Plan (City of Bakersfield and Kern County 2007) has designated LOS C as the standard for intersections and roadway segments. The following intersections would have an LOS D existing plus project intersection operating condition for the South or North Alternative (AM or PM): Mt. Vernon Avenue/E. Brundage Lane (#8), P Street/California Avenue (#22), Union Avenue/Hayden Court (#29), Chester Avenue/Truxtun Avenue (#33), Q Street/Truxtun Avenue (#36), Mt. Vernon Avenue/Niles Street (#55), Union Ave/W. Niles Street (#57), Union Avenue/34th Street/Bernard Street (#63), Chester Avenue/W. Columbus Street (#64), and L Street/California Street (#67).

Table 3.2-24
Future (2035) with Project, Intersection Operating Conditions, Bakersfield Stations

Int ID.	Intersection	No-Build AM Peak		Future plus Project South Alternative AM Peak		Delay	Future plus Project North Alternative AM Peak		Delay	Im-pact	No-Build PM Peak		Future plus Project South Alternative PM Peak		Delay	Future plus Project North Alternative PM Peak		Delay	Impact
		Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS			Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS		
1	S. Union Avenue/ Eastbound SR 58 Ramps	128.3	F	139.6	F	11.3	*	*	*	Yes	22.8	C	23.5	C	0.7	*	*	*	No
3	Wible Road/ Oak Street/ Brundage Lane/ Stockdale Highway	28.2	C	28.3	C	0.1	*	*	*	No	81.6	F	81.9	F	0.3	*	*	*	No
6	S. Union Avenue/ E. Brundage Lane	36.4	D	41.1	D	4.7	*	*	*	No	53.1	D	60.2	E	7.1	*	*	*	Yes
7	Liggett Street and E. Brundage Lane	61.7	E	69.8	E	8.1	*	*	*	No	44.3	D	46.9	D	2.6	*	*	*	No
13	P Street/ 8th Street	17.1	C	17.6	C	0.5	*	*	*	No	135.2	F	140.8	F	5.6	*	*	*	Yes
14	Real Road/California Avenue	55.8	E	55.8	E	0.0	*	*	*	No	151.1	F	151.6	F	0.5	*	*	*	No

Table 3.2-24
Future (2035) with Project, Intersection Operating Conditions, Bakersfield Stations

Int ID.	Intersection	No-Build AM Peak Delay (s)	No-Build AM Peak LOS	Future plus Project South Alternative AM Peak Delay (s)	Future plus Project South Alternative AM Peak LOS	Delay	Future plus Project North Alternative AM Peak Delay (s)	Future plus Project North Alternative AM Peak LOS	Delay	Impact	No-Build PM Peak Delay (s)	No-Build PM Peak LOS	Future plus Project South Alternative PM Peak Delay (s)	Future plus Project South Alternative PM Peak LOS	Delay	Future plus Project North Alternative PM Peak Delay (s)	Future plus Project North Alternative PM Peak LOS	Delay	Impact
15	SR 99 Ramps/ California Avenue	27.4	C	32.9	C	5.5	*	*	*	No	46.8	D	57.0	E	10.2	*	*	*	Yes
16	Oak Street/ California Avenue	35.3	D	36.5	D	1.2	*	*	*	No	63.7	E	70.2	E	6.5	*	*	*	Yes
19	H Street/ California Avenue	26.9	C	27.9	C	1.0	*	*	*	No	43.0	D	49.1	D	6.1	*	*	*	No
23	Union Avenue/ California Avenue	36.1	D	39.7	D	3.6	*	*	*	No	66.6	E	76.1	E	9.5	*	*	*	Yes
29	Union Avenue/ Hayden Court	21.4	C	31.4	C	10.0	25.1	C	*	No	26.6	C	40.4	D	13.8	33.2	C		No
30	Oak Street/ Truxtun Avenue	62.3	E	63.0	E	0.7	*	*	*	No	169.1	F	175.0	F	5.9	*	*	*	Yes
32	H Street/ Truxtun Avenue	24.2	C	24.6	C	0.4	*	*	*	No	63.9	E	65.3	E	1.4	*	*	*	No
41	Union Avenue/ Golden State Avenue/ 21st Street	38.9	D	42.6	D	3.7	*	*	*	No	94.2	F	122.0	F	27.8	*	*	*	Yes

Table 3.2-24
Future (2035) with Project, Intersection Operating Conditions, Bakersfield Stations

Int ID.	Intersection	No-Build AM Peak		Future plus Project South Alternative AM Peak		Delay	Future plus Project North Alternative AM Peak		Delay	Im-pact	No-Build PM Peak		Future plus Project South Alternative PM Peak		Delay	Future plus Project North Alternative PM Peak		Delay	Impact
		Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS			Delay (s)	LOS	Delay (s)	LOS		Delay (s)	LOS		
43	Chester Avenue/ 23rd Street	48.3	D	48.3	D	0.0	*	*	*	No	112.6	F	112.7	F	0.1	*	*	*	No
44	Q Street/ 23rd Street	52.3	F	52.3	F	0.0	*	*	*	No	*	F	*	F	*	*	*	*	No
45	SR 178/ SR 99 Southbound Ramps	64.5	E	65.5	E	1.0	*	*	*	No	43.0	D	44.5	D	1.5	*	*	*	No
46	SR 178/ SR 99 Ramps/ Buck Owens Blvd	107.4	F	108.4	F	1.0	*	*	*	No	198.3	F	201.0	F	2.7	*	*	*	No
47	Oak Street/ SR 178	340.5	F	342.0	F	1.5	*	*	*	No	545.2	F	547.0	F	1.8	*	*	*	No
48	F Street/ 24th Street	103.3	F	103.8	F	0.5	*	*	*	No	172.7	F	172.8	F	0.1	*	*	*	No
49	Chester Avenue/24th Street	56.2	E	56.5	E	0.3	*	*	*	No	152.1	F	152.1	F	0.0	*	*	*	No
51	Q Street/ Golden State Avenue	23.1	C	23.5	C	0.4	*	*	*	No	157.9	F	162.8	F	4.9	*	*	*	Yes

