3.2 Transportation

This section summarizes the potential transportation impacts of the F-B LGA along the F-B LGA and compares the F-B LGA to the complementary portion of the Preferred Alternative that was identified in the *Fresno to Bakersfield Section California High-Speed Train Final Project Environmental Impact Report/Environmental Impact Statement*. As discussed in Section 1.1.3 of this Draft Supplemental EIR/EIS, the complementary portion of the Preferred Alternative consists of the portion of the BNSF Alternative from Poplar Avenue to Hageman Road and the Bakersfield Hybrid from Hageman Road to Oswell Street (further referenced as the "May 2014 Project" in this Draft Supplemental EIR/EIS). This section discusses transportation-related direct, indirect, and cumulative impacts, avoidance and minimization measures, and mitigation measures for the alternative. Additionally, this section reports the impact findings compared to both the updated existing and future no-build conditions in 2035. The term "transportation" includes highways and roadways, air travel and rail and bus service, as well as parking, cycling, and pedestrian access. The high-speed rail (HSR) program incorporates several project engineering and design features intended to avoid or reduce the potential impacts of implementing the new HSR system between Fresno and Bakersfield. The Authority has developed avoidance and minimization measures intended 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. Relevant avoidance measures, including but not limited to, locating the proposed project parallel to existing transportation features such as freeways and freight railroads, are discussed in greater detail Appendices 2-G and 2-H of this Draft Supplemental EIR/EIS.

3.2.1 Regulatory Setting

Federal, state, and local laws, regulations, and orders that pertain to transportation and traffic resources affected by the project are presented below. No significant changes concerning the regulatory setting have occurred since the Fresno to Bakersfield Section Final EIR/EIS was published in 2014. National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements for assessment and disclosure of environmental impacts are described in Section 3.1, Introduction of this Draft Supplemental EIR/EIS, and are therefore not restated for each resource section of the chapter.

3.2.1.1 Federal

Federal regulations applicable to the May 2014 Project and F-B LGA are listed below. These regulations are discussed in further detail in Section 3.2.2.1 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-1).

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

3.2.1.2 State

State regulations applicable to the May 2014 Project and F-B LGA are listed below. These regulations are discussed in further detail in Section 3.2.2.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-1).

- California Government Code Section 65080
- California Streets and Highways Code (Section 1 et seq.)

3.2.1.3 Regional and Local

Local and regional municipal plans pertaining to transportation are addressed in the various general plans for Kern County, and for the Cities of Shafter and Bakersfield. These plans are discussed in further detail in Section 3.2.2.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-2).

The first table in Section 3.2 of the Fresno to Bakersfield Section Final EIR/EIS lists relevant regional and local transportation plans and policies that guide regional and local transportation planning, funding, and project implementation (Authority and FRA 2014a, pages 3.2-2 to 3.2-4). The Authority and FRA considered an updated version of the San Joaquin Corridor Strategic Plan

(Caltrans 2008), the Kern Council of Governments (KernCOG), Regional Transportation Plan (2014a), which contains the Kern County Congestion Management Plan, in the preparation of this analysis.

3.2.2 Methods for Evaluating Impacts

The F-B LGA has the greatest potential to have long-term impacts on traffic at and near the proposed station, 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 the proposed station site. The study area for analysis for the proposed F Street Station includes the extent of the roadway networks and intersections that may experience change in traffic volume of more than 50 peak hour vehicular trips as a result of the project. As a conservative approach, additional intersections and roadway segments were included in the analysis where the project adds fewer than 50 trips and the project may have significant impacts based on recommendations from City staff. Therefore, the study area was defined based on the 50-peak hour project trips threshold and in consultation with representatives at the public works and transportation planning agencies for Kern County, the City of Bakersfield, and the California Department of Transportation (Caltrans, District 6).

The study area for impacts extends as far away from the project locations as meaningful traffic changes are detectable without undue speculation. The methodological tools being applied for analysis and evaluating impacts are the same as described in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a).

3.2.2.1 Traffic Operation Standards

Impact evaluations were determined using analysis of transportation operating conditions in terms of LOS and delay. 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 signifies the worst operating conditions (Caltrans 2010). The Transportation Research Board's *Highway Capacity Manual* procedures are followed in calculating the LOS. For a full description of LOS, delay, and LOS thresholds for roadways, signalized intersections, and unsignalized intersections, see the Fresno to Bakersfield Section Final EIR/EIS Section 3.2.3.1 (Authority and FRA 2014a) and the *Fresno to Bakersfield Section: Supplemental EIR/EIS – Transportation Analysis Technical Report* (F-B LGA Transportation Analysis Technical Report [TATR](pages 3.2-4 and 3.2-5; Authority and FRA 2017).

For reference, an LOS of A at a signalized intersection is described as having an excellent condition, in which no vehicle waits longer than one red light and no approach phase is fully used; any associated delays last less than 10 seconds. In contrast, a signalized intersection with LOS of F is described as having a condition of failure, in which backups from nearby areas restrict or prevent movement of vehicles out of intersection approaches, resulting in tremendous and continuously increasing delays; such a delay can last greater than 80 seconds. Delays are slightly shorter for unsignalized intersections. A roadway segment LOS of A represents free flow, where individual users are virtually unaffected by the presence of others in the traffic stream, with a volume to capacity ratio of 0.00–0.60. In contrast, a roadway segment LOS of F has forced or breakdown flow that exists wherever the amount of traffic approaching a point exceeds the amount that can traverse the point; queues form behind such points of failure, resulting in a volume to capacity ratio exceeding 1.00. LOS criteria for freeway segments and ramps are also defined in the F-B LGA TATR (Authority and FRA 2017).

3.2.2.2 Baseline Operational Analysis

In accordance with 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]). The HSR would not commence operations before approximately year 2025 and would not reach full operation before approximately year

2035; therefore, use of only existing conditions as a baseline for traffic LOS would be misleading. Background traffic conditions can reasonably be expected to change over time between now and years 2025/2035. For this reason, the LOS traffic analysis in this section uses a dual baseline approach and compares LOS traffic impacts for all intersections and roadway segments against both existing conditions and background (i.e., No Project) conditions as they are expected to be in year 2035. A detailed description of the baseline operational analysis is included in Section 3.2.3.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, pages 3.2-6 through 3.2-8).

3.2.2.3 Operational/Project Impacts Vehicle Trip Generation at the Maintenance of Infrastructure Facility

Daily and peak hour traffic from the proposed maintenance of infrastructure facility (MOIF) were developed using the same methodology that was applied to develop trip generation for the heavy maintenance facility (HMF). The trip generation methodology is described in detail in Section 5.4.4 of the F-B TATR. Since the MOIF is anticipated to have approximately 180 employees compared to 275 for the HMF, a factor of 0.65 was applied to the HMF trip generation to develop MOIF trip generation. Table 3.2-1 summarizes the project trip generation for the MOIF.

Table 3.2-1 Trip Generation for the Maintenance of Infrastructure Facility

Land Uses	A.M. Peak Hour				P.M. Peak Hour				Daily Trips
	Split	In	Out	Total	Split	In	Out	Total	
MOIF Trip Generation[1]	60:40	118	79	196	40:60	79	118	196	1,964

Source: Authority and FRA, 2017

[1] Trip generation has been developed using the same methodology as was used to develop trip generation for HMF as included in Section 5.4.4 in the Fresno to Bakersfield Transportation Analysis Technical Report and by applying a ratio of 0.65 to the HMF trip generation since the MOIF would have 180 employees compared to 275 for the HMF.

HMF = heavy maintenance facility

MOIF = maintenance of infrastructure facility

3.2.2.4 Operational/Project Impacts Vehicle Trip Generation at the Bakersfield Station Area

Daily and peak hour traffic from the proposed station alternative were obtained from Section 3.2.3.3 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, pages 3.2-8 and 3.2-9). Table 3.2-2 summarizes the project trip generation for the Bakersfield Station area. The relatively close distance between the Truxtun Avenue Station and the F Street Station would not result in different trip generation numbers. The HSR Station trip generation is not affected by the location of the F-B LGA's proposed F Street Station; therefore, analysis of vehicle trip generation was conducted at the Bakersfield Station area level.

Table 3.2-2 Year 2035 Forecast Vehicle Trip Generation at Bakersfield Station Area

Station	Daily Trips	A.M. Peak Hour				P.M. Peak Hour			
		In/Out Split	In	Out	Total	Rate	In	Out	Total
Bakersfield	4,523	70:30	585	293	878	30:70	293	585	878

Trip generation is based on forecast developed by Cambridge Systematics (2007).

3.2.2.5 Methods for Evaluating Impacts under NEPA

In the Fresno to Bakersfield Section Final EIR/EIS, analysts applied specified thresholds for each resource topic to assess whether the intensity of each impact is negligible, moderate, or substantial for the Build Alternatives, and provided a conclusion of whether the impact was "significant." Since the Fresno to Bakersfield Section Final EIR/EIS does not evaluate the May 2014 Project as a discrete subsection of the Fresno to Bakersfield Project (as it did for example

for the Allensworth Bypass), it does not provide conclusions using intensity thresholds for the May 2014 Project. Therefore, intensity thresholds are not used for the F-B LGA. Instead, the evaluation of impacts under NEPA in this Draft Supplemental EIR/EIS focuses on a comprehensive discussion of the project's potential impacts in terms of context, intensity, and duration and provides agency decision makers and the public with a comparison between the May 2014 Project and the F-B LGA.

3.2.2.6 CEQA Significance Criteria

The traffic impact criteria used in evaluating traffic LOS for roadway segments and signalized and unsignalized intersections during the project operation phase are presented in Section 3.2.3.5 of the Fresno to Bakersfield Section Final EIR/EIS and is included here (Authority and FRA 2014a, pages 3.2-10 and 3.2-11):

Operational Phase

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

At the request of Caltrans staff, freeway and ramp merge/diverge analysis has been conducted on State Route (SR) 204 at the proposed F Street interchange and at the 7th Standard Road interchange with SR 99. A substantial change from No Project to project conditions at a freeway mainline or merge/diverge area would be an increase in density as follows:

- A reduction in LOS to below LOS D

For freeway mainline or merge/diverge area that currently operates at LOS E or F:

- An increase in the density of 0.04 or more

The project would also 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 from 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 from incompatible uses (such as farm equipment), or create safety risks for pedestrians and bicyclists

At the request of Caltrans staff, a freeway and ramp merge/diverge analysis has been conducted on SR 204 at the proposed F Street interchange. A substantial change from No Project to project conditions at a freeway mainline or merge/diverge area would be an increase in density as follows:

- A reduction in LOS to below LOS D

For freeway mainline or merge/diverge area that currently operates at LOS E or F:

- An increase in the density of 0.04 or more

3.2.3 Affected Environment

This section describes the affected environment related to transportation. The greatest potential for project-related transportation impacts is associated with traffic around the HSR station. Additionally, the F-B LGA alignment would result in roadway modifications that would also create traffic impacts. The F-B LGA also includes a MOIF in the city of Shafter that would generate traffic around the facility. Therefore, the study area consists of roadway segments and intersections along the F-B LGA where traffic impacts are anticipated. The existing conditions in the study area 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 Regional Transportation Plan 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.

The F-B LGA would not generate any new trips that would contribute to the regional circulation network with the exception of the MOIF and the HSR station. However, due to the proposed alignment, modifications would be required to the existing circulation system that includes roadway closures, realignment, redesign of existing interchanges, addition of new traffic signals and roadway widening. As such, the modifications to the existing circulation system as a result of the proposed project would result in improved traffic operations as is illustrated in details in the F-B LGA TATR (Authority and FRA 2017).

The study area for this analysis is divided into four key sub-areas where impacts related to the F-B LGA are expected to occur. The four sub-areas are:

- City of Shafter
- Kern County
- City of Bakersfield
- Bakersfield Station Area

3.2.3.1 Summary of the May 2014 Project Affected Environment

This section provides a summary of the affected environment related to transportation for the May 2014 Project.

Regional Transportation System

Highways and Roads

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. Detailed description on the roadway system is provided in Section 3.2.4.1 of the Fresno to Bakersfield Section Final EIR/EIS.

Air Travel

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

Freight, Rail and Bus Service

Regional rail freight (BNSF and UPRR) provides service to the May 2014 Project study area. 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. The primary bus service in the region is Greyhound, which provides service to locations nationwide. Detailed description on the freight, rail and bus service is provided in Section 3.2.4.1 of the Fresno to Bakersfield Section Final EIR/EIS.

May 2014 Project Station Study Area

This section discusses existing transportation conditions around the proposed Truxtun Avenue Station of the May 2014 Project to provide background information useful for analyzing potential impacts on local traffic conditions.

Highways and Roads

The proposed Truxtun Avenue Station site is located in the area west of Union Street, between Truxtun and California avenues. Each of these roadways has two to three 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. Detailed description on the roadway system is provided in Section 3.2.4.5 of the Fresno to Bakersfield Section Final EIR/EIS.

Intersections

The Truxtun Avenue Station study area includes 72 intersections. Detailed description on the intersections is provided in Section 3.2.4.5 of the Fresno to Bakersfield Section Final EIR/EIS.

Transit

Public transportation in metropolitan Bakersfield includes local and regional buses, Amtrak trains, and paratransit services. The largest local bus transit system operator is Golden Empire Transit (GET). Detailed description regarding transit is provided in Section 3.2.4.5 of the Fresno to Bakersfield Section Final EIR/EIS.

Non-Motorized Facilities

There are no existing bike facilities in the immediate vicinity of the Truxtun Avenue Station site. The nearest existing or planned bike lanes are on Chester Avenue, P and Q streets, and Twenty-first Street (Kern COG 2014a). Pedestrian sidewalks are present on Truxtun, Union, and California avenues in the vicinity of the proposed station site.

Parking Facilities

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

3.2.3.2 Fresno to Bakersfield Locally Generated Alternative

Regional Transportation System

Chapter 1.0 of the Fresno to Bakersfield Section Final EIR/EIS describes the deficits of the existing transportation conditions, including limitations of the connectivity between the Central Valley and other metropolitan areas of the state (Authority and FRA 2014a, pages 1-7 through 1-24). The following subsections summarize the transportation network and facilities for the four sub-areas.

City of Shafter

The northern terminus of the F-B LGA within the Shafter Area would be located just north of the city of Shafter, parallel and adjacent to the east side of the BNSF Railway (BNSF) and the southern terminus would be south of Cherry Avenue, from where the F-B LGA would begin to turn east to the city limits of Shafter north of Burbank Street.

The F-B LGA including the proposed MOIF will require modifications to the local street system in the city of Shafter. The following intersections will be modified because of the F-B LGA:

1. **Poplar Avenue:** Existing BNSF at-grade crossing will be replaced by an overhead crossing over both the BNSF and the proposed HSR tracks. Additionally, the project will add a traffic signal at the new intersection of SR 43 and Poplar Avenue to SR 43 Connector plus a northbound left-turn lane on SR 43.
2. **Madera Avenue:** To provide access to the MOIF, Madera Avenue would be closed south of County Line Road 3 and an access provided to the MOIF from the intersection of Madera Avenue and County Line Road 3.
3. **Fresno Avenue:** Existing BNSF at-grade crossing will be replaced by an underpass. Mettler Avenue would be realigned to the east and a median added along Fresno Avenue thereby converting the intersection of Fresno Avenue and Mettler Avenue from a full-access intersection to right-in/right-out only. Additionally, the project will add a traffic signal at the intersection of SR 43 and Fresno Avenue.
4. **Shafter Avenue:** Existing BNSF at-grade crossing will be replaced by an underpass and existing alignment of both Tulare Avenue and Shafter Avenue will be modified. Additionally, the project will add a traffic signal at the intersection of SR 43 and realigned Tulare Avenue.
5. **Central Avenue:** Existing BNSF at-grade crossing will be replaced by an underpass.
6. **Lerdo Highway:** Existing BNSF at-grade crossing will be replaced by an underpass and certain turn restrictions added to the existing roadway configuration. Additionally, the project will add a traffic signal at the intersection of Mannel Avenue and Lerdo Highway.
7. **Los Angeles Avenue:** After crossing E Lerdo Highway, the BNSF profile would be lowered to match the existing track profile at E Los Angeles Avenue, while the HSR would remain on an elevated fill section. The existing crossing at E Los Angeles Avenue would be closed and traffic routed onto Beech Avenue. Additionally, the project will add a traffic signal at the intersection of SR 43 and E Los Angeles Avenue plus a northbound left-turn lane on SR 43.
8. **Riverside Street:** The HSR would provide openings/undercrossings at Riverside Street. Additionally, Riverside Street would be raised in place to cross over SR 43 and BNSF, then lowered back to match existing elevations, allowing HSR to pass over.
9. **Gold's Avenue:** Gold's Avenue would be closed and no longer connect with Riverside Street.

Freight, Rail and Bus Service

Regional rail freight (BNSF and UPRR) provides service to Shafter. Currently there is no passenger rail service in this sub-area. Bus service is provided by Kern Transit routes 110 and 115.

Highways and Roads

The area surrounding the proposed HSR alignment in the Shafter area has a street network consisting of arterials, collectors, and local streets generally laid out in a grid pattern. In addition to the arterial system, SR 43 is the only state route in the study area. SR 43 runs from the northwest corner of the study area southeast through central Shafter and then turns to run generally south. According to the City's General Plan (City of Shafter 2005), it is designated as an arterial in the existing General Plan. It is currently constructed as a four-lane divided highway.