Table 3.2-24
Future (2035) with Project, Intersection Operating Conditions, Bakersfield Stations

Int ID.	Intersection	No-Build AM Peak Delay (s)	No-Build AM Peak LOS	Future plus Project South Alternative AM Peak Delay (s)	Future plus Project South Alternative AM Peak LOS	Delay	Future plus Project North Alternative AM Peak Delay (s)	Future plus Project North Alternative AM Peak LOS	Delay	Im-pact	No-Build PM Peak Delay (s)	No-Build PM Peak LOS	Future plus Project South Alternative PM Peak Delay (s)	Future plus Project South Alternative PM Peak LOS	Delay	Future plus Project North Alternative PM Peak Delay (s)	Future plus Project North Alternative PM Peak LOS	Delay	Impact
52	Union Avenue/ Espee Street	13.1	B	13.2	B	0.1	*	*	*	No	69.2	E	72.5	E	3.3	*	*	*	No
56	M Street/ 28th Street/ Golden State Avenue	197.1	F	200.1	F	3.0	*	*	*	No	320.7	F	325.3	F	4.6	*	*	*	Yes
60	F Street/ Golden State Avenue	189.5	F	193.4	F	3.9	*	*	*	No	491.4	F	492.5	F	1.1	*	*	*	No
65	Union Avenue/ Columbus Street	31.4	C	31.7	C	0.3	*	*	*	No	74.4	E	75.2	E	0.8	*	*	*	No

*Same as South Alternative

** Note: The Metropolitan Bakersfield General Plan (City of Bakersfield and Kern County 2007) has designated LOS C as the standard for intersections and roadway segments. The following intersections would have a future plus project intersection operating condition of LOS D for the South or North Alternative (AM or PM): Mt. Vernon Avenue/E. Brundage Lane(#8), P Street/California Avenue (#22), Union Avenue/Hayden Court (#29), Chester Avenue/Truxtun Avenue (#33), Q Street/Truxtun Avenue (#36), Mt. Vernon Avenue/Niles St(#55), Union Avenue/W. Niles Street (#57), Union Avenue/34th Street/Bernard Street (#63), Chester Avenue/W. Columbus Street (#64), and L Street/California Street (#67).

Bakersfield Area Freight Impacts – As the proposed HST service would operate on an elevated structure through the Fresno 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. There would be a negligible impact under NEPA and a less-than-significant impact under CEQA because freight rail service would be elevated and therefore not be interrupted or worsened by the HST station.

Heavy Maintenance Facility Alternatives

Five alternative locations were evaluated for traffic impacts for the proposed Heavy Maintenance Facilities, which are described in Section 2. One site is in Fresno County, one site in Kings-County-Hanford, and three alternative sites in Kern County (Wasco, and Shafter East and West). The following summarizes the traffic conditions with and without HMF operations.

Existing Plus Project, Roadway Segment Analysis (HMF Sites) – Table 3.2-25 shows the projected year 2035 traffic conditions at the roadway segments in the vicinity of the impacted HMF sites for the AM and PM peak hours under both the Existing and Existing + Project conditions. Nine of the roadways would be affected by the HMF project traffic, but none of the roadways are functioning, or would function, at LOS E or F. These impacts are considered negligible under NEPA and less than significant under CEQA because the increase in ADT caused by the HMF site would cause a measureable, but not perceptible worsening of roadway segment operating LOS to the transportation system user.

Future (2035) with Project, Roadway Segment Analysis (HMF Sites) – Table 3.2-26 shows the projected year 2035 traffic conditions for the roadway segments evaluated at the impacted HMF sites for the AM and PM peak hours under both the No Build and No Build Plus Project conditions. As shown in the table, there are nine of the studied intersections that would be affected by the HMF project added traffic. Two segments would be adversely affected. Santa Fe Way in Shafter would have a volume/capacity ratio increase of 0.08 and SR 43 between SR 198 and Houston Avenue in Hanford would have an LOS decrease to F. These two impacts are considered to be substantial under NEPA and significant under CEQA because the increase in ADT caused by the HMF site would cause a measureable worsening of roadway segment operating LOS to the transportation system user.

Existing Plus Project, Intersection Analysis (HMF Sites) – Table 3.2-27 shows the projected year 2035 traffic conditions at the intersections around the impacted HMF sites for the AM and PM peak hours under both the Existing and Existing Plus Project conditions. Three of the studied intersections would be adversely affected by the HMF project added traffic where either there is a change in LOS to E or F, or, where an intersection is operating at LOS E or F, the delay would increase by 4 seconds or more. These three impacts are considered to be substantial under NEPA and significant under CEQA because the increase in delay caused by the HMF site would cause a measureable worsening of roadway segment operating LOS to the transportation system user.

Future with Project, Intersection Analysis (HMF Sites) – Table 3.2-28 shows the projected year 2035 traffic conditions at the intersections around the impacted HMF sites for the AM and PM peak hours under both the No Build and No Build Plus Project conditions. As shown in the table, there are seven of the studied intersections that would be adversely affected by the HMF project added traffic. These impacts are considered to be substantial under NEPA and significant under CEQA because the increase in delay caused by the HMF site would cause a measureable worsening of roadway segment operating LOS to the transportation system user.

Table 3.2-25
HMF Roadway Segment Analysis (Existing Plus Project)

	No.	Roadway Segment	ADT Existing	Lanes (NE/ SW)	Divided/ Un-divided	Capacity	v/c Existing	LOS Existing	Existing plus project ADT	v/c Existing + Project	LOS Existing plus Project	Im-pact
Fresno	1	Central Avenue between S. Cedar Avenue and S. Maple Avenue	2,966	1/1	Un-divided			C	3,556		C	No
	2	E. American Avenue between S. Cedar Avenue and S. Chestnut Avenue	915	1/1	Un-divided			C	2,185		C	No
	3	E. Adams Avenue between S. Cedar Avenue and S. Chestnut Avenue	1,702	1/1	Un-divided			C	1,702		C	No
Hanford	1	On SR 43 between SR 198 and Houston Avenue	8,560	1/1	Un-divided			D	9,670		D	No
	2	On SR 43 between Houston Avenue and Idaho Avenue	6,656	1/1	Un-divided			D	7,686		D	No
	3	On Houston Avenue between SR 43 and 7th Avenue	3,694	1/1	Un-divided			C	4,174		C	No
	4	On Idaho Avenue between SR 43 and 7th Avenue	556	1/1	Un-divided			C	806		C	No

Table 3.2-25
HMF Roadway Segment Analysis (Existing Plus Project)

	No.	Roadway Segment	ADT Existing	Lanes (NE/ SW)	Divided/ Un-divided	Capacity	v/c Existing	LOS Existing	Existing plus project ADT	v/c Existing + Project	LOS Existing plus Project	Im-pact
Wasco	1	On SR 43 North of SR 46	3,164	1/1	Un-divided	15,000	0.21	A	4,094	0.27	A	No
	2	On SR 46 between F Street and Wasco Avenue	9,098	1/1	Un-divided	15,000	0.61	B	10,178	0.68	B	No
	3	On SR 46 East of Wasco Avenue	6,626	1/1	Un-divided	15,000	0.44	A	7,346	0.49	A	No
	4	On Wasco Avenue between SR 46 and 6th Street	2,402	1/1	Un-divided	15,000	0.16	A	3,692	0.25	A	No
Shafter (East and West)	1	On Santa Fe Way between Burbank Street and 7th Standard Road	8,142	1/1	Un-divided	15,000	0.54	A	9,342	0.62	B	No

Table 3.2-26
Roadway Segment Analysis (Future (2035) Plus Project)

	No.	Roadway Segment	ADT No-Build	Lanes (NE/SW)	Divided/ Un-divided	Capa-city	v/c No Build	LOS No Build	No Build + Project ADT	v/c No Build + Project	LOS No Build + Project	Impact
Fresno	1	Central Avenue, between S. Cedar Avenue and S. Maple Avenue	5,497	2/2	Un-divided			D	6,087		D	No
	2	E. American Avenue , between S. Cedar Avenue and S. Chestnut Avenue	1,289	2/2 till maple then 1/1 after	Un-divided			C	2,559		C	No
	3	E. Adams Avenue between S. Cedar Ave. and S. Chestnut Avenue	2,393	1/1	Un-divided			C	2,393		C	No
Hanford	1	On SR 43 between SR 198 and Houston Avenue	14,733	1/1	Un-divided			E	15843		F	Yes
	2	On SR 43 between Houston Avenue and Idaho Avenue	11,746	1/1	Un-divided			D	12776		D	No
	3	On Houston Avenue between SR 43 and 7th Avenue	2,848	1/1	Un-divided			C	3328		C	No
	4	On Idaho Avenue between SR 43 and 7th Avenue	270	1/1	Un-divided			C	520		C	No

Table 3.2-26
Roadway Segment Analysis (Future (2035) Plus Project)

	No.	Roadway Segment	ADT No-Build	Lanes (NE/SW)	Divided/ Un-divided	Capa-city	v/c No Build	LOS No Build	No Build + Project ADT	v/c No Build + Project	LOS No Build + Project	Impact
Wasco	1	On SR 43 North of SR 46	9,920	1/1	Un-divided	15,000	0.66	B	10,850	0.72	C	No
	2	On SR 46 between F Street and Wasco Avenue	17,408	2/2	Un-divided	30,000	0.58	A	18,488	0.62	B	No
	3	On SR 46 East of Wasco Avenue	9,836	1/1	Un-divided	15,000	0.66	B	10,556	0.70	B	No
	4	On Wasco Avenue between SR 46 and 6th Street	7,608	1/1	Un-divided	15,000	0.51	A	8,898	0.59	A	No
Shafter (East and West)	1	On Santa Fe Way between Burbank Street and 7th Standard Road	25,098	1/1	Un-divided	15,000	1.67	F	26,298	1.75	F	No