The classifications of the roadways in accordance with the City General Plan are as follows:

- **Freeways** (218-foot right-of-way or as determined by Caltrans) include continuous divided highways with restricted access, intended to provide efficient movement of regional through traffic. Freeways do not allow direct access to abutting private property, nor do they have intersections with other roadways and highways. Access to freeways is restricted to widely spaced interchanges. Caltrans standards for freeways shall apply.
- **Principal Arterials** (110-foot right-of-way) are continuous divided streets intended to move large volumes of through traffic. Principal arterials should be designed with right-in/right-out intersections and a smaller number of intersections providing full turning movements. Direct access to abutting properties should be avoided where possible, except for large commercial or industrial uses where access lines up with streets across the principal arterial, and where consistent with minimizing breaks in through traffic movement.
- **Arterials** (104-foot right-of-way) are continuous divided streets intended to provide for the efficient movement of through traffic. Arterials should be designed with few intersections. Direct access to abutting properties should be avoided, except for large commercial or industrial uses where access lines up with streets across the arterial, and where consistent with minimizing breaks in through traffic movement. Arterials should not penetrate residential neighborhoods and should not be located adjacent to schools.
- **Collectors** (66- to 92-foot right-of-way) are continuous streets intended to collect and distribute traffic from local streets onto arterials. Depending upon the volume of traffic the collectors will need to carry, collectors can be two-lane roadways with a 66-foot right-of-way, up to a four-lane divided roadway with a painted median and a 92-foot right-of-way. Only two-lane collectors should be permitted to penetrate into residential neighborhoods.
- **Local Streets** (52- to 66-foot right-of-way) provide access to abutting properties and are designed to discourage through traffic within residential neighborhoods. Within residential neighborhoods, local streets will have 52-foot to 60-foot rights-of-way, depending upon the amount of traffic the road is intended to accommodate. Within commercial, business park, and industrial areas, local streets would have larger rights-of-way, up to 66 feet.

Study Area

The study area for the Shafter area analysis includes the extent of the roadway networks and intersections that may experience change in traffic volume due to modifications being proposed to the roadway network along the HSR alignment corridor and change in traffic volume of more than 50 peak hour vehicular trips as a result of the proposed MOIF. Based on this assessment, 37 study intersections and 43 roadway segments in the Shafter area were included in the analysis for the project.

The combined list of all study intersections and roadway segments follows.

Intersections

- Poplar Avenue/Dirt Road
- Poplar Avenue/Madera Avenue
- Poplar Avenue/SR 43
- Poplar Avenue/Future Leg
- Poplar Avenue/Fresno Avenue
- Poplar Avenue/Future Leg
- Poplar Avenue/Lerdo Highway

- Future Leg/SR 43
- Dirt Road/Madera Avenue
- SR 43/Fresno Avenue
- Mettler Avenue/Fresno Avenue
- Dirt Road/Fresno Avenue
- SR 43/Tulare Avenue
- Shafter Avenue/Fresno Avenue
- Shafter Avenue/Tulare Avenue
- Shafter Avenue/SR 43
- Shafter Avenue/Lerdo Highway/Central Avenue
- Shafter Avenue/Los Angeles Street
- Walker Street/Tulare Avenue
- SR 43/Central Avenue
- Walker Street/Central Avenue
- SR 43/Lerdo Highway
- Mannel Avenue/Fresno Avenue
- Mannel Avenue/Tulare Avenue/Central Avenue
- Mannel Avenue/Lerdo Highway
- SR 43/Ash Avenue
- Beech Avenue/Lerdo Highway
- Beech Avenue/Ash Avenue
- Beech Avenue/Los Angeles Street
- SR 43/Los Angeles Street
- Beech Avenue/Los Angeles Street
- Beech Avenue/Riverside Street
- Gold's Avenue/Ash Street
- Gold's Avenue/Los Angeles Street
- Central Valley Highway/Riverside Street
- Gold's Avenue/Riverside Street
- Cherry Avenue/Riverside Street

Figure 3.2-1 illustrates the study intersections.

Roadway Segments

- Poplar Avenue, between Madera Avenue and SR 43
- Poplar Avenue, between SR 43 and Fresno Avenue
- Poplar Avenue, between Lerdo Highway and Pine Cone Street
- Shafter Avenue, between Madera Avenue and Fresno Avenue
- Shafter Avenue, between Tulare Avenue and SR 43
- Shafter Avenue, between SR 43 and Poso Avenue
- Shafter Avenue, between California Avenue and Lerdo Highway
- Shafter Avenue, between Atkinson Avenue and W Los Angeles Street
- Mannel Avenue, between Madera Avenue and Fresno Avenue
- Mannel Avenue, between Fresno Avenue and Redwood Drive
- Mannel Avenue, between Tulare Avenue and Calloway Street
- Beech Avenue, between State Avenue and Minter Avenue
- Beech Avenue, between Lerdo Highway and E Ash Avenue
- Beech Avenue, between E Los Angeles Avenue and Riverside Street
- Gold's Avenue, between E Los Angeles Avenue and Riverside Street
- Madera Avenue, east of Poplar Avenue
- Fresno Avenue, west of SR 43
- Fresno Avenue, between SR 43 and Shafter Avenue
- Tulare Avenue, between N Wall Street and SR 43
- Tulare Avenue, between Shafter Avenue and Walker Street

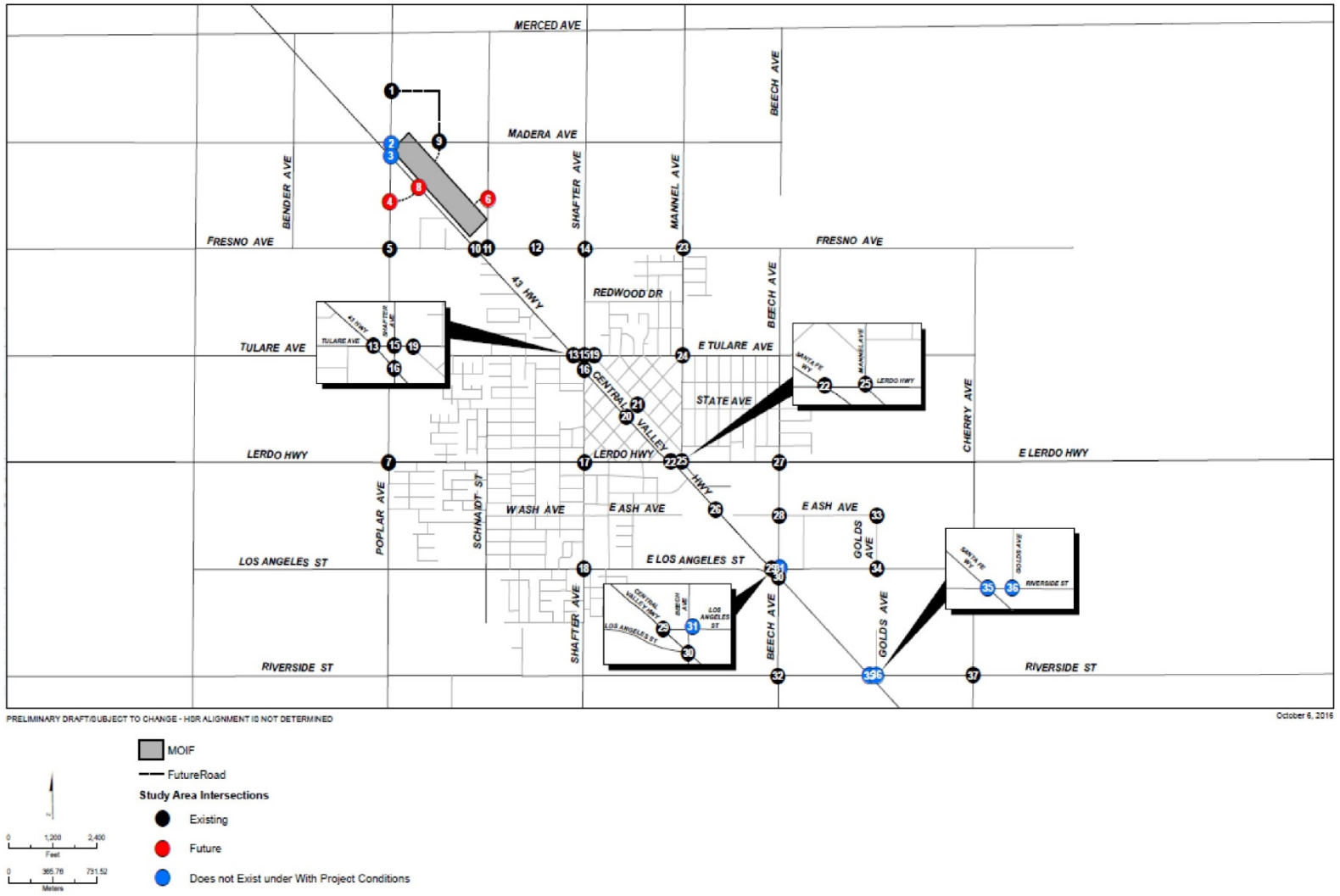


Figure 3.2-1 City of Shafter Study Intersections

- Central Avenue, between James Street and SR 43
- Central Avenue, between SR 43 and Walker Street
- Lerdo Highway, between S Wall Street and Shafter Avenue
- Lerdo Highway, between Jackson Avenue and SR 43
- Lerdo Highway, between SR 43 and Mannel Avenue
- Lerdo Highway, east of Beech Avenue
- Ash Avenue, west of SR 43
- Ash Avenue, east of Beech Avenue
- Los Angeles Street, west of Shafter Avenue
- Los Angeles Street, between Shafter Avenue and Beech Avenue
- Los Angeles Street, between SR 43 and Beech Avenue
- Los Angeles Street, between Beech Avenue and Gold's Avenue
- Riverside Street, west of SR 43
- Riverside Street, between SR 43 and Gold's Avenue
- SR 43, north of Poplar Avenue
- SR 43, between Poplar Avenue and Fresno Avenue
- SR 43, south of Fresno Avenue
- SR 43, south of Shafter Avenue
- SR 43, north of Lerdo Highway
- SR 43, south of Lerdo Highway
- SR 43, north of E Los Angeles Avenue
- Central Valley Highway, north of Riverside Street
- Central Valley Highway, south of Riverside Street

Figure 3.2-2 shows the average daily traffic (ADT), number of lanes, and speeds for these roadway segments.

Roadway Segment Analysis

An analysis of existing roadway segments' daily operating conditions was conducted based on the V/C ratio. A total of 43 roadway segments were identified for analysis. Existing roadway segment analysis shows all roadway segments operate at LOS C or better. More details on LOS analysis of the roadway segments are included in the F-B LGA TATR (Authority and FRA 2017).

Intersection Analysis

Figure 3.2-3 shows the existing intersection operating conditions in terms of LOS. All but 5 of the 37 intersections operate at LOS C or better, as shown in Table 3.2-3. More details on LOS analysis at the study intersections are included in the F-B LGA TATR (Authority and FRA 2017).

Table 3.2-3 Intersections Operating at Levels-of-Service D, E or F under Existing Conditions – City of Shafter

No.	Intersection	Control	Existing Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
3	Poplar Avenue/SR 43	Two-Way Stop	23.0	C	27.0	D
10	SR 43/Fresno Avenue	Two-Way Stop	29.6	D	14.8	B
13	SR 43/Tulare Avenue	Two-Way Stop	27.7	D	37.9	E
25	Mannel Avenue/Lerdo Highway	Two-Way Stop	23.8	C	28.7	D
30	SR 43/Los Angeles Street	All-Way Stop	36.5	E	23.1	C

Source: Authority and FRA, 2017
Bold = Exceeds LOS Standard
Delay = Average control delay in seconds. (For two-way stop and one-way stop controlled intersections, reported delay is for worst-case movement.)
LOS = levels-of-service
SR = State Route

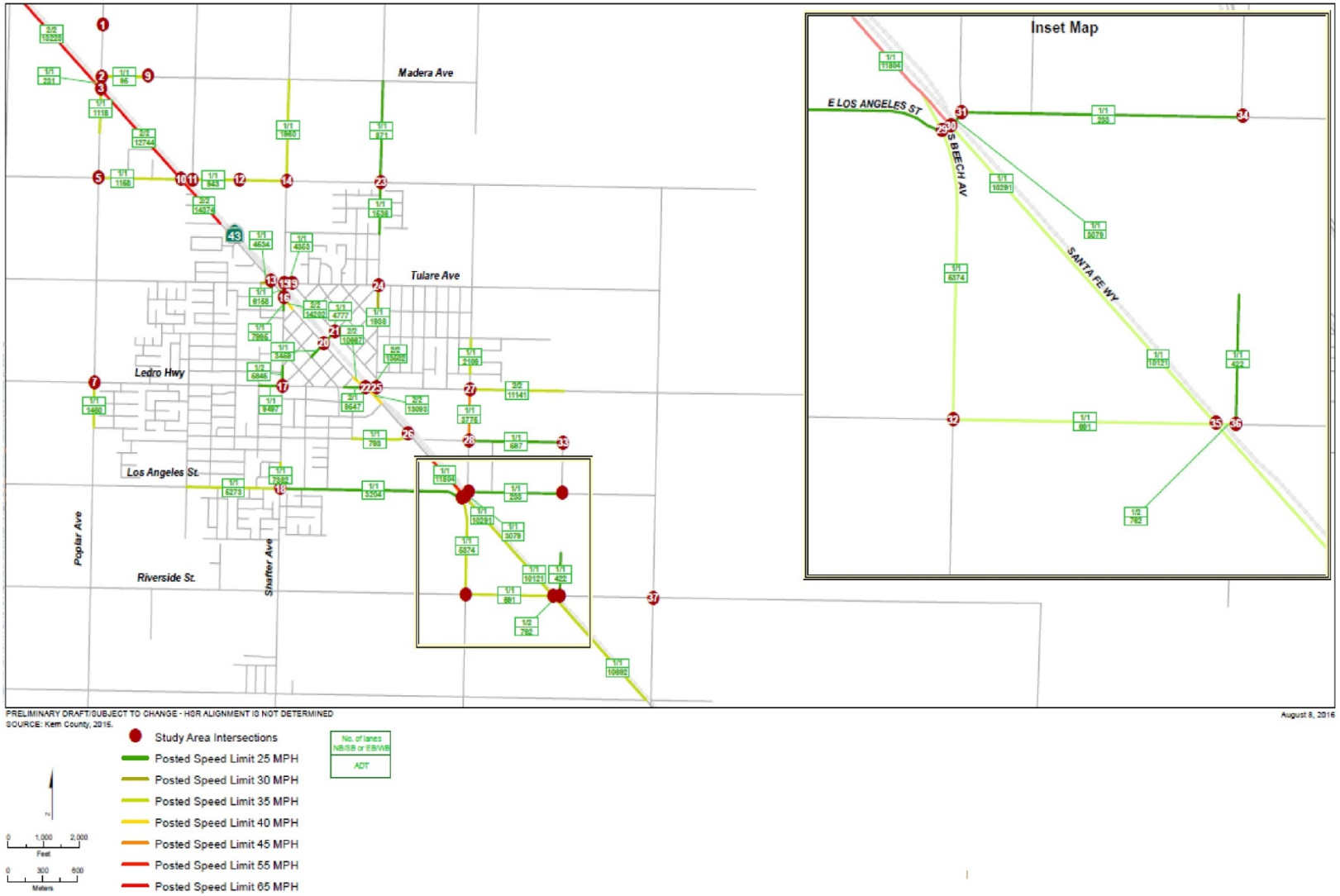


Figure 3.2-2 City of Shafter Roadway Segments

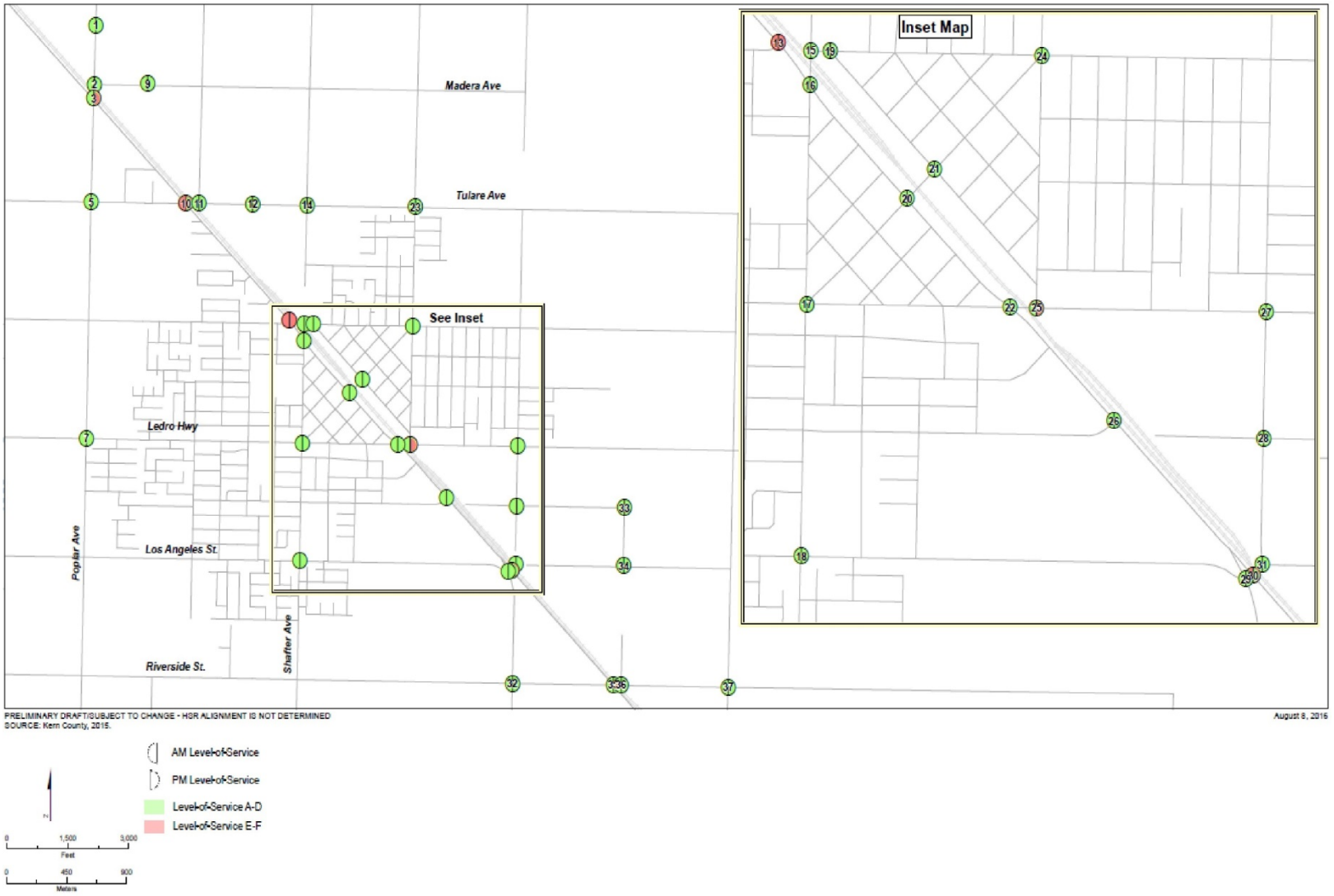


Figure 3.2-3 City of Shafter Existing Intersection Levels-of-Service

Kern County

South of the Shafter city limits, the F-B LGA would turn east along the north side of Burbank Street and then turn southeast at the Union Pacific Railroad (UPRR). The alignment would continue on fill/embankment until just after crossing the Beardsley Canal and would use individual bridges to cross over Driver Road, Zachary Avenue, the Calloway Canal, Zerker Road, and the Friant-Kern and Lerdo Canals. Verdugo Lane would also be left open as a farm road crossing rather than a full roadway opening. At 7th Standard Road, the F-B LGA would pass through the existing roadway fill section; therefore, the roadway would be raised to cross over the HSR.