Table 3.2-27
Intersection Analysis (Existing Plus Project)

Intersection	AM						PM					
	Existing		Existing + project		Mitigated		Existing		Existing + project		Mitigated	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Fresno												
SR 99 SB off-ramp/E Central Avenue	197.2	F	248.9	F[1]	15.3	B	25.1	D	29.9	D[1]	8.8	A
SR 99 NB off-ramp/S. Chestnut Avenue	371.9	F	371.9	F			20.9	C	20.9	C		
Clovis Avenue/SR 99 SB on-ramp	46.9	E	169.7	F[1]	5.9	A	37.9	E	266.7	E[1]	7.3	A
Wasco												
Wasco Avenue/Paso Robles Highway	18	C	33.7	D[1]	7.4	A	22.7	C	64.9	F[1]	7.4	A
Wasco Avenue/6th Street	10.2	B	10.5	B			10.2	B	10.5	B		

Note:
[1] Denotes impacted intersection LOS

Table 3.2-28
Intersection Analysis (Future (2035) Plus Project)

	Intersection	AM						PM					
		No Build		No Build + Project		Mitigated		No Build		No Build + Project		Mitigated	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Fresno													
2	SR 99 SB off-ramp/E Central Avenue	366.2	F	422.9	F[1]	15.3	B	308.2	F	366.6	F[1]	13.4	B
6	SR 99 SB off-ramp/E American Avenue	16.1	C	17.7	C	6.9	A	274.8	F	335.5	F[1]	11.3	B
11	Clovis Avenue/SR 99 SB on-ramp	747.4	F	*	F[1]	16.8	B	*	F	*	F[1]	15.0	B
Hanford													
1	Central Valley Hwy and Houston Avenue	26.4	C	38.1	D[1]	18.2	B	48.2	D	65.8	E[1]	22.9	C
3	Central Valley Hwy and Idaho Avenue	25.2	D	30.7	D	3.5	A	47.9	E	84.8	F[1]	4.8	A
Wasco													
1	Wasco Avenue/Paso Robles Hwy	*	F	*	F[1]	23.5	C	*	F	*	F[1]	65.1	E
Shafter (East and West)													
1	Santa Fe Way/Burbank Street	484.7	F	*	F[1]	11	B	62.1	F	520.9	F[1]	10.5	B

Note: * = Volumes at the intersection exceed theoretical capacity. As a result, average delay cannot be predicted.

[1] Denotes impacted intersection LOS

3.2.6 Mitigation Measures

The Authority and FRA have considered avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program EIR/EIS commitments. 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.** Identify 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 shall be maintained where feasible.

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 shall be maintained where feasible.

4) **Restriction on Construction Hours.** Limit construction material deliveries between 7 a.m. and 9 a.m. and between 4 p.m. and 6 p.m. on weekdays. The number of construction employees arriving or departing the site between the hours of 7:00 a.m. to 8:30 a.m. and 4:30 p.m. to 6 p.m. would be limited.

5) **Construction Truck Routes.** Deliver all construction-related equipment and materials on the appropriate truck routes. Prohibit heavy construction vehicles from accessing the site via other routes.

6) **Protection of Public Roadways during Construction.** Repair any structural damage to public roadways, 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. Complete a before-and-after survey report and submit to the Authority for review, indicating the location and extent of any damage.

7) **Protection Maintenance of Public Transit Access and Routes.** Coordinate with the appropriate transit jurisdiction before limiting access to public transit and 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 shall be maintained where feasible.

8) **Construction Transportation Plan.** Prepare a detailed construction transportation plan prior to commencing any construction activities, to address in detail the activities to

be carried out in each construction phase. Such activities include, but are not limited to, the routing and scheduling of materials deliveries, construction employee arrival and departure schedules, employee parking locations, and emergency vehicle access. The Plan would include a traffic control plan that addresses temporary road closures, detour provisions, allowable routes, and alternative access.

9) **Construction during Special Events.** Provide a mechanism to prevent roadway construction activities from reducing roadway capacity during major athletic events or other special events that attract a substantial number of visitors. Mechanisms include police officers directing traffic, special event parking, use of within-the-curb parking or shoulder lanes for through traffic, traffic cones, etc. Through such mechanisms, roadway capacity would be maintained**.**

10) **Protection of freight and passenger rail during construction.** Repair any structural damage to freight or public railways, and return any damaged sections to their original structural condition. If necessary, during construction, a "shoofly" track would be constructed 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.

The mitigation measures below are intended to compensate for impacts that cannot be minimized or avoided. None of these mitigation measures would create secondary significant impacts. 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 would be included in the project plans. Possible exceptions may be intersections proposed for signalization but not warranted at the time of construction, as discussed further below.

The following mitigation measures are designed to reduce significant transportation system impacts to intersections and roadways to less-than-significant levels.

A. MITIGATION MEASURES FOR POTENTIAL ROAD CLOSURES

TR MM#1: Access Maintenance for Property Owners. Maintain access for owners to property within the construction area. 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 would be considered for acquisition.