The modifications to the 7th Standard Road profile would begin at the east edge of the Beardsley Canal Bridge rising up and over the F-B LGA and UPRR and coming back down to meet existing grade near Quinn Road, east of SR 99. The 7th Standard Road profile increase will require the removal and construction of bridges over the UPRR and SR 99 as well as raising the intersections with Coffee Road and Golden State Avenue. As part of the roadway work, a new on-ramp connection to SR 99 southbound would be added for westbound traffic.

Highways and Roads

The area surrounding the proposed HSR alignment in the 7th Standard Road interchange study area has a street network consisting of arterials, collectors, and local streets generally laid out in a grid pattern. SR 99 and SR 65 are the only two state routes in the study area. SR 99 runs from the northwest corner of the study area southeast through unincorporated County land to enter the city of Bakersfield at the southeast end of the study area. SR 65 begins from SR 99 just south of 7th Standard Road and runs north through the study area.

The classifications of the roadways in accordance with the County's General Plan are as follows:

- **Expressway:** Four travel lanes with minimum 110-foot right-of-way
- **Arterial (Major Highway):** Minimum 110-foot right-of-way
- **Collector (Secondary Highway):** Minimum 90-foot right-of-way
- **Commercial-Industrial Street:** Minimum 60-foot right-of-way
- **Local Streets (Select Local Road):** Minimum 60-foot right-of-way

Study Area

Since most of the F-B LGA passes through rural areas of the county, minimal, if any traffic impact is anticipated in those areas. The only area where any traffic impact will occur is around the SR 99/7th Standard Road interchange, where proposed alignment modifications will be made to the interchange. Therefore, the study area for the unincorporated County area analysis includes the extent of the roadway networks and intersections that may experience changes in traffic volume due to modifications being proposed to the roadway network around the 7th Standard Road interchange with SR 99. Based on this assessment, 18 study intersections and 15 roadway segments were included in the analysis for the project.

Study Intersections

- Endes Street/Petrol Road
- Quinn Road/Petrol Road
- Endes Street/Saco Road
- Quinn Road/McMurtrey Avenue
- Coffee Road/7th Standard Road
- Golden State Highway/7th Standard Road
- Quinn Road-SR 99 Northbound/7th Standard Road
- Industry Parkway Drive/Merle Haggard Drive
- SR 65/Merle Haggard Drive
- Pegasus Drive/Merle Haggard Drive
- Coffee Road/Snow Road
- Fruitvale Avenue/Snow Road
- Dole Court/Snow Road
- Norris Road/Snow Road

- Norris Road/Knudsen Road
- Roberts Lane/Pegasus Drive/Norris Road
- SR 99 Southbound Ramps/Snow Road (future intersection)
- SR 99 Northbound Ramps/Snow Road (future intersection)

Figure 3.2-4 illustrates the study intersections.

Roadway Segments

- Endes Street, south of Petrol Road
- Coffee Road, south of 7th Standard Road
- Quinn Road, between McMurtrey Avenue and 7th Standard Road
- All America City Highway, south of Merle Haggard Drive
- Pegasus Street, south of Merle Haggard Drive
- Golden State Highway, north of Snow Road
- Pegasus Street, north of Norris Road
- Roberts Lane, south of Norris Road
- Petrol Road west of Quinn Road
- McMurtrey Avenue, west of Quinn Road
- 7th Standard Road, between Golden State Highway and Quinn Road
- Merle Haggard Drive, between Quinn Road and Industry Parkway Drive
- Snow Road, between Dole Court and Norris Road
- Norris Road, east of Knudsen Drive
- Norris Road, east of Pegasus Drive

Figure 3.2-5 illustrates study roadway segments and provides the ADT, number of lanes, and speed.

Roadway Segment Analysis

An analysis of existing roadway segments' daily operating conditions was conducted based on the V/C ratio. A total of 15 roadway segments were identified for analysis. Existing roadway segment analysis (Table 3.2-4) shows all but one of the 15 roadway segments operate at LOS C or better. More details on LOS analysis of the roadway segments are included in the F-B LGA TATR (Authority and FRA 2017).

Table 3.2-4 Roadway Segments Operating at Levels-of-Service D, E or F under Existing Conditions – Kern County

No.	Roadway Segment	ADT	Number of Lanes (NE or SW)	Functional Classification[1]	Volume to Capacity Ratio	LOS
14	Norris Road, east of Knudsen Drive	13,446	1/1	Two-Lane Collector	0.90	D

Source: Authority and FRA, 2017
[1] The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
BOLD = Deficient LOS
LOS is based on volume-to-capacity ratios.
ADT = Average Daily Traffic LOS = levels-of-service
NE = North/East SW = South/West

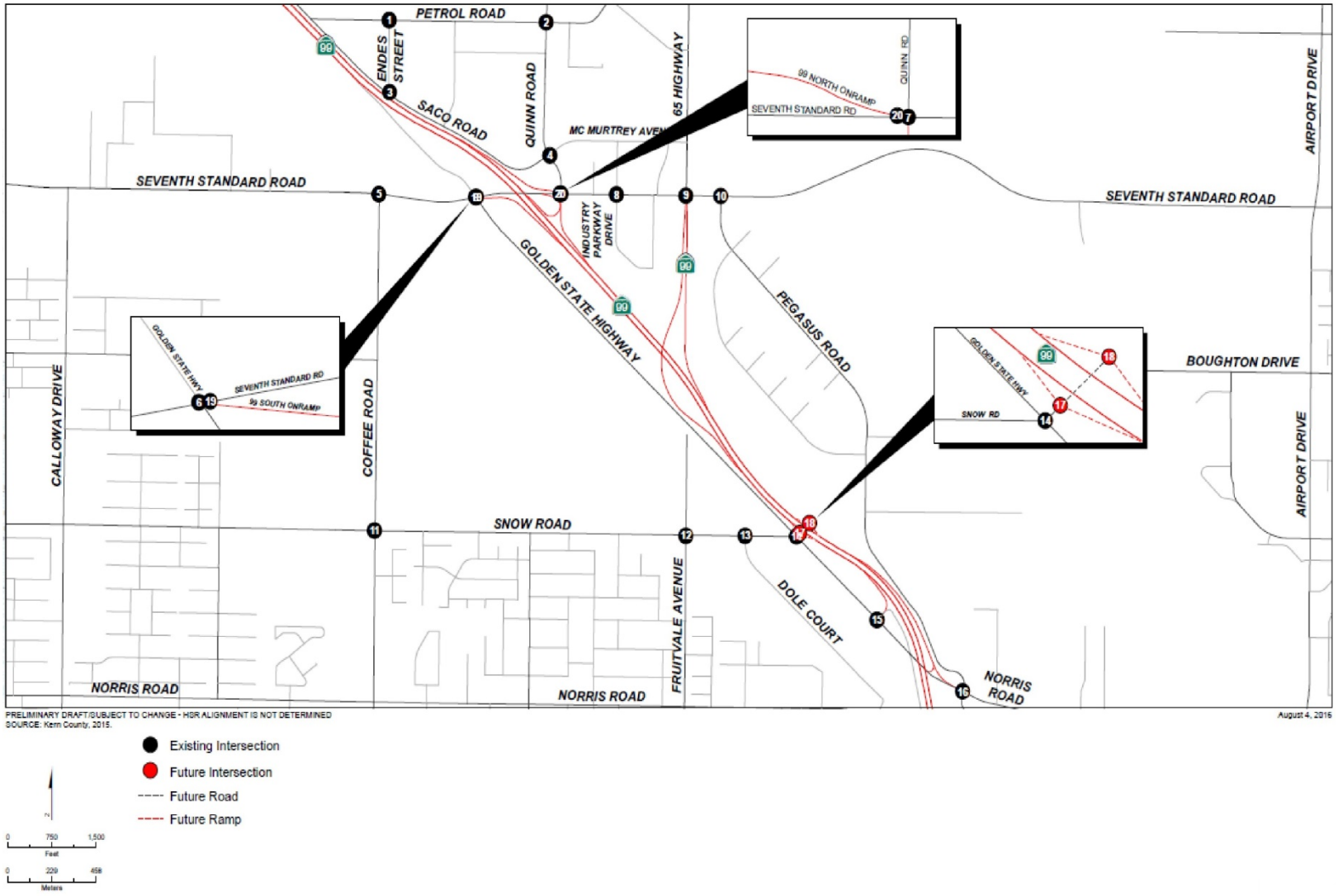


Figure 3.2-4 Kern County Study Intersections

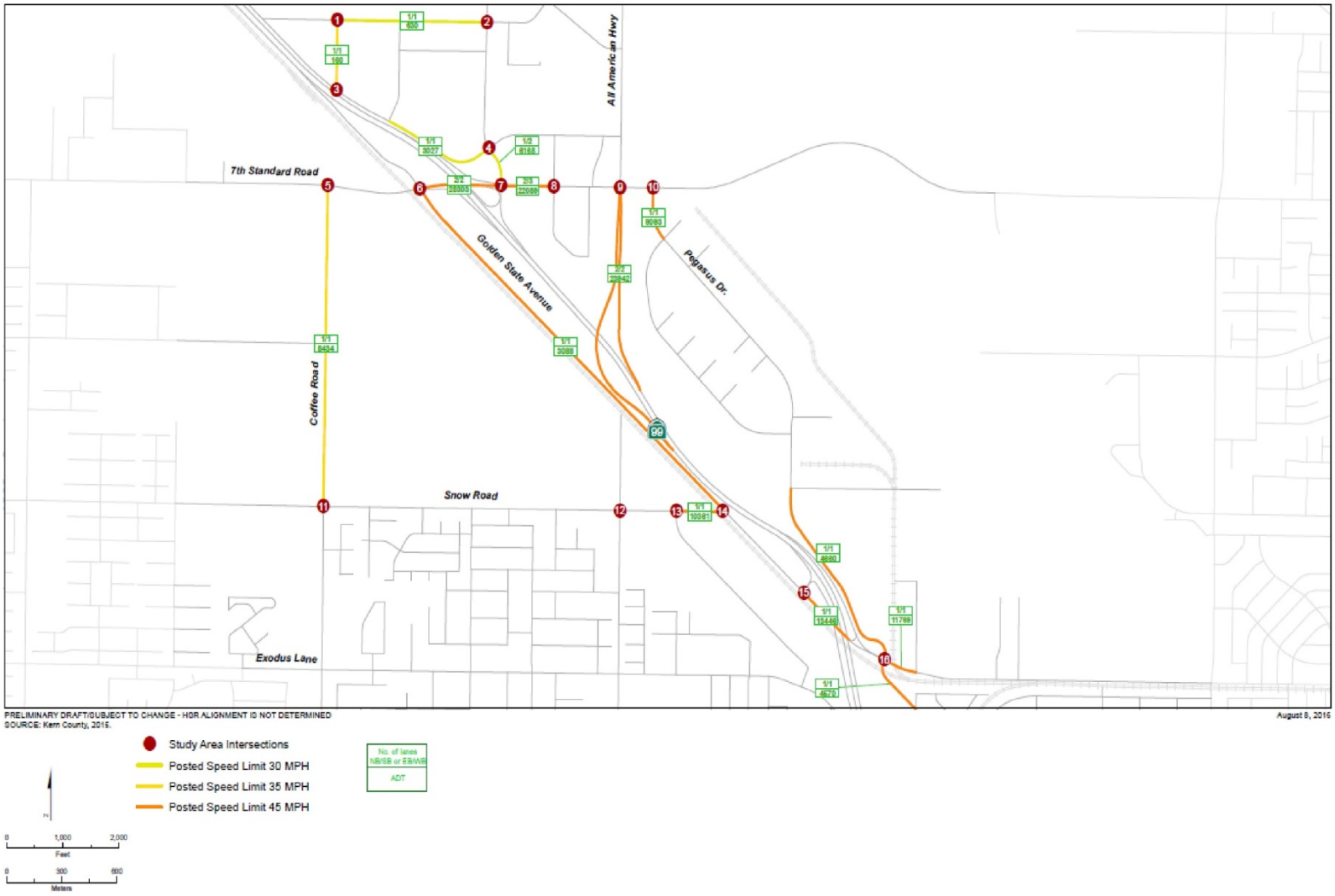


Figure 3.2-5 Kern County Roadway Segments

Intersection Analysis

Figure 3.2-6 shows the existing intersection operating conditions in terms of LOS. All but 3 of the 18 intersections operate at LOS C or better, as shown in Table 3.2-5. More details on LOS analysis at the study intersections are included in the F-B LGA TATR (Authority and FRA 2017).

Table 3.2-5 Existing Peak Hour Intersection Levels-of-Service – Kern County

No.	Intersection	Control	Existing Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
8	Industry Parkway Drive/Merle Haggard Drive	Signalized	36.4	D	31.7	C
12	Fruitvale Avenue/Snow Road	Two-Way Stop	26.5	D	44.3	E
14	Norris Road/Snow Road	Two-Way Stop	28.1	D	20.7	C

Source: Authority and FRA, 2017
Bold = Exceeds LOS standard
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
LOS = levels-of-service

Freeway Mainline and Ramp Merge/Diverge Analysis

An analysis of SR 99 mainline segments and ramp merge/diverge areas was conducted at the 7th Standard Road interchange. All of the freeway mainline and merge/diverge areas operate at LOS C or better. More details on LOS analysis at the study intersections are included in the F-B LGA TATR (Authority and FRA 2017).

City of Bakersfield

This sub-area only includes analysis of areas within the city that are affected due to roadway closures and modifications by the F-B LGA and does not include any impacts from the HSR station. Within the city of Bakersfield, the F-B LGA would run generally parallel and adjacent to the UPRR corridor. Throughout the city of Bakersfield, the F-B LGA would be on a viaduct.

Following are the roadway modifications that will require rerouting of traffic along the alignment:

- Golden State Avenue South Frontage Road
- 24th Street blocked off at SR 204
- Sumner Street: No westbound left turns or northbound left turns allowed between Truxtun Avenue and Baker Street with the exception of the intersections of Sumner Street with Baker Street, Beale Avenue, and Truxtun Avenue, which will continue to be full access
- Miller Street
- Haley Street
- Edison Highway: Only one westbound and eastbound lane between Mount Vernon Avenue and Oswell Street

Highways and Roads

The area surrounding the proposed Bakersfield HSR Station has a street network consisting of arterials, collectors, and local streets generally laid out in a grid pattern. In addition to the arterial system, there are four state routes that would provide access to the proposed station alternative: SR 99, SR 58, SR 204, and SR 178. The major highways and roads are described in Section 4.4.2 of the F-B TATR with the exception of SR 204. The F-B TATR also includes the classifications of the roadways according to the Bakersfield General Plan.

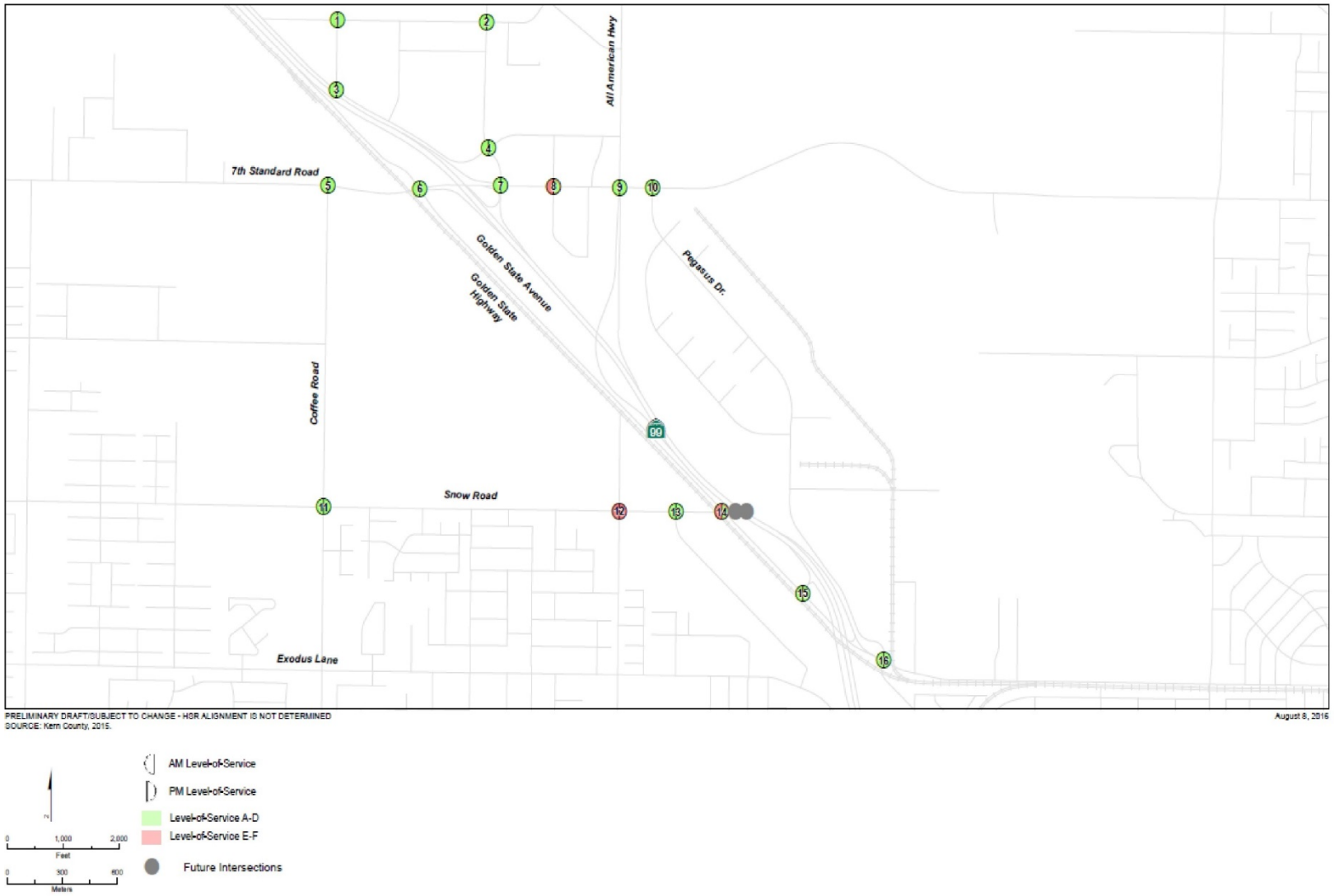


Figure 3.2-6 Kern County Existing Intersection Levels-of-Service

SR 204 is a north-south highway connecting SR 58 and SR 99 within the city of Bakersfield. It operates as an urban arterial south of F Street and as a freeway north of F Street. The proposed F-B LGA Station proposes to add an interchange with SR 204 at F Street. This will result in SR 204 operating as a freeway north of M Street.

Study Area

This sub-area only includes analysis of areas within the city that are affected due to roadway closures and modifications by the F-B LGA and does not include any impacts from the HSR station. The station area analysis is included below. Based on this assessment, six study intersections and six roadway segments were included in the analysis for the City of Bakersfield sub-area.

Intersections

- SR 204/Sumner Street
- Baker Street/Sumner Street
- Beale Avenue/Sumner Street
- Brown Street/Truxtun Avenue
- Oswell Front Street West/Edison Highway
- Oswell Front Street East/Edison Highway

Figure 3.2-7 illustrates the study intersections.

Roadway Segments

- Sumner Street, between SR 204 and Baker Street
- Sumner Street, between Baker Street and Beale Avenue
- Sumner Street, between Beale Avenue and Brown Street
- Truxtun Avenue, between Beale Avenue and Brown Street
- Edison Highway, between Washington Street and Mount Vernon Avenue
- Edison Highway, between Mount Vernon Avenue and Oswell Street

Figure 3.2-8 illustrates study roadway segments and provides the ADT, number of lanes, and speed.

Roadway Segment Analysis

An analysis of existing roadway segments' daily operating conditions was conducted based on the V/C ratio. A total of six roadway segments were identified for analysis. Existing roadway segment analysis shows all the roadway segments operate at LOS C or better. More details on LOS analysis of the roadway segments are included in the F-B LGA TATR (Authority and FRA 2017).

Intersection Analysis

Figure 3.2-9 shows the existing intersection operating conditions in terms of LOS. All but one of the six intersections operates at LOS C or better, as shown in Table 3.2-6. More details on LOS analysis at the study intersections are included in the F-B LGA TATR (Authority and FRA 2017).

Table 3.2-6 Existing Intersection Levels-of-Service – City of Bakersfield

No.	Intersection	Control	Existing Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
4	Brown Street/Truxtun Avenue	TWSC	30.1	D	76.1	F

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.).
BOLD = Exceeds LOS standard
LOS = levels-of-service
TWSC = two-way stop-controlled

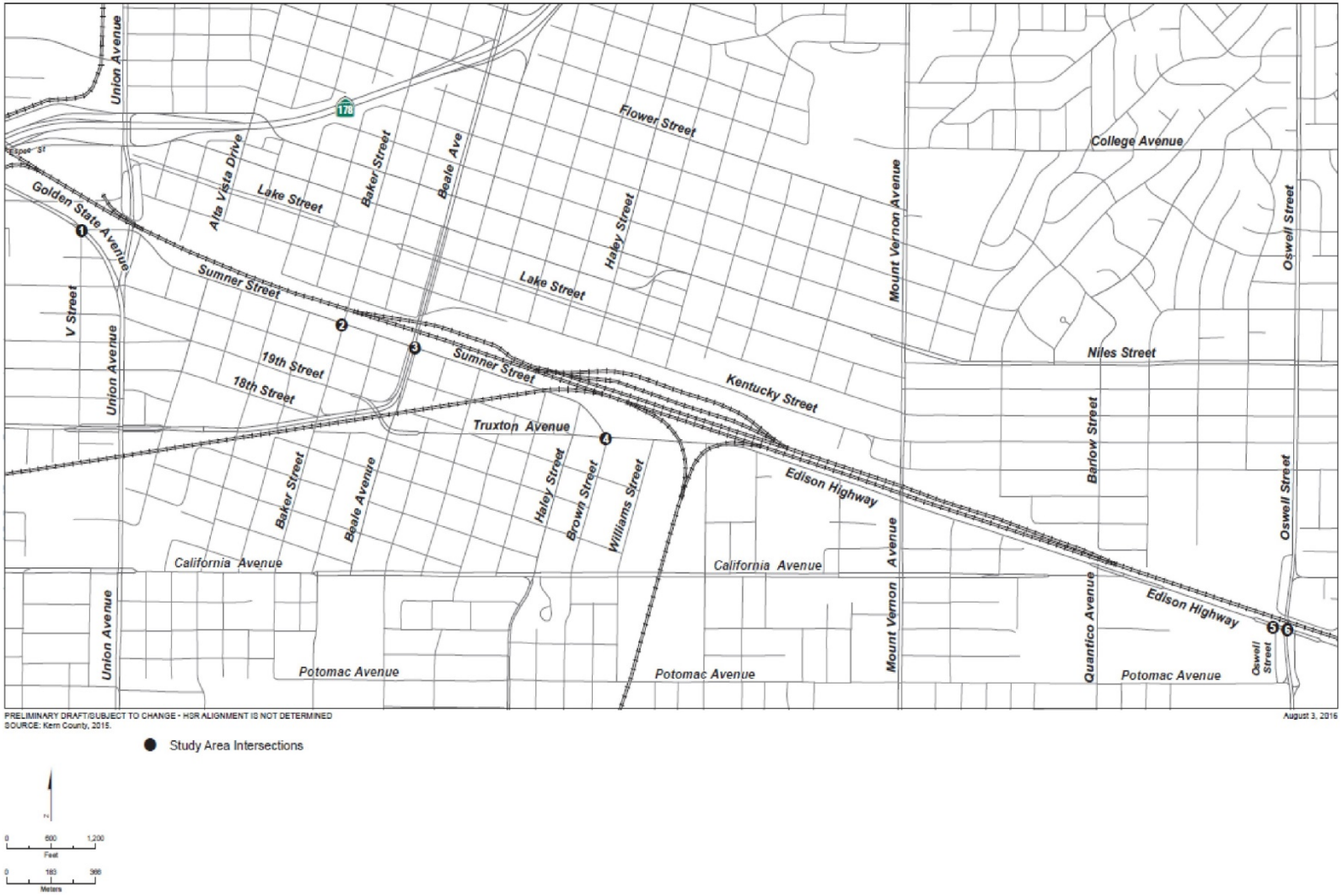


Figure 3.2-7 City of Bakersfield Study Intersections

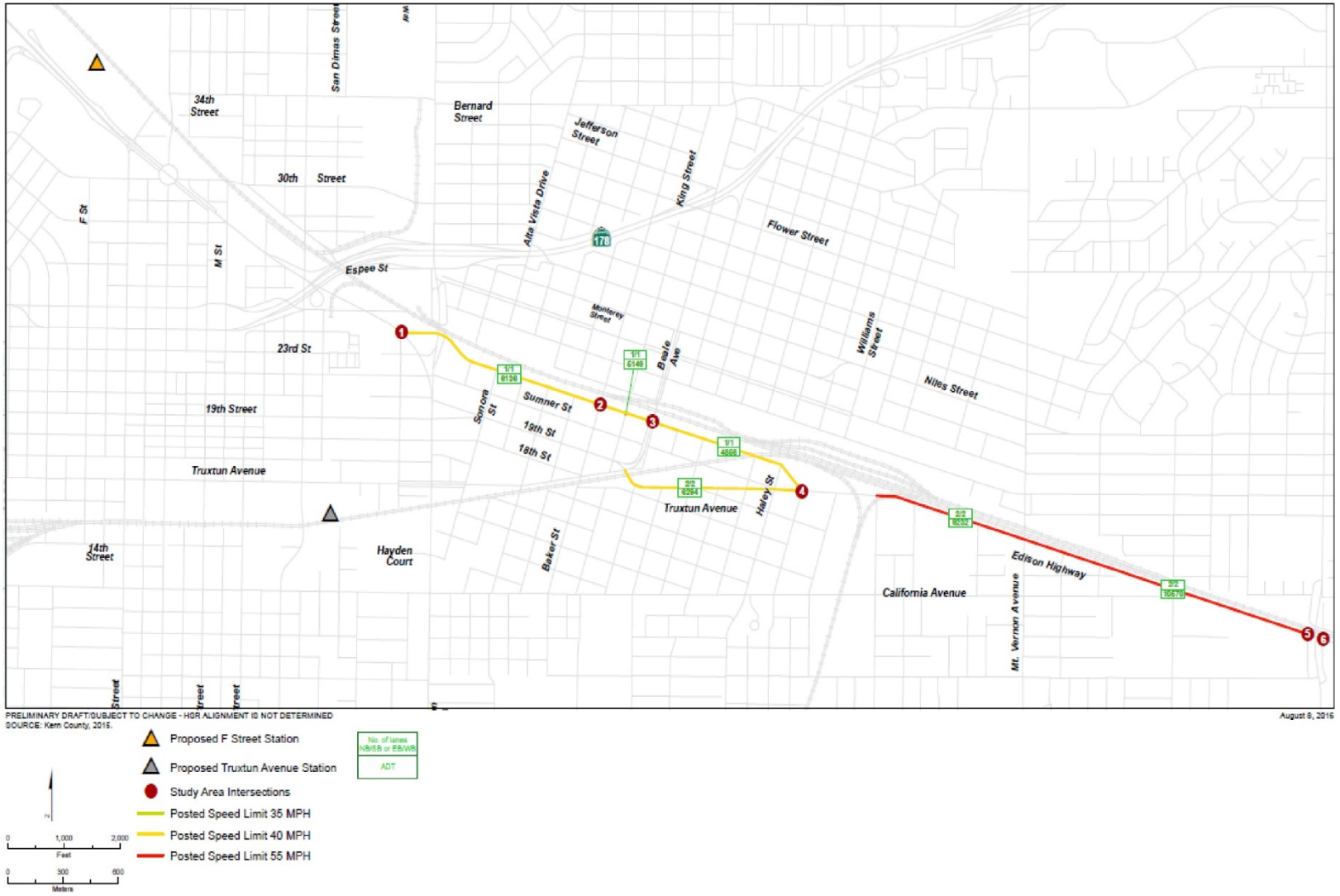


Figure 3.2-8 City of Bakersfield Roadway Segments

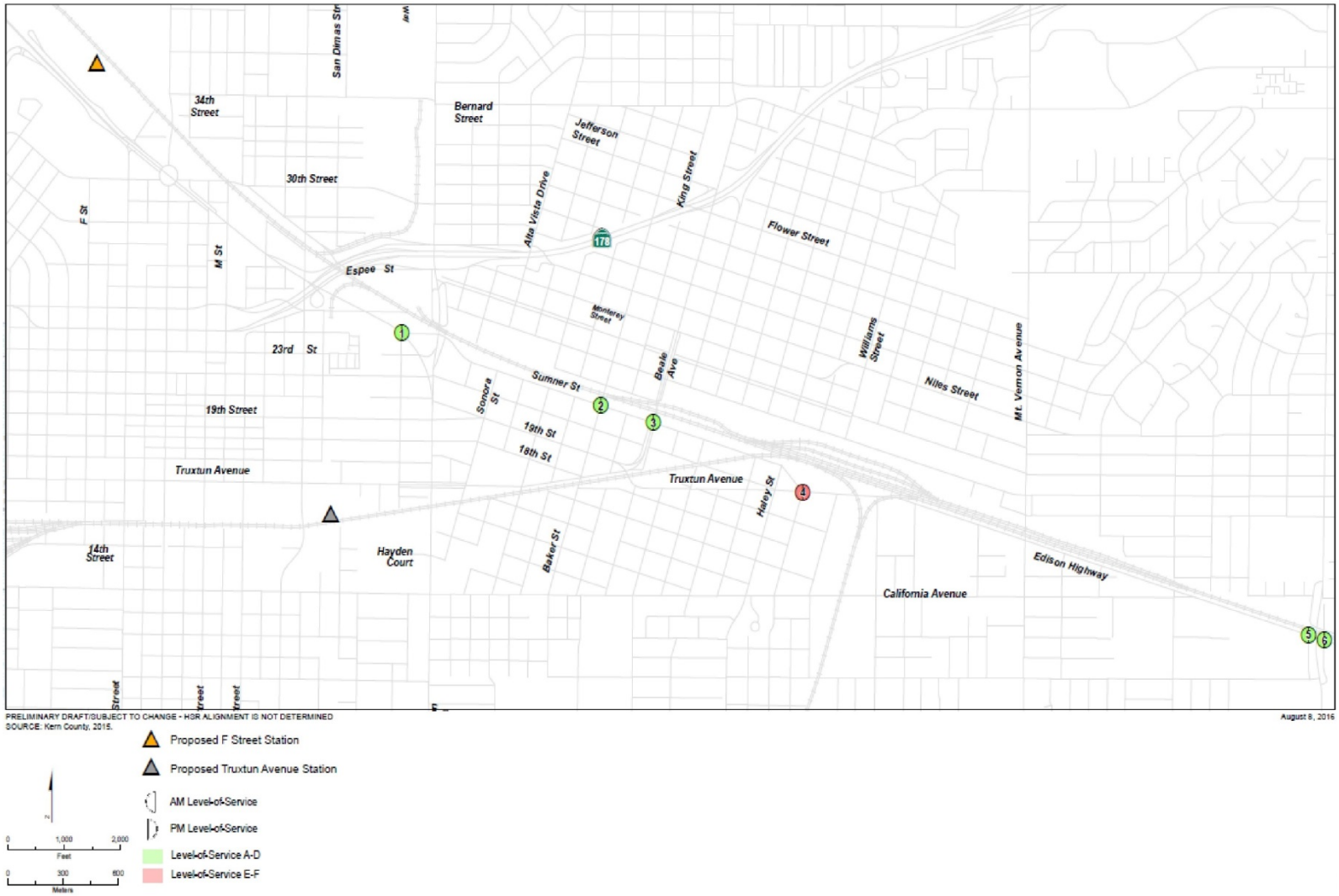


Figure 3.2-9 City of Bakersfield Existing Intersection Levels-of-Service

Bakersfield Station Study Area

This section discusses existing transportation conditions around the proposed F Street Station of the F-B LGA to provide background information useful for analyzing potential impacts on local traffic conditions.

Site Descriptions

The proposed F Street Station would be located at the intersection of F Street and SR 204. To facilitate vehicle circulation at the proposed F Street Station, F Street would be grade separated and cross under SR 204. The general location of this station is immediately east of the Kern River Parkway and the area around the station is well developed.

Highways and Roadways

The region contains several state routes and regionally significant roadways that serve as connections to population centers outside of the F-B LGA Corridor. Figure 3.2-10 illustrates state routes and other regionally important roadways in the vicinity of the F-B LGA.

The F-B LGA's proposed F Street Station site is located at F Street, Chester Avenue, and Golden State Avenue (SR 204/99B) at the northern edge of downtown Bakersfield. SR 204/99B is a main artery through Bakersfield that connects to SR 99 and SR 178. F Street provides direct access to the downtown core to the south; Chester Avenue also provides access to the downtown as well as to industrial, residential, and park uses to the north. East of the proposed station site, 34th Street provides east-west access to the station site.

Several new freeway corridors are included in the Metropolitan Bakersfield General Plan; however, these projects are not funded and may still require adoption of the corridors (City of Bakersfield and Kern County 2015). The planned freeway and road improvements, (both the Truxtun Avenue station and the F Street station), which may potentially cross the F-B LGA, are the Hageman Road Flyover (EA 08-484500), the Rosedale Highway Off Ramp (EA 06-48462), the 24th Street Improvements (EA 06-493900 and EA 06-484700), and the Centennial Corridor Project.