B. MITIGATION MEASURES FOR INTERSECTION AND ROADWAY IMPACTS

TR MM#2: Add Signal to Intersection to Improve LOS/Operation. Add traffic signals to affected non-signalized intersections surrounding proposed HST station locations 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 or may not be met at earlier dates. Therefore, the signalization mitigation would only be required at such a time (between 2020 and 2035) as the warrant is met. These intersections would have to be monitored annually to determine when/if the warrant is met.

TR MM#3: Restripe Intersections. Restripe specific intersections surrounding proposed HST station locations in order to improve LOS and intersection operations.

TR MM#4: Revise Signal Cycle Length. Revise signal cycle length at specific intersections surrounding proposed HST station locations in order to improve LOS and intersection operations.

TR MM#5: Widen Approaches to Intersections. Widen approaches in order to improve LOS and intersection operation.

TR MM#6: Add Exclusive Turn Lanes to Intersections. Add exclusive turn lanes at specific intersections in order to improve LOS and intersection operations.

TR MM#7: Add New Lanes to roadway. Add additional roadway lanes in order to improve LOS and intersection operations.

Mitigation measures TR MM #2 through TR MM #7 would be utilized to address station area intersection impacts as discussed below.

Fresno Station Area

The following tables include mitigation for impacted intersections and roadways in the Fresno Station area. These mitigation measures are for impacts under Existing Plus Project (Table 3.2-29) and Future (2035) Plus Project conditions (Table 3.2-30).

Table 3.2-29
Mitigation Measures - Fresno Station Area – Existing Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
6 – SR 99 Northbound Ramps/Ventura Avenue	**TR MM#3:** Restripe Intersections.	Re-stripe the northbound approach to provide one exclusive left-turn lane and one shared through/right-turn lane at the intersection.
33 – Divisadero Street/SR 41 NB Ramps/Tulare Street	**TR MM#4:** Revise Signal Cycle Length.	Re-time the existing signal.
63 – H Street/Divisadero Street	**TR MM#4:** Revise Signal Cycle Length.	Re-time the existing signal in AM.
80 – North Blackstone Avenue/SR 180 Westbound Ramps	**TR MM#4:** Revise Signal Cycle Length.	Re-time the existing signal in AM.

Table 3.2-30
Mitigation Measures - Fresno Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
2 – Van Ness Avenue/SR 41 Northbound Ramp	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the eastbound approach to provide one exclusive left-turn lane and one shared left/through/right-turn lane at the intersection.
6 – SR 99 Northbound Ramps/Ventura Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
7 – E Street/Ventura Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install traffic signal at the intersection.
10 – Van Ness Avenue/Ventura Avenue	**TR MM#4**: Revise Signal Cycle Length.	Modify the existing traffic signal phasing to provide protected left-turn phases for the northbound and southbound approaches.
21 – H Street/Kern Street	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** 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.
24 – G Street/Tulare Street	**TR MM#4:** Revise Signal Cycle Length. **TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Modify the existing traffic signal phasing to provide protected left-turn phases for the eastbound and westbound approaches. In addition the westbound approach would need to be widened to provide one exclusive left-turn lane, one exclusive through lane, and one exclusive right-turn lane at the intersection.

Table 3.2-30
Mitigation Measures - Fresno Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
25 – H Street/Tulare Street	**HST undercrossing of Tulare Street:** **TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections. **HST overcrossing of Tulare Street:** H Street and Tulare Street would be grade-separated.	**HST undercrossing of Tulare Street.** Widen the southbound approach to provide one exclusive left-turn lane, two through lanes and one exclusive right-turn lane. Widen the northbound approach to provide two exclusive left-turn lanes, 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 shared through/right-turn lane at the intersection. It should be noted that implementation of all of the above improvements/road widening may not be feasible due to physical constraints at the intersection caused by existing structures adjacent to the right-of-way along H and Tulare Streets, including Chukchansi Park, the Greyhound Bus Station, and the Fresno Fire Department Building. **HST overcrossing of Tulare Street:** No mitigation required.
26 – Van Ness Avenue/Tulare Street	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** 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 Street/Tulare Street	**TR MM#4:** Revise Signal Cycle Length.	Modify the existing traffic signal phasing to provide protected left-turn phases for the eastbound and westbound approaches.
37 – SR 99 Southbound Ramps/Fresno Street	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** 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.
38 – SR 99 Northbound Ramps/Fresno Street:	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the eastbound approach to provide two exclusive left-turn lanes and one exclusive through lane.

Table 3.2-30
Mitigation Measures - Fresno Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
42 – Van Ness Avenue/Fresno Street	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the southbound approach to provide one exclusive left-turn lane, one exclusive through lane, and one exclusive right-turn lane at the intersection.
46 – Fresno Street/Divisadero Street	**TR MM#4:** Revise Signal Cycle Length.	Modify the existing traffic signal to provide split phases for the eastbound and westbound approaches at the intersection.
60 – H Street/Amador Street	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
63 – H Street/Divisadero Street	**TR MM#3:** Restripe Intersections. **TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the westbound approach to provide one shared through/right-turn lane and three exclusive right turn lanes. Restripe the northbound approach to provide two exclusive left turn lanes and one shared through/right-turn lane. Also, provide an additional left turn lane on the southbound approach (H Street). It should be noted that implementation of all of the above improvements/road widening may not be feasible due to the physical constraints at the intersection caused by existing structures adjacent to the right-of-way of H and Divisidero Streets.
66 – Van Ness Avenue/Divisadero Street	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the eastbound and westbound approaches to provide one shared left/through lane, one exclusive through lane and one exclusive right-turn lane at the intersection.
67 – H Street/Roosevelt Street	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the eastbound approach (H St.) to provide one shared left through lane, and one exclusive through lane and one shared through right-turn lane.
68 – North Blackstone Avenue/East McKenzie Avenue	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the westbound approach to provide one exclusive left-turn lane and one exclusive through lane.