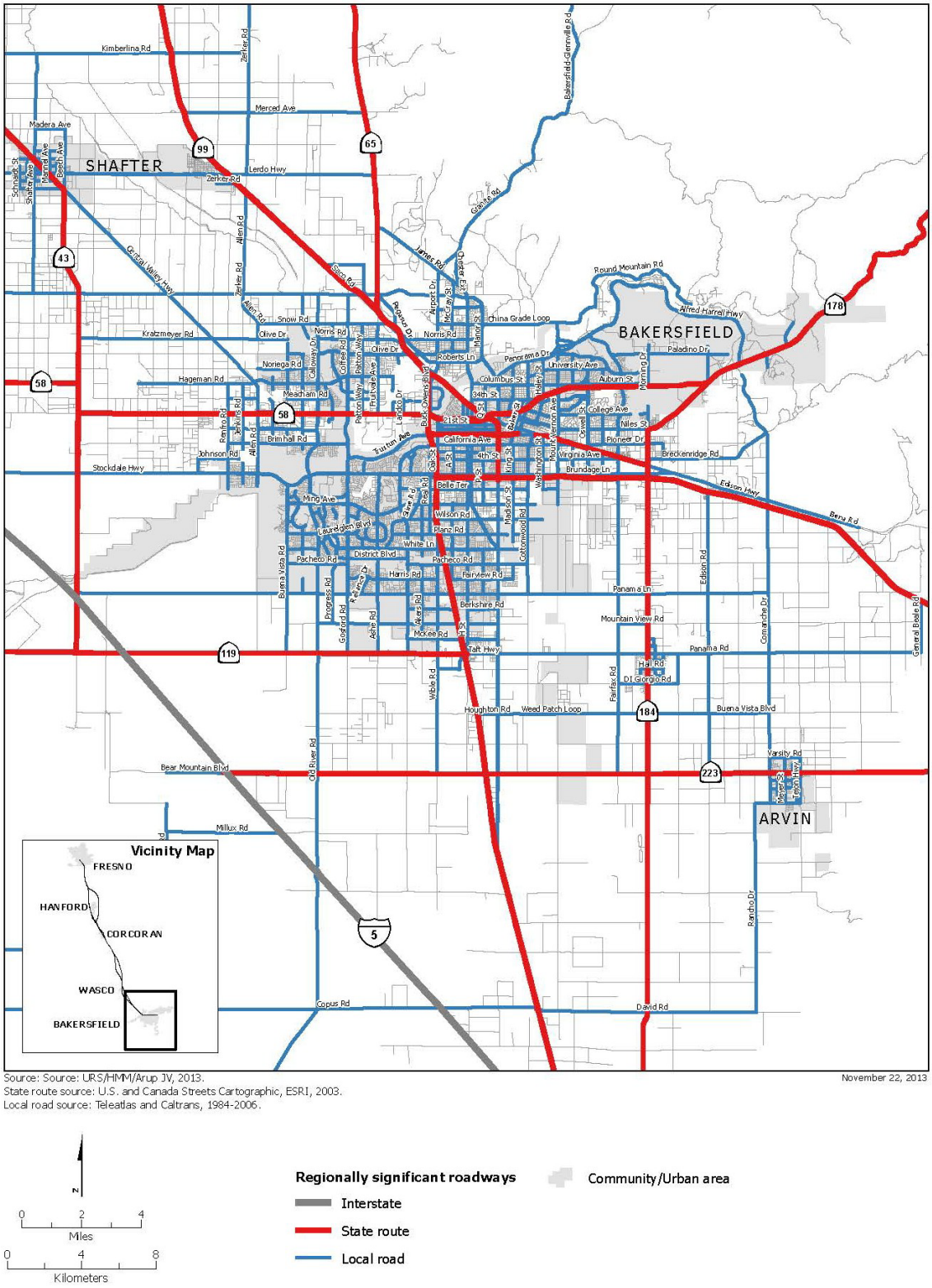
Figure 3.2-11 shows the existing roadway designations for this area.

Air Travel

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

Freight, Rail and Bus Service

Regional rail freight (BNSF and UPRR) provides service to Bakersfield. 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 2010b). Passenger rail (Amtrak's San Joaquin route) operates several times a day between the San Francisco Bay Area, Sacramento, and Bakersfield, with bus connections to Southern California. Intercity passenger bus service (primarily Greyhound) provides service to destinations nationwide. Greyhound Trailways also provides charter service to Yosemite Valley. Transportes InterCalifornias provides additional regional bus service in the Fresno area. These are further described in Section 3.2.4.1 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-18).



Source: Source: URS/HMM/Arup JV, 2013.
State route source: U.S. and Canada Streets Cartographic, ESRI, 2003.
Local road source: Teleatlas and Caltrans, 1984-2006.

November 22, 2013

Figure 3.2-10 Regionally Significant Roads in Bakersfield

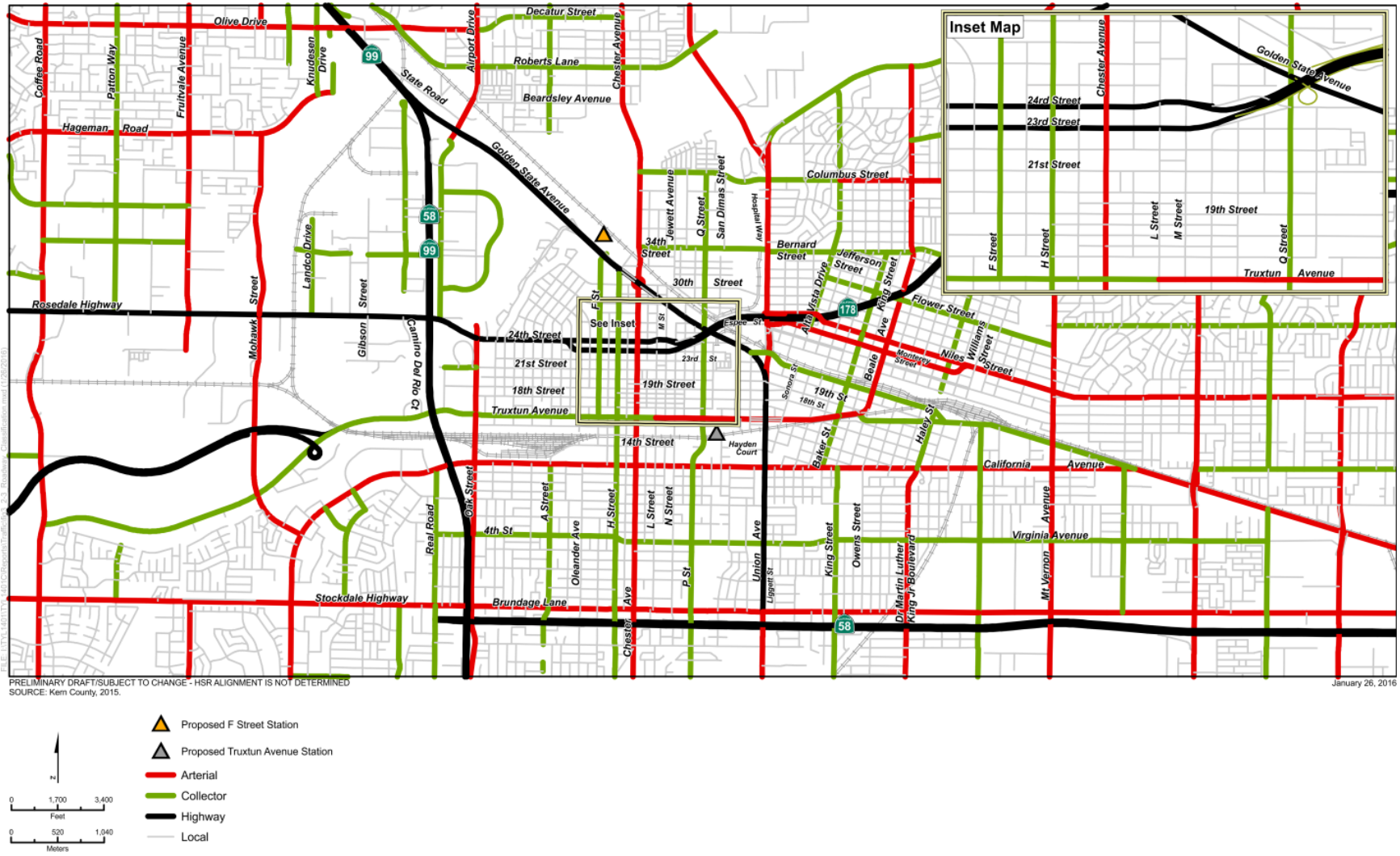


Figure 3.2-11 Bakersfield Station Study Area Roadway Classifications Roadway Segment Analysis

A total of 63 roadway segments were identified for analysis. This includes segments identified for both station alternatives—i.e., Truxtun Avenue Station and F Street Station (May 2014 Project and F-B LGA)—as well as segments exclusively analyzed for either of the two alternatives. Figure 3.2-12 and Figure 3.2-13 show the ADT, number of lanes, and speeds for these roadway segments. As shown in Table 3.2-7, all but 10 of the 64 roadway segments operate at LOS C or better. More details on LOS analysis of the roadway segments are included in the F-B LGA TATR (Authority and FRA 2017).

Table 3.2-7 Roadway Segments Operating at Levels-of-Service D, E or F under Existing Conditions

No.	Roadway Segment	ADT	Number of Lanes (NE or SW)	Functional Classification[1]	V/C[2]	LOS
1	Oak Street, between SR 178 and Truxtun Avenue	29,642	2/2	Four-Lane Collector	0.99	E
33	Olive Drive, between Knudsen Drive and SR 99 Southbound Ramps	56,905	3/3	Six-Lane Arterial	0.95	E
39	Rosedale Highway, between Camino Del Rio Court and SR 99 Southbound Ramps	54,340	3/3	Six-Lane Arterial	0.91	E
40	SR 178, between Buck Owens Boulevard and Oak Street	54,610	3/3	Six-Lane Arterial	0.91	E
41	SR 178, between Oak Street and D Street	64,713	2/2	Four-Lane Arterial	1.62	F
42	SR 178, between D Street and Chester Avenue	30,380	0/3	One-Way Arterial	1.01	F
43	23rd Street, between D Street and F Street	28,403	3/0	One-Way Arterial	0.95	E
44	23rd Street, between F Street and Chester Avenue	30,190	3/0	One-Way Arterial	1.01	F
47	Truxtun Avenue, between Bahamas Drive and Oak Street	54,219	2/2	Four-Lane Arterial	1.36	F
54	California Avenue, between Real Road and Oak Street	45,493	2/3	Five-Lane Arterial	0.91	E

Source: Authority and FRA, 2017
[1] The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
[2] Capacity based on City of Bakersfield's General Plan, December 2007. On three-lane roadway segments, the V/C is based on a per lane capacity.
Bold = Exceeds LOS Standard (LOS C)
LOS based on V/C ratios.
ADT = Average Daily Traffic SR = State Route
LOS = levels-of-service SW = South/West NE = North/East V/C = volume-to-capacity ratio

Intersections

The study area for the F-B LGA's proposed F Street Station includes the extent of the roadway networks and intersections that may experience change in traffic volume of more than 50 peak hour vehicular trips as a result of the project. As a conservative approach, additional intersections and roadway segments were included in the analysis where the project adds fewer than 50 trips and the project may have significant impacts based on recommendations from City of Bakersfield staff. Based on the 50 peak hour project trips threshold and discussion with City staff, 43 additional study intersections and 18 new roadway segments were included in the analysis for the project. Thus, this analysis evaluates a total of 115 intersections and 64 roadway segments, some of which are common to both alternatives (May 2014 Project and F-B LGA). Figure 3.2-14 illustrates the study intersections. Figure 3.2-15 shows the existing intersection operating conditions in terms of LOS. All but 34 of the 115 intersections operate at LOS C or better, as shown in Table 3.2-8. More details on LOS analysis at the study intersections are included in the F-B LGA TATR (Authority and FRA 2017).

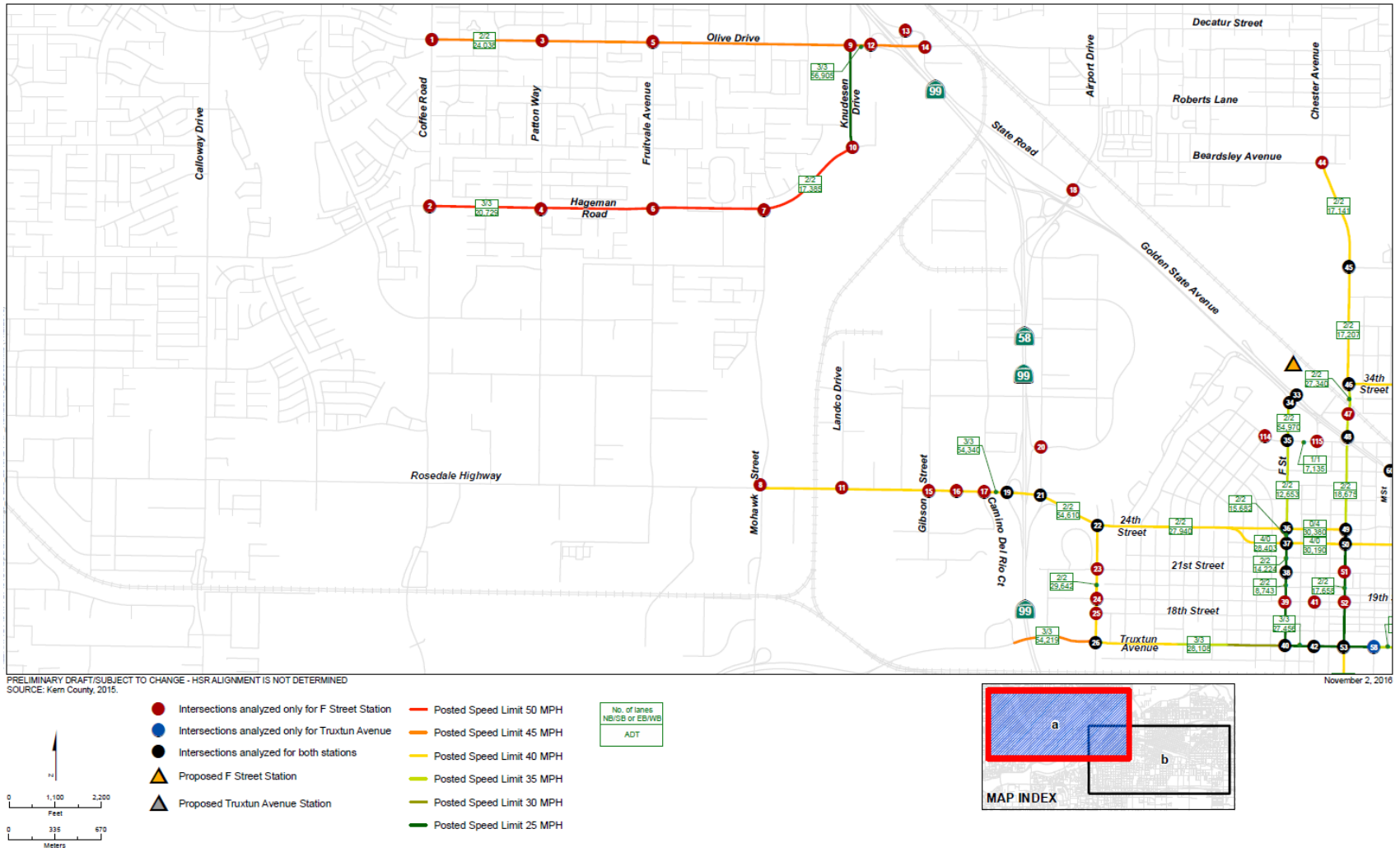


Figure 3.2-12 Bakersfield Station Area Roadway Segments

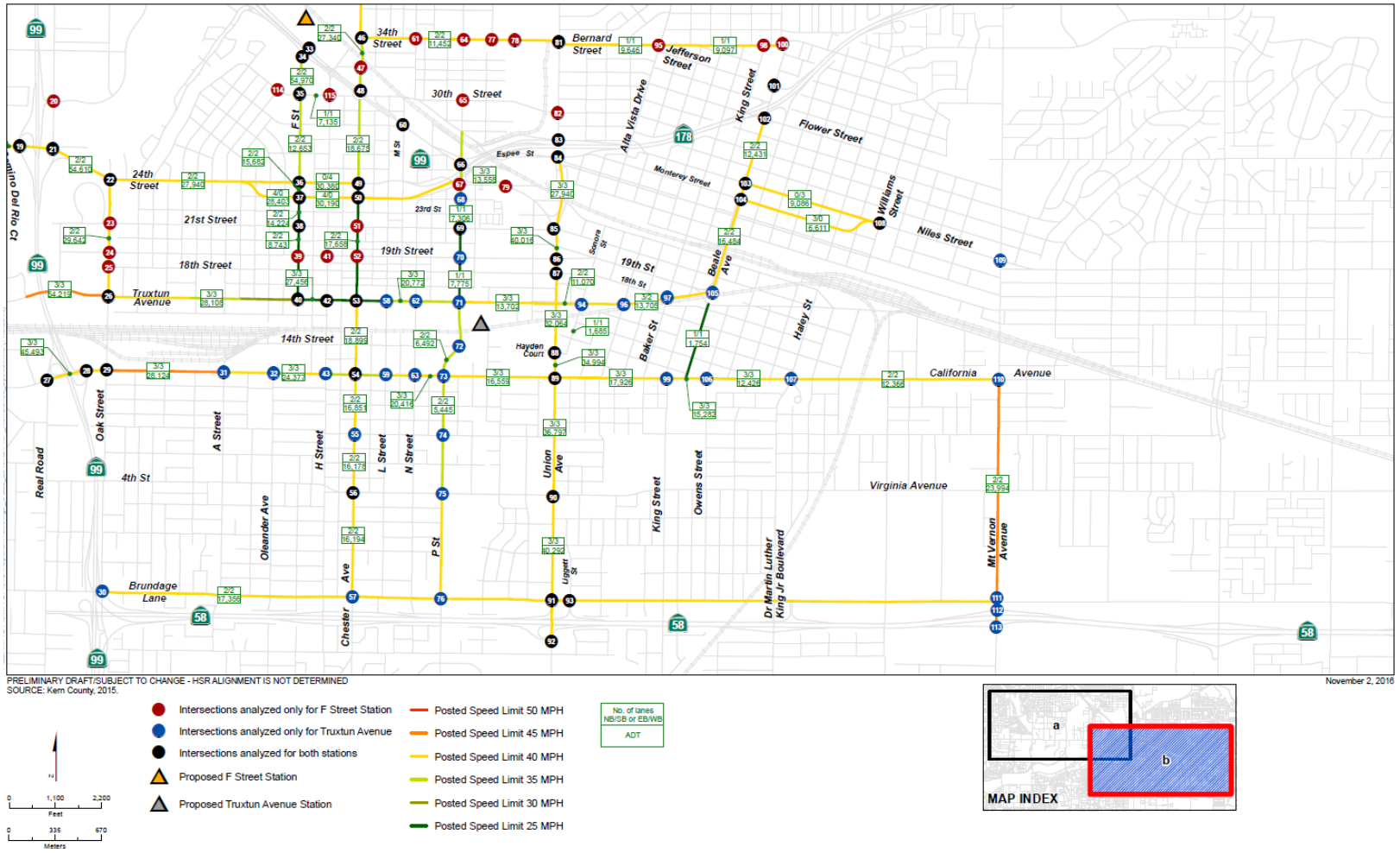


Figure 3.2-13 Bakersfield Station Area Roadway Segments

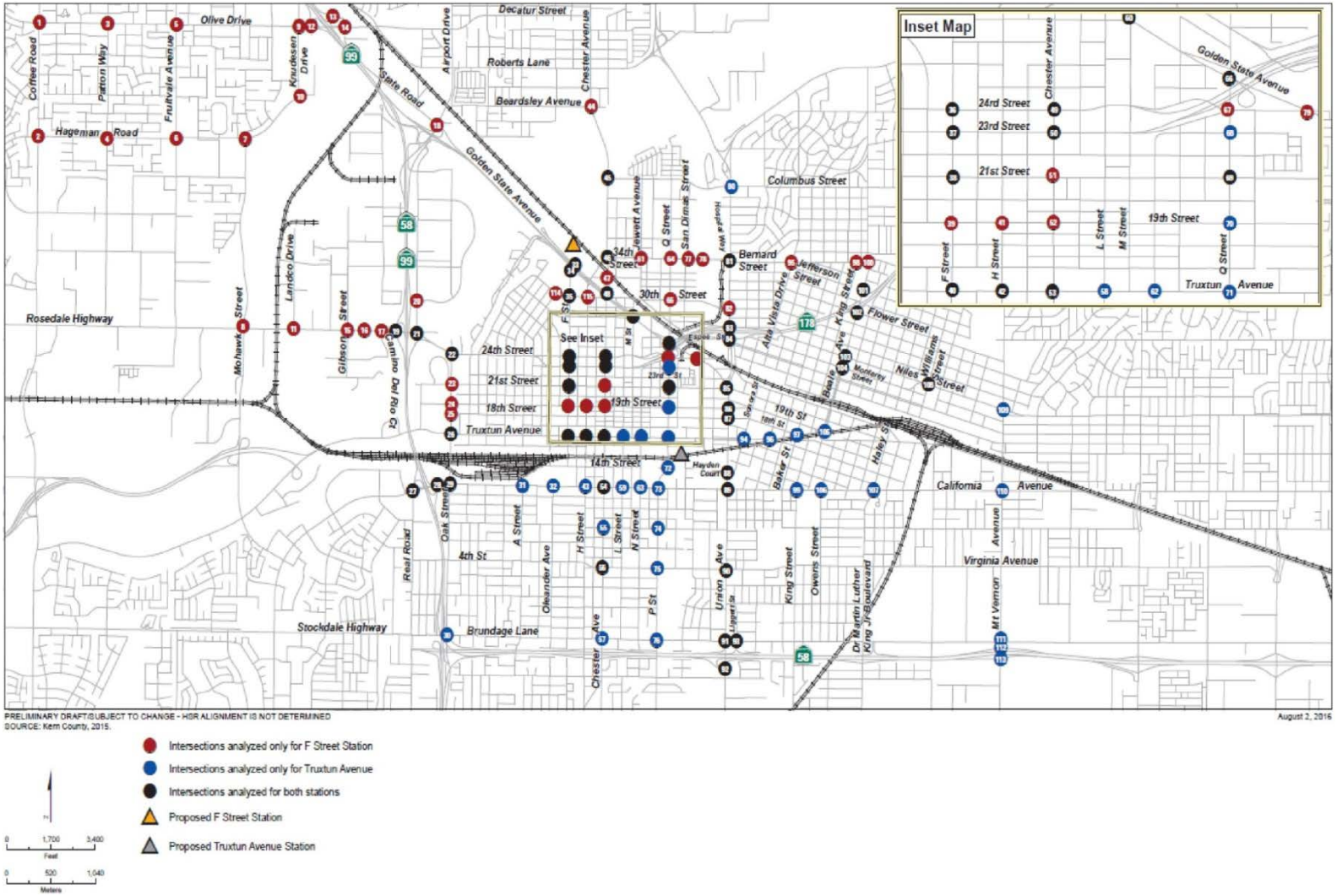


Figure 3.2-14 Bakersfield Station Area Study Intersections

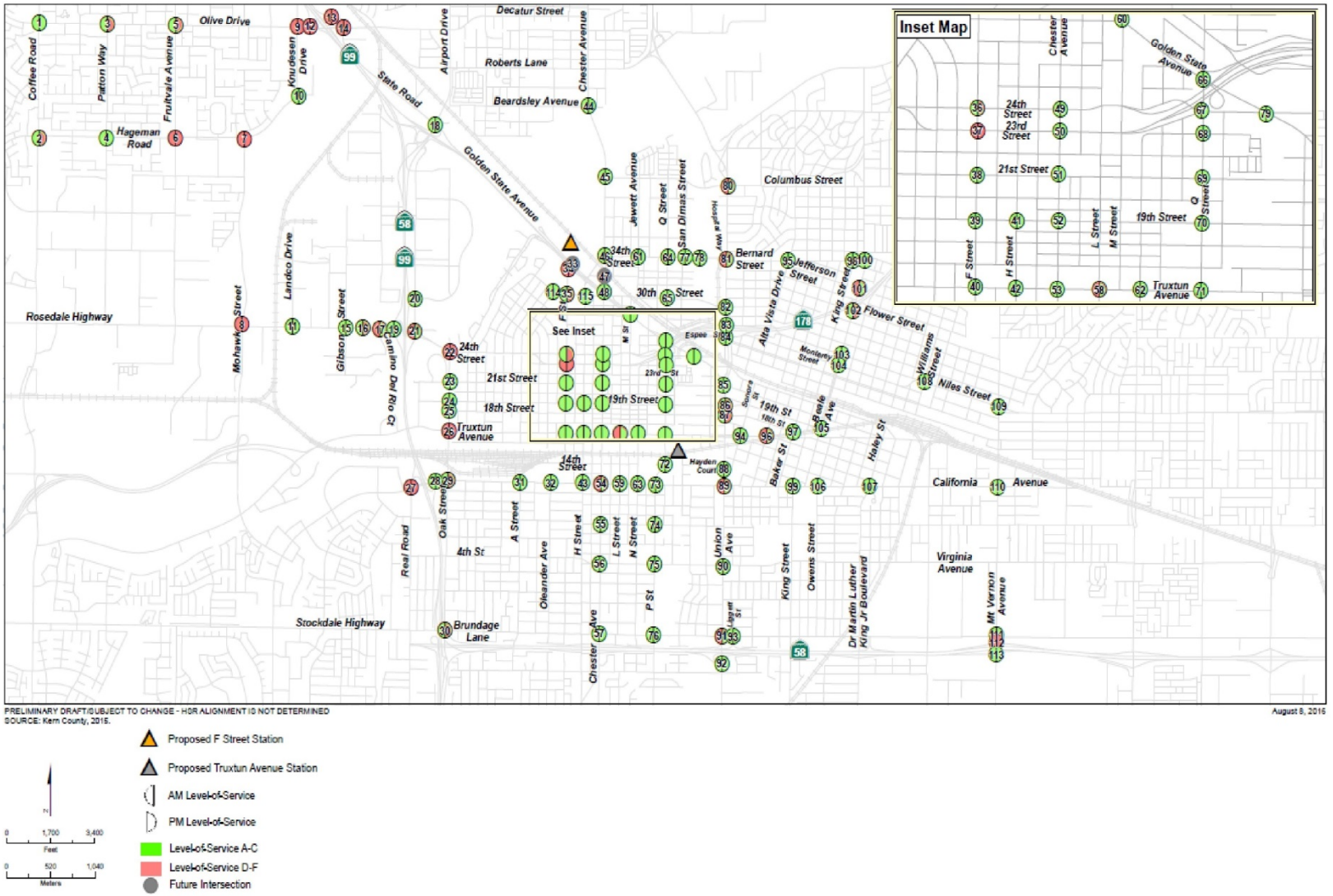


Figure 3.2-15 Bakersfield Station Area Intersection Levels-of-Service

Table 3.2-8 Intersections Operating at Levels-of-Service D, E or F under Existing Conditions

No.	Intersection	Control	Existing Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
2	Coffee Road/Hageman Road	Signalized	25.3	C	36.7	D
3	Patton Way/Olive Drive	Signalized	33.6	C	39.7	D
5	Fruitvale Avenue/Olive Drive	Signalized	27.6	C	35.9	D
6	Fruitvale Avenue/Hageman Road	Signalized	48.9	D	55.4	E
7	Mohawk Street/Hageman Road	One-Way Stop	65.9	F	>180	F
8	Mohawk Street/Rosedale Highway	Signalized	73.0	E	>180	F
9	Knudsen Drive/Olive Drive	Signalized	128.2	F	127.1	F
12	SR 99 Southbound Ramps/Olive Drive	One-Way Stop	56.5	F	>180	F
13	State Road/SR 99 Northbound Ramps	Two-Way Stop	46.1	E	47.7	E
14	State Road/Olive Drive	Signalized	35.6	D	88.2	F
16	Shopping Center Driveway/Rosedale Highway	Signalized	12.8	B	35.2	D
17	Camino Del Rio Court/Rosedale Highway	Signalized	37.4	D	34.2	C
21	Buck Owens Boulevard-SR 99 Northbound Ramps/ Rosedale Highway	Signalized	38.7	D	43.8	D
22	Oak Street/Rosedale Highway-24th Street	Signalized	115.1	F	68.1	E
26	Oak Street/Truxtun Avenue	Signalized	142.5	F	121.7	F
27	Real Road-SR 99 Southbound Ramps/California Avenue	Signalized	52.0	D	55.9	E
29	Oak Street/California Avenue	Signalized	33.7	C	42.3	D
30	Stockdale Highway/Brundage Lane	Signalized	28.0	C	37.9	D
34	F Street/SR 204	Signalized	44.3	D	66.8	E
35	F Street/30th Street	Signalized	31.7	C	40.7	D
36	F Street/24th Street	Signalized	33.9	C	46.9	D
37	F Street/23rd Street	Signalized	70.7	E	71.6	E
54	Chester Avenue/California Avenue	Signalized	39.7	D	38.7	D
58	L Street/Truxtun Avenue	Signalized	40.0	D	31.9	C
80	Union Avenue/Columbus Street	Signalized	41.8	D	26.1	C
81	Union Avenue/34th Street-Bernard Street	Signalized	45.1	D	27.0	C
86	Union Avenue/19th Street	Signalized	29.6	C	45.1	D
87	Union Avenue/18th Street	Signalized	27.0	C	39.9	D
89	Union Avenue/California Avenue	Signalized	36.5	D	27.4	C
91	Union Avenue-SR 58 Westbound Ramps/Brundage Lane	Signalized	37.7	D	41.7	D
96	Tulare Street/Truxtun Avenue	Two-Way Stop	27.4	D	30.6	D
101	Beale Avenue/Jefferson Street-SR 178 Westbound Ramps	Two-Way Stop	27.7	D	21.9	C

No.	Intersection	Control	Existing Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
102	Beale Avenue/Flower Street	Signalized	17.5	B	37.3	D
112	Mt. Vernon Avenue/SR 58 Westbound Ramps	Two-Way Stop	149.6	F	60.0	F

Source: Authority and FRA, 2017
Delay represented is average delay at signalized intersections and average delay on controlled approaches at unsignalized intersections. Delay is in seconds per vehicle. Average control delay in seconds (For two-way stop intersections, reported delay is for worst-case movement).
Bold = Exceeds LOS standard (LOS C)
LOS = levels-of-service
SR = State Route

Freeway Mainline and Ramp Merge/Diverge Analysis

Caltrans requested analysis of SR 204 mainline segments and ramp merge/diverge analysis at the proposed F Street interchange that would be constructed as part of the F-B LGA's proposed F Street Station. Under existing conditions, SR 204 is an at-grade signalized intersection with F Street. Existing highway segment analysis shows that the westbound segment on SR 204 east of F Street operates unsatisfactorily under both a.m. and p.m. peak hour conditions. More details on LOS analysis of the highway segments are included in the F-B LGA TATR (Authority and FRA 2017).

Transit

Transit operations along the May 2014 Project were described in Section 3.2.4.5 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-50).

Public transportation in metropolitan Bakersfield includes local buses, intercity buses, Amtrak trains, and paratransit services. These are described in detail in Section 4.4.6 of the F-B TATR (Authority and FRA 2014c). The main bus service operating within Bakersfield is the GET District. Detailed information about the GET District can be found in Chapter 3.2 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-50). The GET Maintenance Facility is located within the footprint of the proposed F Street Station site. The proposed F Street Station is also located six blocks north of the GET Downtown Transit Center, which is located at 23rd Street and Chester Street. Transit operations along the F-B LGA are included in the F-B LGA TATR (Authority and FRA 2017).

Table 3.2-9 highlights the bus routes for GET (GET District 2012).

Table 3.2-9 Existing Golden Empire Transit Bus Routes and Weekday Service Frequency

Bus Routes – Bakersfield	Frequency (Min) Weekdays
Route 21 – CSUB/Bakersfield College	30
Route 22 – CSUB/Oildale	15
Route 41 – Valley Plaza/Cottonwood/Bakersfield College	30
Route 42 – Panama Lane/Westchester	30
Route 43 – Truxtun Avenue/Bakersfield College	30
Route 44 – White Lane/Bakersfield College	30
Route 45 – Oildale/Foothill	30
Route 46 – Stockdale/Foothill	30
Route 47 – Panama Lane/Truxtun Avenue	30
Route 61 – Panama Lane/CSUB/Bakersfield College	60

Bus Routes – Bakersfield	Frequency (Min) Weekdays
Route 62 – Ridgeview/Greenfield/Valley Plaza	60
Route 81 – Valley Plaza/Downtown/Bakersfield College	30
Route 82 – CSUB/Rosedale	60
Route 83 – Half Moon/S Union	45
Route 84 – Northwest/Downtown	60
Route 92 – Tejon Ranch Commerce Center Express/Downtown	60—120

Source: Golden Empire Transit District (www.getbus.org/new-system-maps-timetables)
CSUB = California State University, Bakersfield
min = minimum

Non-Motorized Facilities

Details regarding bike paths and pedestrian sidewalks near the May 2014 Project's Truxtun Avenue Station are included in Section 3.2.4.5 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 3.2-51).

For the F-B LGA's proposed F Street Station, the nearest existing bike lanes or paths are on Chester Avenue adjacent to the station site. Additional bike lanes also exist along P and Q Streets, 21st Street, 30th Street, 34th Street, and the Kern River Parkway, while there are planned bike lanes along Edison Highway to the east of the proposed station and near the intersection of Airport Drive and Golden State Avenue north of the Kern River and the proposed station area (City of Bakersfield and Kern County 2010). Pedestrian sidewalks are present on F Street and Chester Avenue in the vicinity of the proposed F Street Station location.

Parking Facilities

There are 68 parcels that are currently used as parking lots located in the vicinity of the proposed station site, totaling 30.35 acres. All parking lots are located approximately 0.5 mile, or less, from the proposed station site (KernCOG 2014). The F Street Station site would include 11.75 acres of surface and structured parking. Surface parking would be designated on 7 acres with a planned parking capacity of 762 vehicles. Six seven-story parking structures would be located on the station site (on approximately 4.7 acres). The parking structures would include one basement level and a roof deck parking level, and would have total parking capacity for 4,438 vehicles. The total parking capacity (surface parking lots and parking structures) for the station site would accommodate parking for 5,200 vehicles.

3.2.4 Environmental Consequences

3.2.4.1 Summary of Analysis for the May 2014 Project

This section describes the impacts related to transportation for the May 2014 Project.

The May 2014 Project would not remove existing at-grade crossings of the BNSF Railway between Poplar Avenue in Shafter and Oswell Street in Bakersfield. Project operation would increase traffic congestion at numerous intersections around the Bakersfield Truxtun Avenue Station. Prior to mitigation, impacts would be significant under CEQA. Mitigation measures for operational impacts include a wide variety of roadway improvements including restriping, installation of signals, modification of signal timing, and roadway widening. Following mitigation, the impacts would be less than significant under CEQA. However, effects on the local circulation would occur in the congested areas of Bakersfield from the extension of the duration of peak periods of congestion. The effect of this increased congestion would be less than significant under CEQA.

The May 2014 Project would result in permanent road closures in urban and rural areas. The Authority would provide suitable access for property owners affected by these road closures; therefore, the effect of road closures the impact would be less than significant under CEQA. In the rural areas, the roads proposed for closure have very low traffic volumes and necessary traffic diversions can be accomplished without causing any significant traffic impacts under NEPA and

under CEQA. Where these impacts would occur in the congested urban areas of Bakersfield, which could extend the duration of peak periods of congestion, these project impacts are less than significant under CEQA.

Potential construction-related cumulative impacts on transportation would include temporary road closures and delays; however, avoidance and minimization measures would reduce these delays. The cumulative effect of project construction related to travel delay is not cumulatively considerable under CEQA.

Potential operations-related cumulative impacts on transportation would include specific local impacts, such as road closures and crossings. At a local level, the project in combination with other past, present, and reasonably foreseeable projects would decrease the LOS on some roadway segments and at intersections in the vicinity of the Bakersfield Truxtun Avenue Station; however, incorporated project mitigation measures would ensure operating conditions would not decrease below LOS D. Therefore, the cumulative operation impacts would not be cumulatively considerable under CEQA.

Following mitigation, the traffic effects at all intersections would be less than significant under CEQA. However, effects on the local circulation would occur in the congested areas of Bakersfield from the extension of the duration of peak periods of congestion. The effect of this increased congestion would be less than significant under CEQA.

Some localized effects would result from the May 2014 Project alternative, such as local road closures and intersection impacts. Local roads that serve the proposed station site would have increased traffic as people redirect their travel routes.