Table 3.2-30
Mitigation Measures - Fresno Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
71 – Van Ness Avenue/SR 180 Eastbound Ramps	**TR MM#3:** Restripe Intersections. **TR MM#6**: Add Exclusive Turn Lanes to Intersections.	Re-stripe 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 Avenue/SR 180 Westbound Ramps	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide one additional exclusive left-turn lane at the intersection.
74 – North Blackstone Avenue/East Belmont Avenue	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** 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 – North Abby Street/SR 180 Eastbound Ramps	**TR MM#3:** Restripe Intersections. **TR MM#6:** 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 – North Blackstone Avenue/SR 180 Westbound Ramps	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide one additional exclusive right-turn lane at the intersection.
81 – Broadway Street/Amador Street	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	The intersection would require installation of traffic signal.
92 – S. Van Ness Avenue/E. California Avenue (92)	**TR MM#2:** Add Signal to Intersection to Improve LOS/ Operation. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Install a traffic signal at the intersection, additionally provide exclusive left turn lanes in both NB and SB direction, and also change phasing on the Northbound Left and Southbound Left to protected plus permissive.
96 – Golden State Boulevard/E. Church Avenue	**TR MM#4:** Revise Signal Cycle Length. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Provide an exclusive right turn lane in the northbound direction, and change signal phasing on all approaches to provide a protected plus permissive left turn phase.
98 – S. East Avenue/E. Church Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection
99 – S. Sunland Avenue/E. Church Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection

Table 3.2-30
Mitigation Measures - Fresno Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
101 – S. East Avenue / Golden State Boulevard	**TR MM#4:** Revise Signal Cycle Length.	Increase cycle length in the PM Peak Hour only.
102 – Golden State Boulevard/E. Jensen Avenue	**TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Provide an exclusive right turn lane for both Northbound and Southbound approaches.
Roadway Segments - Future (2035) Plus Project		
20 – Tulare Street, between Broadway Street and Van Ness Avenue	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction
22 – Divisadero Street, between N. Fresno Street and SR 41 Ramps	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction.

Kings/Tulare Station Area

Table 3.2-31 includes mitigation for impacted intersections and roadways in the Kings/Tulare Station area. These mitigation measures are for impacts under Existing Plus Project conditions. Table 3.2-32 lists mitigation measures for the Kings/Tulare Station area for Future (2035) Plus Project conditions.

Table 3.2-31
Mitigation Measures – Kings/Tulare Station Area – Existing Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
4 – Seventh Street/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
6 – Sixth Street/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
7 – Second Avenue/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
8 – SR 43/Lacey Boulevard	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.

Table 3.2-31
Mitigation Measures – Kings/Tulare Station Area – Existing Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Roadway Segments		
7 – SR 198 between 7th Avenue and 6th Avenue	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction.
8 – SR 198 between 6th Avenue and 7th Avenue	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction.
9 – SR 198 between 2nd Avenue and Road 48	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction.

Table 3.2-32
Mitigation Measures – Kings/Tulare Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 – Ninth Avenue/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection to provide protected left-turn phases for the eastbound and westbound approaches.
2 – Eighth Avenue/SR 198 Westbound Ramps	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
3 – Eighth Avenue/SR 198 Eastbound Ramps	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
4 – Seventh Street/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection to provide protected left-turn phases for the eastbound and westbound approaches along with split phasing for the northbound and southbound approaches.
6 – Sixth Street/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection to provide protected left-turn phases for the eastbound and westbound approaches along with split phasing for the northbound and southbound approaches.
7 – Second Avenue/SR 198	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection to provide protected left-turn phases for the eastbound and westbound approaches along with split phasing for the northbound and southbound approaches.

Table 3.2-32
Mitigation Measures – Kings/Tulare Station Area – Future (2035) Plus Project

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
8 – SR 43/Lacey Boulevard	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection to provide protected left-turn phases for the northbound and southbound approaches along with split phasing for the eastbound and westbound approaches.
Roadways		
4 – Eighth Avenue / SR 43 between Grangeville Boulevard and SR 198 Ramps	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction.

Bakersfield Station Area

Table 3.2-33 presents mitigation measures for impacted intersections for the two Bakersfield Station sites. The mitigation measures are the same for both alternative station locations with the exception of measure #29, which applies only for the South Alternative site. No mitigation for roadways is required. Table 3.2-33 mitigation measures are for impacts under Existing Plus Project conditions. Table 3.2-34 lists mitigation measures for Future (2035) Plus Project conditions.

Table 3.2-33
Mitigation Measures – Bakersfield Stations – Existing Plus Project*

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 – S. Union Avenue/Eastbound SR 58 Ramps	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the eastbound approach to provide one exclusive left-turn lane and one shared left/right-turn lane at the intersection.
15 – SR 99 Northbound Ramps/California Avenue	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the northbound approach to provide one exclusive left-turn lane, one shared left/through/right-turn lane, and one exclusive right-turn lane at the intersection.
29 – Hayden Court/Union Avenue *(Mitigation measure applies only to the South Alternative Station site)*	**TR MM#4:** Revise Signal Cycle Length.	Re-time the existing signal in AM
41 – Union Avenue/Golden State Avenue/21st Street	**TR MM#4:** Revise Signal Cycle Length.	Re-time the existing signal in PM
*Measures apply to both North and South Alternative Station locations except for #29, as noted.		

Table 3.2-34
Mitigation Measures – Bakersfield Stations – Future (2035) Plus Project*

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 – S. Union Avenue/Eastbound SR 58 Ramps	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the eastbound approach to provide one exclusive left-turn lane and one shared left/right-turn lane at the intersection.
6 – Union Avenue/East Brundage Lane	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the westbound approach to provide an additional exclusive left-turn lane at the intersection.
7 – Liggett Street/East Brundage Lane	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the northbound approach to provide an additional exclusive left-turn lane. In addition the existing traffic signal would need to be modified to provide protected left-turn phases on the eastbound and westbound approaches.
13 – P Street/Eighth Street	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
15 – SR 99 Northbound Ramps/California Avenue	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the northbound approach to provide one exclusive left-turn lane, one shared left/through/right-turn lane, and one exclusive right-turn lane at the intersection.
16 – Oak Street/California Avenue	**TR MM#4:** Revise Signal Cycle Length.	Modify the existing traffic signal to provide protected left-turn phases for the northbound and southbound approaches at the intersection.
23 – Union Avenue/California Avenue (Mitigation measure applies only to the South Alternative Station site)	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the northbound approach to provide one exclusive left-turn lane, three exclusive through lanes, and one exclusive right-turn lane at the intersection.
30 – Oak Street/Truxtun Avenue	**TR MM#3:** Restripe Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Re-stripe the westbound approach to provide two exclusive left-turn lanes, two exclusive through lanes, and one shared through/right-turn lane at the intersection.
41 – Union Avenue/Golden State Avenue/21st Street	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the northbound approach to provide an additional through lane to go on Union Avenue.

Table 3.2-34
Mitigation Measures – Bakersfield Stations – Future (2035) Plus Project*

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
51 – Q Street/Golden State Avenue	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the eastbound approach to provide an additional exclusive left-turn lane at the intersection.
56 – M Street/Twenty-Eighth Street/Golden State Avenue	**TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Widen the northbound approach to provide an additional exclusive left-turn lane at the intersection.

D. MITIGATION MEASURES FOR HMF SITE IMPACTS

Mitigation measures identified to address the HMF sites roadway impacts are listed in Tables 3.2-35 through 3.2-40 for each site.

Table 3.2-35
Fresno Heavy Maintenance Facility – Existing plus Project Mitigation Measures

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
2 – SR 99 SB Off-Ramp /E. Central Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection
11 – S. Clovis Avenue/SR 99 SB On-Ramp	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection

Table 3.2-36
Fresno Heavy Maintenance Facility – Future (2035) plus Project Mitigation Measures

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
2 – SR 99 SB Off-Ramp /E. Central Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection
6 – SR 99 SB Off-Ramp /E. American Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection
11 – S. Clovis Avenue/SR 99 SB On-Ramp	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection

Table 3.2-37
Hanford Heavy Maintenance Facility – Existing plus Project Mitigation Measures

Location Affected	Mitigation Measure	Specific Actions Recommended
Roadway Segment		
7 – SR 198 between 7th Avenue and 6th Avenue	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction
8 – SR 198 between 6th Avenue and 2nd Avenue	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction
9 – SR 198 between 2nd Avenue and Road 48	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction

Table 3.2-38
Hanford Heavy Maintenance Facility – Future (2035) plus Project Mitigation Measures

Location Affected	Mitigation Measure	Specific Actions Recommended
Intersections		
1 – Central Valley Highway (SR 43)/Houston Avenue	**TR MM#4:** Revise Signal Cycle Length.	Change EB AND WB phasing from split to permissive.
3 – Central Valley Highway (SR 43)/Idaho Avenue	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection
Roadway Segment		
1 – On SR 43 between SR 198 and Houston Avenue	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction

Table 3.2-39
Wasco Heavy Maintenance Facility – Existing Plus Project and Future (2035) plus Project Mitigation Measures

Location Affected	Mitigation Measure	Specific Actions Recommended
Intersections		
Existing Plus Project 1 – Wasco Avenue /Paso Robles Hwy (SR46)	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
Future (2020) with Project 1 – Wasco Avenue /Paso Robles Hwy (SR46)	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.

Table 3.2-40
Shafter Heavy Maintenance Facility –Future (2035) plus Project Mitigation Measures

Location Affected	Mitigation Measure(s)	Specific Actions Recommended
Intersections		
1 – Santa Fe Way/Burbank Street	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation.	Install a traffic signal at the intersection.
Roadway Segment		
1 – Santa Fe Way between Burbank Street and 7th Standard Road	**TR MM#7:** Add New Lanes to roadway.	Add one lane in either direction

The foregoing tables of intersection and segment impacts and mitigation present impacts and mitigation for both the existing-plus-Project and future-plus-Project baseline scenarios. As stated earlier, mitigation for both baseline scenarios is not required (mitigation for only one is required); the dual-baseline approach is just two different analytical ways of evaluating the same potential impact. It is substantially more likely that existing background traffic volumes (and background roadway changes due to other programmed traffic improvement projects) would change between today and 2020/2035 than it is that existing traffic conditions would remain perfectly unchanged over the next 10 to 25 years. Accordingly, mitigation for the future-plus-Project impact scenario would be more appropriate.