- Under Existing Plus May 2014 Project Truxtun Avenue Station conditions, none of the roadway segments and three intersections would experience significant impacts in the Truxtun Avenue Station area.
- Under Future (2035) Plus Truxtun Avenue Station conditions, none of the roadway segments and 11 intersections would experience significant impacts in the Truxtun Avenue Station area.
- Along the May 2014 Project Alignment, 14 local roads would be closed and traffic would be diverted to adjacent roads. These are described in Section 3.2.5.1 of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, pages 3.2-51 through 3.2-63).

Figure 3.2-16 shows the Future (2035) Plus Truxtun Avenue Station intersection LOS for the station area.

3.2.4.2 No Project Alternative

The Fresno to Bakersfield Section Final EIR/EIS describes the No Project Alternative and the inevitable congestion on regional roadways, despite planned improvements, because anticipated growth would outpace roadway expansion (Authority and FRA 2014a, pages 3.2-63 through 3.2-66).

The No Project Alternative represents the year 2035 traffic conditions without the HSR Project. The forecast growth in traffic conditions in the year 2035 is based on the regional forecasts from KernCOG for land use and traffic growth. The No Project Alternative was developed from the following sources of information (Kern COG 2014a):

- State Transportation Implementation Program
- Regional Transportation Plans, financially constrained projects for all modes of travel
- Airport Master Plans
- Intercity passenger rail plans

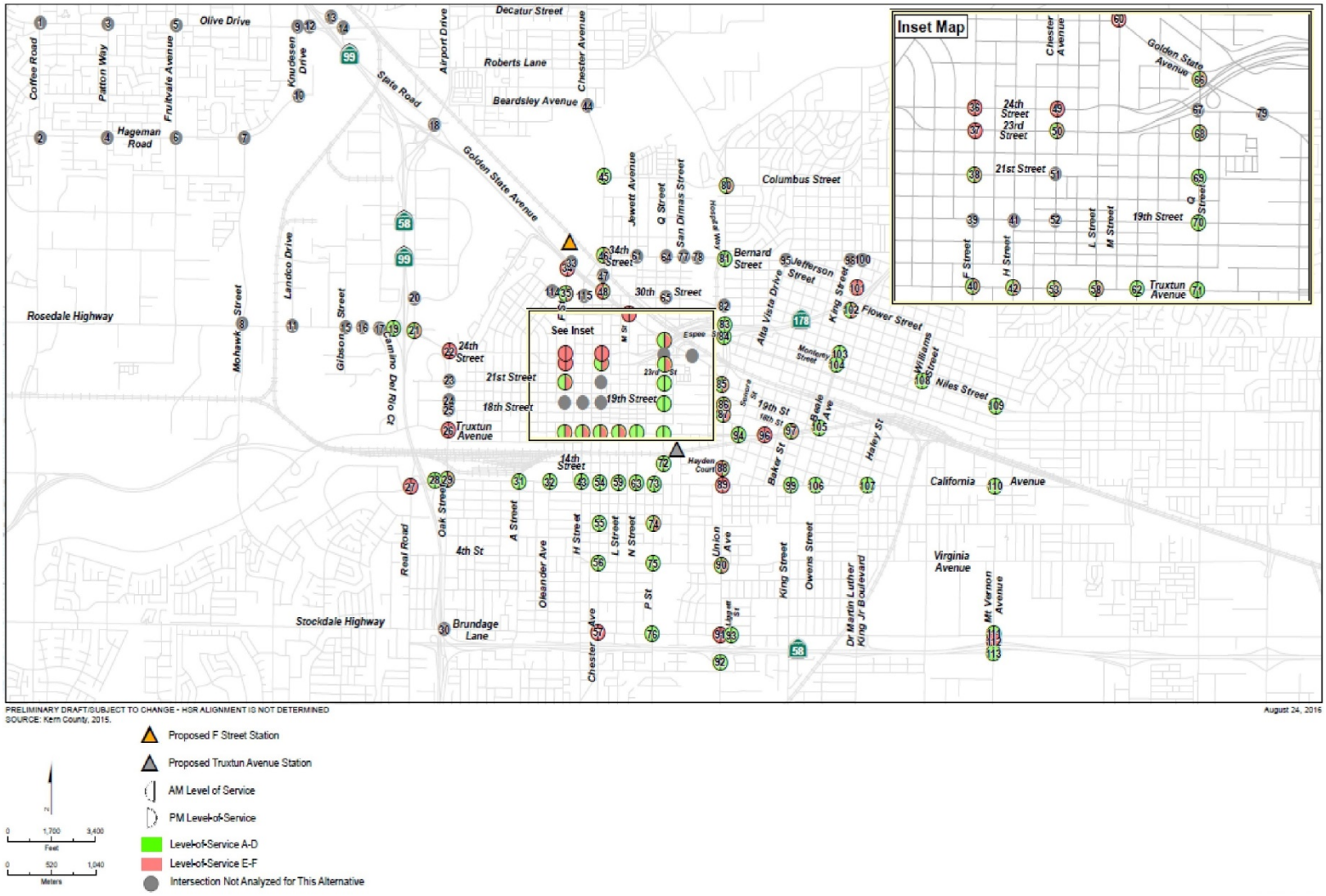


Figure 3.2-16 Future (2035) Plus Truxtun Avenue Station Intersection Levels-of-Service

Roadway segment and intersection analyses were performed for the No Project Alternative for the Fresno to Bakersfield Section Final EIR/EIS, incorporating the transportation improvements identified in this section in the vicinity of each proposed station location (Authority and FRA 2014a, pages 3.2-65 and 3.2-66). This analysis was updated for preparation of the supplemental analysis to create a uniform future baseline for comparison between the May 2014 Project and the F-B LGA.

The following is an analysis of the No Project Alternative for transportation movements; the description of anticipated projects and capacity in the region are outlined in Fresno to Bakersfield Section Final EIR/EIS Section 2.4 (Authority and FRA 2014a, pages 2-37 to 2-54). The transportation facility analysis incorporated the anticipated changes in travel patterns for the projected increase in population and employment. As stated in Fresno to Bakersfield Section Final EIR/EIS, between 2009 and 2035, vehicle miles traveled (VMT) are projected to increase by 75 percent in Kern County (Authority and FRA 2014a, page 1-13). 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. 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 forecast growth in population and traffic that will increase future traffic volumes and the planned improvements that would help reduce congestion was included in estimating the future No Project Alternative conditions. Intersections and roadway segments that are projected to operate at LOS of E or F in 2035 under the No Project Alternative would be operating at an LOS that is at or below a locally acceptable condition regardless of whether the HSR is constructed.

Aviation Element

Chapter 1, Project Purpose, Need, and Objectives of the Fresno to Bakersfield Section Final EIR/EIS, describes the trends statewide and at the Bakersfield Airport (Authority and FRA 2014a, pages 1-9 to 1-21). Although enplanements have grown in number nationally and statewide (at major airports), within the proposed HSR service area, Bakersfield Airport currently serves San Francisco and Los Angeles international airports with a limited number of flights each day. In the next 20 years, total aircraft operations are estimated to increase 20 percent.

Intercity Common Carrier Element

Conventional Passenger Rail

Planned improvements to the San Joaquin Amtrak route are anticipated to reduce travel time to fewer than six hours between Bakersfield and Oakland at an average speed of 60 miles per hour with the potential to reach speeds of upwards of 90 miles per hour (Caltrans 2013). The trends in intercity passenger rail service in northern California show that reliable train service, cost-effective prices, and more frequent train service between business centers results in increased ridership. Supporting examples can be found in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 1-16).

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; however, 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 percent 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. While trucking is the dominant mode for moving freight in the study area, rail accounted for 11 percent of the total tonnage of freight movement through the region in 2000. Details regarding freight rail capacities and growth can be found in the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2014a, page 1-15).

No Project Alternative Roadway Segment and Intersection Impacts

Peak hour turning movement volumes for intersections were developed using existing counts and the future approach and departure volumes, based on the methodologies contained in *National Cooperative Highway Research Program Report (NCHRP) 255: Highway Traffic Data for Urbanized Area Project Planning and Design* (Transportation Research Board, December 1982). Detailed LOS analysis and results are included in the F-B LGA TATR (Authority and FRA 2017). Daily roadway segment volumes were developed using the same methodology.

City of Shafter

Table 3.2-10 shows the roadway segments that are anticipated to operate below LOS D under year 2035 No Project conditions. Table 3.2-11 shows the intersections that are anticipated to operate below LOS D under year 2035 No Project conditions.

Table 3.2-10 Year 2035 No Project Roadway Segments Operating at Levels-of-Service E or F – City of Shafter

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Daily Volume	Future No-Build Conditions	
					V/C	LOS
41	SR 43, north of E Los Angeles Avenue	1/1	Two-Lane Arterial	28,383	1.42	F
42	Central Valley Highway, north of Riverside Street	1/1	Two-Lane Arterial	24,581	1.23	F
43	Central Valley Highway, south of Riverside Street	1/1	Two-Lane Arterial	24,546	1.23	F

Source: Authority and FRA, 2017
[1]The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
LOS is based on volume-to-capacity ratios.
BOLD = Deficient LOS
LOS = levels-of-service NE = North/East V/C = volume-to-capacity
SR = State Route SW = South/West

Table 3.2-11 Year 2035 No Project Intersections Operating at Levels-of-Service E or F – City of Shafter

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
3	Poplar Avenue/SR 43	Two-Way Stop	91.9	F	>180	F
10	SR 43/Fresno Avenue	Two-Way Stop	>180	F	61.6	F
13	SR 43/Tulare Avenue	Two-Way Stop	81.0	F	>180	F
25	Mannel Avenue/Lerdo Highway	Two-Way Stop	37.4	E	65.2	F
26	SR 43/Ash Avenue	Two-Way Stop	40.6	E	87.6	F

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
30	SR 43/Los Angeles Street	Two-Way Stop	>180	F	>180	F
35	SR 43/Riverside Street	Two-Way Stop	>180	F	10.9	B

Source: Authority and FRA, 2017
BOLD = Exceeds levels-of-service standard
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
LOS = levels-of-service

Kern County

Table 3.2-12 shows the roadway segments that are anticipated to operate below LOS D under year 2035 No Project conditions. LOS = levels-of-service NE = North/East V/C = volume-to-capacity
SR = State Route SW = South/West

Table 3.2-13 shows the intersections that are anticipated to operate below LOS D under year 2035 No Project conditions. For freeway mainline and ramp merge/diverge analysis at the SR 99 and 7th Standard Road interchange, all segments and merge/diverge areas operate at a satisfactory LOS.

Table 3.2-12 Year 2035 No Project Roadway Segments Operating at Levels-of-Service E or F – Kern County

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Daily Volume	Future No-Build Conditions	
					V/C	LOS
2	Coffee Road, south of 7th Standard Road	1/1	Two-Lane Arterial	22,826	1.14	F
4	All America City Highway, south of Merle Haggard Drive	2/2	Four-Lane Arterial	38,073	0.95	E
11	7th Standard Road, between Golden State Highway and Quinn Road	2/2	Four-Lane Arterial	51,923	1.30	F
13	Snow Road, between Dole Court and Norris Road	1/1	Two-Lane Arterial	29,421	1.47	F
14	Norris Road, east of Knudsen Drive	1/1	Two-Lane Collector	25,580	1.71	F
15	Norris Road, east of Pegasus Drive	1/1	Two-Lane Collector	14,760	0.98	E

Source: Authority and FRA, 2017
[1]The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
BOLD = Deficient LOS LOS is based on volume-to-capacity ratios.
LOS = levels-of-service NE = North/East V/C = volume-to-capacity
SR = State Route SW = South/West

Table 3.2-13 Year 2035 No Project Intersections Operating at Levels-of-Service E or F – Kern County

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
5	Coffee Road/7th Standard Road	Signalized	154.1	F	172.2	F

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
6	Golden State Highway/7th Standard Road	Signalized	136.5	F	123.7	F
11	Coffee Road/Snow Road	Signalized	75.9	E	158.0	F
12	Fruitvale Avenue/Snow Road	Two-Way Stop	>180	F	48.1	E
13	Dole Court/Snow Road	Two-Way Stop	>180	F	12.6	B
14	Norris Road/Snow Road	Two-Way Stop	10.0	A	>180	F
15	Norris Road/Knudsen Road	Two-Way Stop	25.0	C	68.2	F

Source: Authority and FRA, 2017
BOLD = Exceeds LOS standard
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement).
LOS = levels-of-service

City of Bakersfield

All the roadway segments are anticipated to operate below LOS D under year 2035 No Project conditions. Table 3.2-14 shows the intersections that are anticipated to operate below LOS D under year 2035 No Project conditions.

Table 3.2-14 Year 2035 No Project Intersections Operating at Levels-of-Service E or F – City of Bakersfield

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
3	Beale Avenue/Sumner Street	Two-Way Stop	13.9	B	>180	F
4	Brown Street/Truxtun Avenue	Two-Way Stop	24.2	C	77.1	F

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement).
LOS = levels-of-service BOLD = Exceeds LOS standard

Bakersfield Station Area

Table 3.2-15 shows the roadway segments that are anticipated to operate below LOS D under year 2035 No Project conditions. Table 3.2-16 shows the intersections that are anticipated to operate below LOS D under year 2035 No Project conditions. Table 3.2-17 summarizes the year 2035 No Project peak hour highway segment LOS on SR 204 at F Street.

Table 3.2-15 Year 2035 No Project Roadway Segments Operating at Levels-of-Service E or F

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Daily Volume	Future No-Build Conditions	
					V/C[2]	LOS
1	Oak Street, between SR 178 and Truxtun Avenue	2/2	Four-Lane Collector	47,403	1.58	F
2	F Street, between Golden State Avenue and 30th Street	2/2	Four-Lane Collector	27,501	0.92	E

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Daily Volume	Future No-Build Conditions	
					V/C[2]	LOS
16	P Street, between California Avenue and 8th Street	1/1	Two-Lane Collector	16,159	1.08	F
17	Q Street, between 23rd Street and 21st Street	1/1	Two-Lane Collector	13,844	0.92	E
18	Q Street, between 19th Street and Truxtun Avenue	1/1	Two-Lane Collector	16,713	1.11	F
33	Olive Drive, between Knudsen Drive and SR 99 Southbound Ramps	3/3	Six-Lane Arterial	65,067	1.08	F
39	Rosedale Highway, between Camino Del Rio Court and SR 99 Southbound Ramps	3/3	Six-Lane Arterial	57,171	0.95	E
40	SR 178, between Buck Owens Boulevard and Oak Street	3/3	Six-Lane Arterial	75,473	1.26	F
41	SR 178, between Oak Street and D Street	2/2	Four-Lane Arterial	72,693	1.82	F
42	SR 178, between D Street and Chester Avenue	0/3	One-Way Arterial	50,772	1.69	F
43	23rd Street, between D Street and F Street	3/0	One-Way Arterial	29,260	0.98	E
44	23rd Street, between F Street and Chester Avenue	3/0	One-Way Arterial	31,102	1.04	F
47	Truxtun Avenue, between Bahamas Drive and Oak Street	2/2	Four-Lane Arterial	58,531	1.46	F
48	Truxtun Avenue, between Oak Street and F Street	2/2	Four-Lane Arterial	44,880	1.12	F
49	Truxtun Avenue, between F Street and Chester Avenue	2/2	Four-Lane Arterial	44,021	1.10	F
54	California Avenue, between Real Road and Oak Street	2/3	Five-Lane Arterial	49,375	0.99	E

Source: Authority and FRA, 2017
[1] The functional classification is based on the existing roadway configuration and on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
[2] Capacity based on *City of Bakersfield's General Plan* (December 2007). On three-lane roadway segments, the V/C is based on a per lane capacity.
LOS = levels-of-service (LOS is based on V/C ratios.) SW = South/West
NE = North/East V/C = volume-to-capacity
SR = State Route

Table 3.2-16 Year 2035 No Project Intersections Operating at Levels-of-Service E or F

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
1	Coffee Road and Olive Drive	Signalized	47.2	D	63.5	E
2	Coffee Road and Hageman Road	Signalized	28.4	C	>180	F
6	Fruitvale Avenue and Hageman Road	Signalized	66.4	E	52.2	D
7	Mohawk Street and Hageman Road	Two-Way Stop	>180	F	>180	F
8	Mohawk Street and Rosedale Highway	Signalized	174.3	F	>180	F
9	Knudsen Drive and Olive Drive	Signalized	109.5	F	>180	F

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
10	Knudsen Drive and Hageman Road	Signalized	87.5	F	151.8	F
12	SR 99 Southbound Ramps and Olive Drive	Two-Way Stop	>180	F	>180	F
13	State Road and SR 99 Northbound Ramps	Two-Way Stop	43.1	E	45.7	E
14	State Road and Olive Drive	Signalized	38.9	D	132.4	F
17	Camino Del Rio Court and Rosedale Highway	Signalized	177.0	F	84.8	F
21	Buck Owens Boulevard-SR 99 Northbound Ramps and Rosedale Highway	Signalized	42.3	D	82.9	F
22	Oak Street and Rosedale Highway-24th Street	Signalized	125.8	F	139.0	F
24	Oak Street and 19th Street	Signalized	13.7	B	62.0	E
26	Oak Street and Truxtun Avenue	Signalized	152.6	F	>180	F
27	Real Road-SR 99 Southbound Ramps and California Avenue	Signalized	83.8	F	93.0	F
29	Oak Street and California Avenue	Signalized	46.5	D	58.9	E
30	Stockdale Highway and Brundage Lane	Signalized	63.9	E	89.6	F
34	F Street and Golden State Avenue	Signalized	>180	F	>180	F
35	F Street and 30th Street	Signalized	32.2	C	36.1	D
36	F Street and 24th Street	Signalized	99.0	F	>180	F
37	F Street and 23rd Street	Signalized	126.4	F	119.6	F
38	F Street and 21st Street	Signalized	34.5	C	114.4	F
40	F Street and Truxtun Avenue	Signalized	33.1	C	>180	F
42	H Street and Truxtun Avenue	Signalized	43.4	D	90.9	F
46	Chester Avenue and 34th Street	Signalized	20.6	C	65.1	E
48	Chester Avenue and 30th Street-Golden State Avenue South Frontage	Roundabout	45.2	E	22.5	C
49	Chester Avenue and 24th Street	Signalized	67.2	E	82.0	F
50	Chester Avenue and 23rd Street	Signalized	36.8	D	80.5	F
53	Chester Avenue and Truxtun Avenue	Signalized	32.1	C	93.3	F
57	Chester Avenue and Brundage Lane	Signalized	73.3	E	132.2	F
58	L Street and Truxtun Avenue	Signalized	45.1	D	80.1	F
60	M Street and Golden State Avenue and 28th Street	Signalized	151.2	F	>180	F
66	Q Street and Golden State Avenue	Signalized	38.7	D	62.7	E
68	Q Street and 23rd Street	Two-Way Stop	27.0	D	>180	F
80	Union Avenue and Columbus Street	Signalized	51.6	D	61.6	E
85	Union Avenue and Golden State Avenue and 21st Street	Signalized	47.7	D	63.2	E
86	Union Avenue and 19th Street	Signalized	46.6	D	124.0	F
87	Union Avenue and 18th Street	Signalized	27.1	C	56.4	E
88	Union Avenue and Hayden Court-Sonora Street	Signalized	61.8	E	21.6	C
89	Union Avenue and California Avenue	Signalized	99.7	F	54.6	D
90	Union Avenue and 4th Street	Signalized	18.8	B	63.0	E

No.	Intersection	Control	2035 No Build Conditions			
			A.M. Peak		P.M. Peak	
			Delay	LOS	Delay	LOS
91	Union Avenue-SR 58 Westbound Ramps and Brundage Lane	Signalized	68.3	E	74.8	E
96	Tulare Street and Truxtun Avenue	Two-Way Stop	37.7	E	72.0	F
97	Baker Street and Truxtun Avenue-18th Street	Signalized	18.6	B	58.4	E
101	Beale Avenue and Jefferson Street-SR 178 Westbound Ramps	Two-Way Stop	>180	F	>180	F
102	Beale Avenue and Flower Street	Signalized	19.7	B	78.9	E
112	Mt. Vernon Avenue and SR 58 Westbound Ramps	Two-Way Stop	>180	F	>180	F

Source: Authority and FRA, 2017
BOLD = Exceeds LOS standard
LOS = levels-of-service
SR = State Route
Delay = Average control delay in seconds (For Roundabout, Two-Way Stop, One-Way Stop controlled intersections, reported delay is for worst-case movement).