3.2.7 NEPA Impact Summary

Traffic congestion within the cities of Fresno and Bakersfield and along portions of SR 198 in Kings and Tulare counties is forecasted to increase in the future with population and economic growth. By 2035, under the No Project Alternative 43 intersections and 11 road segments in the Fresno Station area, eight intersections and three roadway segments in the Kings/Tulare Station area, and 23 intersections in the Bakersfield Station area that would function at levels of service E or F.

Construction impacts resulting from the project would be temporary and would occur over multiple years. Construction activities would remain primarily within the project's permanent acquired right-of-way; however, work outside of the right-of-way may be necessary for construction access, equipment or materials staging, utility relocation, construction of overhead structures, and other requirements that may temporarily affect traffic. The Authority and FRA have considered avoidance and minimization measures consistent with the Statewide and Bay Area to Central Valley Program EIR/EIS commitments. 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. Depending on the specifics of the construction activities, other intersections could be affected. 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. 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.

Under Future (2035) Plus Project conditions, the project would affect local traffic in the vicinity of the three stations. Without the incorporation of mitigation measures, 30 intersections and two roadway segments would be impacted in the vicinity of either Fresno Station area. Seven intersections and one road segment in the Kings/Tulare Station area would be impacted and 10 intersections in the Bakersfield Station area would be impacted (both alternatives). With the implementation of proposed mitigation these impacts would be reduced to before-project levels, and impacts would be moderate under NEPA. However, two intersections (#25, undercrossing alternative alignment, and #63) in the vicinity of the Fresno Station area would have a unavoidable substantial impact because not all proposed mitigation measures may be feasible due to physical constraints of future right-of-way widening caused by existing structures.

The HMF facility would add worker-related traffic to local roads when work shifts start and end. This traffic could contribute to delays, depending on the site-specific conditions at the selected HMF facility. It would be limited to the location of the HMF facility and occur only during the work-shift changes. This is considered a moderate impact.

The project would add approximately 700 daily passengers to transit service in the city of Fresno and approximately 900 daily passengers to transit service in Bakersfield. These additional riders, using the system during peak hours as well as throughout the day, could be accommodated through minor changes in transit service or routes. This impact is negligible under NEPA.

Four hundred to 500 HST passengers are predicted to walk, carpool or drop off, or bike to and from the stations daily. The station designs would accommodate and encourage these modes, and no adverse impacts are anticipated. The stations would also include parking for 1,600 to 2,300 vehicles, based on the conceptual designs, which would be expected to accommodate demand. There would be no impact on existing parking.

3.2.8 CEQA Significance Conclusions

Impacts, mitigation measures, and the level of significance after mitigation is applied are summarized in Table 3.2-41. With the incorporation of mitigation, all impacts would be less than significant under CEQA.

Table 3.2-41
Summary of Potential Impacts on Transportation Resources

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure(s)	CEQA Level of Significance after Mitigation
Future (2035) Plus Project Impacts			
TR #1 Permanent Road Closures. BNSF – 37 roads. Corcoran Elevated Alternative – 1 road. Corcoran Bypass Alternative - 8 roads. Allensworth Bypass Alternative – 2 roads. Wasco-Shafter Bypass Alternative – 16 roads. Bakersfield South Alternative – 4 roads.	Significant	**TR MM#1:** Access Maintenance for Property Owners.	Less Than Significant
TR #2 HST Station Area Roadway Impacts. Fresno – 2. Kings/Tulare – 1. Bakersfield – 0.	Significant	**TR MM#7:** Add New Lanes to roadway.	Less Than Significant
TR #2 HST Station Area Intersection Impacts. Fresno – 30. Kings/Tulare – 7. Bakersfield – 10.	Significant	**TR MM#2:** Add Signal to Intersection to Improve LOS/Operation. **TR MM#3:** Restripe Intersections. **TR MM#4**: Revise Signal Cycle Length. **TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	Less Than Significant and Significant for Fresno Station Area Intersections #25 – H Street/Tulare Street (undercrossing alternative alignment) and #63 – H Street/Divisidero.
TR #3 HMF Site Roadway Impacts. Hanford Site – 1.	Significant	**TR MM#7:** Add New Lanes to roadway.	Less Than Significant
TR #3 HMF Site Intersection Impacts.	Significant	**TR MM#2:** Add Signal to Intersection to Improve	Less Than Significant

Table 3.2-41
Summary of Potential Impacts on Transportation Resources

Impact	CEQA Level of Significance before Mitigation	Mitigation Measure(s)	CEQA Level of Significance after Mitigation
Fresno – 2. Kings County (Hanford) HMF – 2. Kings County (Wasco) HMF - 2. Kern Council of Government (Shafter East and West) HMF – 1.		LOS/Operation. **TR MM#3:** Restripe Intersections. **TR MM#4**: Revise Signal Cycle Length. **TR MM#5:** Widen Approaches to Intersections. **TR MM#6:** Add Exclusive Turn Lanes to Intersections.	