Table 3.2-17 Year 2035 No Project Peak Hour Highway Segment Levels-of-Service

Roadway	Segment	Direction	A.M.			P.M.		
			Speed (mph)	Density	LOS	Speed (mph)	Density	LOS
SR 204	West of F Street[1]	Eastbound	55.0	37.9	E	55.0	29.8	D
		Westbound	55.0	23.1	C	55.0	36.4	E
	East of F Street[2]	Eastbound	55.0	—	F	55.0	—	F
		Westbound	55.0	—	F	55.0	—	F

Source: Authority and FRA, 2017
[1] Analyzed as Multi-Lane Highway Segment under *Highway Capacity Manual* 2010 methodology.
[2] Analyzed as Urban Roadway Segment under *Highway Capacity Manual* 2010 methodology due to frequency of signalized intersections.
BOLD = Exceeds LOS standard
LOS = levels-of-service
mph = miles per hour
SR = State Route

3.2.4.3 Fresno to Bakersfield Locally Generated Alternative

The F-B LGA would provide beneficial transportation impacts beyond providing an additional travel mode and connection to local and regional transit. The change from vehicles to HSR would reduce regional and interregional daily automobile trips and corresponding vehicle delay and congestion and provide traffic safety benefits in areas where the F-B LGA would provide grade separation of existing at-grade rail crossings. The F-B LGA would not generate any new trips that would contribute to the regional circulation network with the exception of the MOIF and the HSR station. However, due to the proposed alignment, modifications would be required to the existing circulation system that includes roadway closures, realignment, redesign of existing interchanges, addition of new traffic signals and roadway widening. As such, the modifications to the existing circulation system as a result of the proposed project would result in improved traffic operations at most locations within the F-B LGA alignment study area as is illustrated in detail in the F-B LGA TATR (Authority and FRA 2017).

- **City of Shafter:**
  - For the F-B LGA, there would be no significant impacts due to the project on any roadway segments or intersections under existing plus F-B LGA conditions.

  - For the F-B LGA, there would be no significant impacts due to the project on any roadway segments under future plus project conditions. There would be two study intersections under future plus project conditions that would experience significant impacts.

Figure 3.2-17 shows the future (2035) plus build peak hour intersection LOS for the City of Shafter.

- **Kern County**
  - For the F-B LGA, there would be no significant impacts due to the project on any roadway segments or intersections under existing plus F-B LGA conditions.
  - There would be two study intersections under future plus project that would experience significant impacts.

Figure 3.2-18 shows the future (2035) plus build peak hour intersection LOS for Kern County.

- **City of Bakersfield**
  - For the F-B LGA, there would be no significant impacts due to the project on any roadway segments or intersections under existing plus F-B LGA conditions.
  - For the F-B LGA, there would be no significant impacts due to the project on any roadway segments under future plus project conditions. There would be two study intersections under future plus project that would experience significant impacts.

Figure 3.2-19 shows the future (2035) plus build peak hour intersection LOS for the City of Bakersfield.

- Bakersfield Station Area
  - One roadway segment under existing plus F-B LGA Station conditions would experience a significant impact.
  - There would be three study intersections under existing plus F-B LGA Station conditions that would experience significant impacts.
  - There would be no significant impacts to freeway segments under existing plus F-B LGA Station conditions.
  - One roadway segment under future plus F-B LGA Station conditions would experience a significant impact.
  - There would be nine study intersections under future plus F-B LGA Station conditions that would experience significant impacts.
  - There would be no significant impacts to freeway segments under future plus F-B LGA Station conditions.

Figure 3.2-20 shows the future (2035) plus build peak hour intersection LOS for the Bakersfield Station Area.

- Along the F-B LGA, the following 10 road closures or access restrictions are proposed and traffic would be diverted to adjacent roads:
  - Within the City of Shafter:
    - Madera Avenue, Gold's Avenue, Orange Avenue, and Mendota Street
  - Within the City of Bakersfield:
    - Golden State Frontage Road South, Golden State Frontage Road North, H Street, 24th Street, Miller Street, and Haley Street

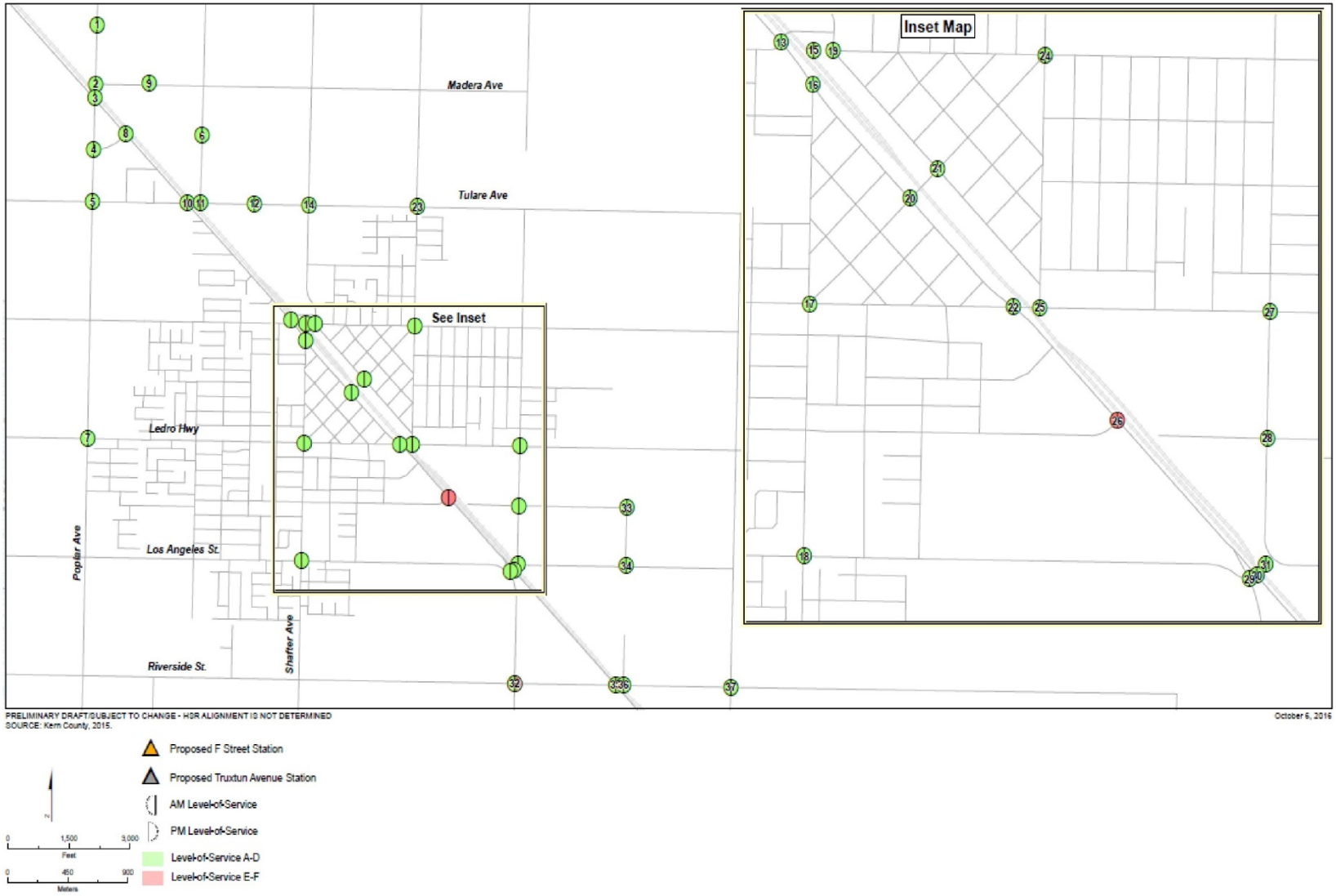


Figure 3.2-17 Future (2035) plus Build Peak Hour Intersection Levels-of-Service for the City of Shafter

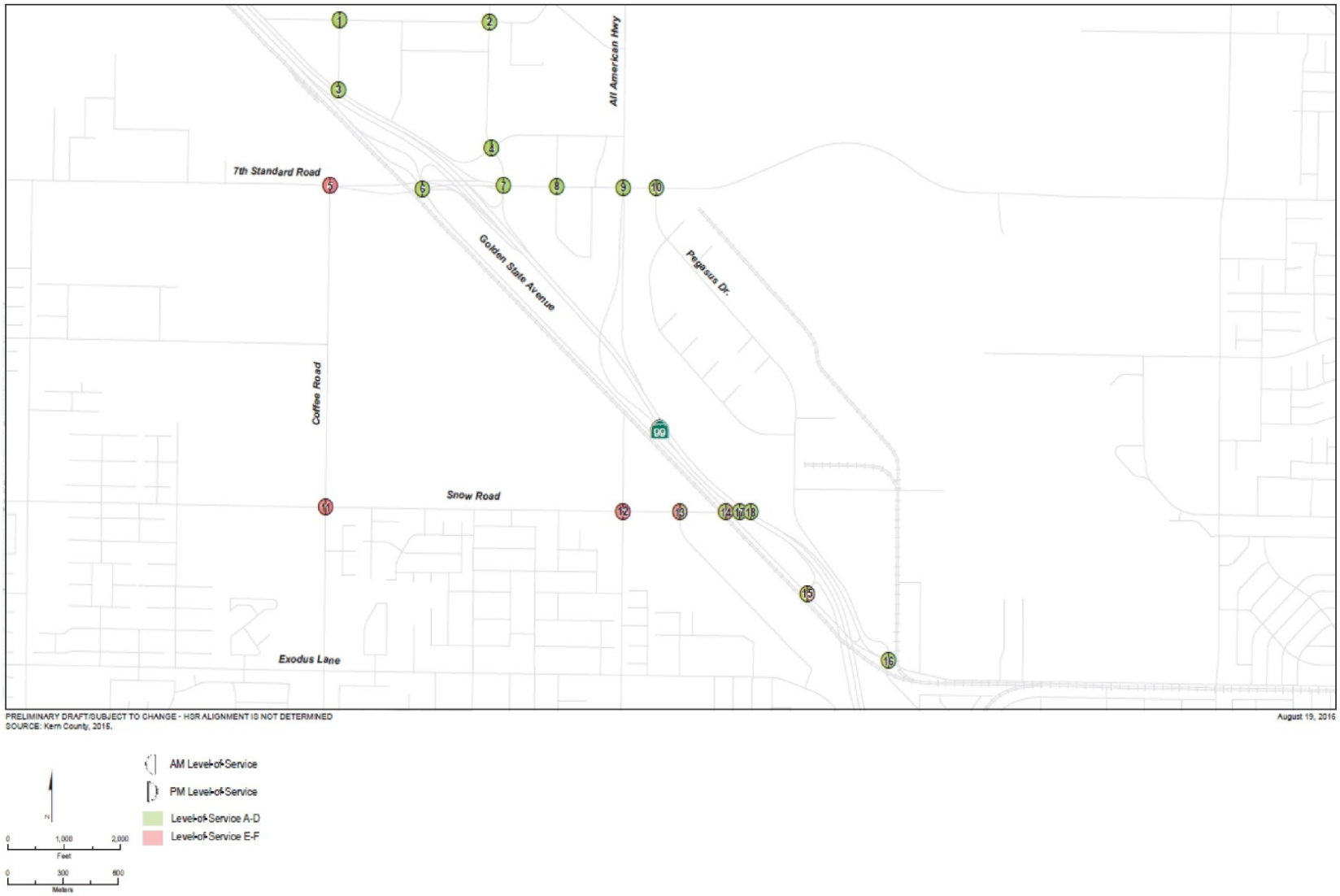


Figure 3.2-18 Future (2035) plus Build Peak Hour Intersection Levels-of-Service for Kern County

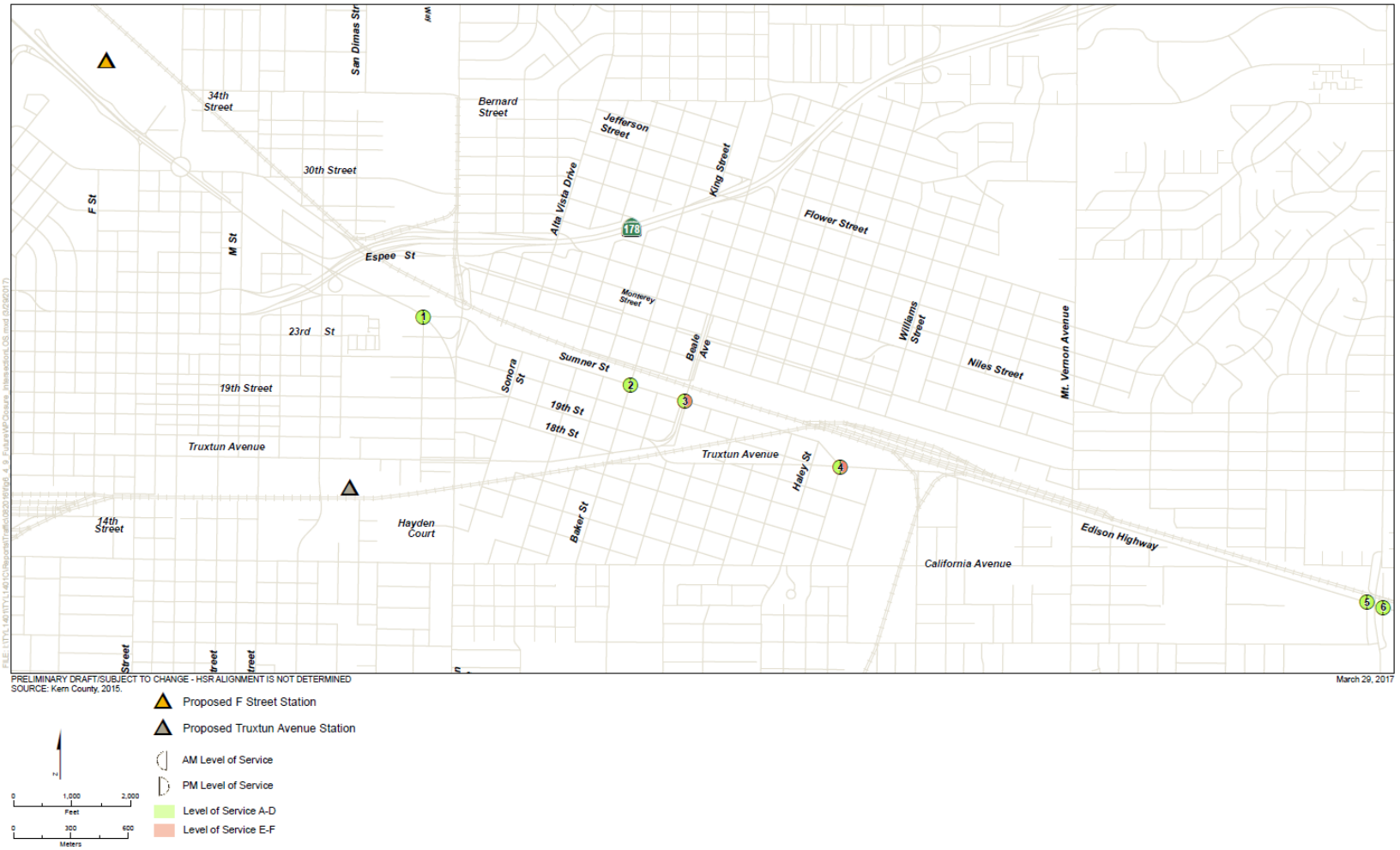


Figure 3.2-19 Future (2035) plus Build Peak Hour Intersection Levels-of-Service for the City of Bakersfield

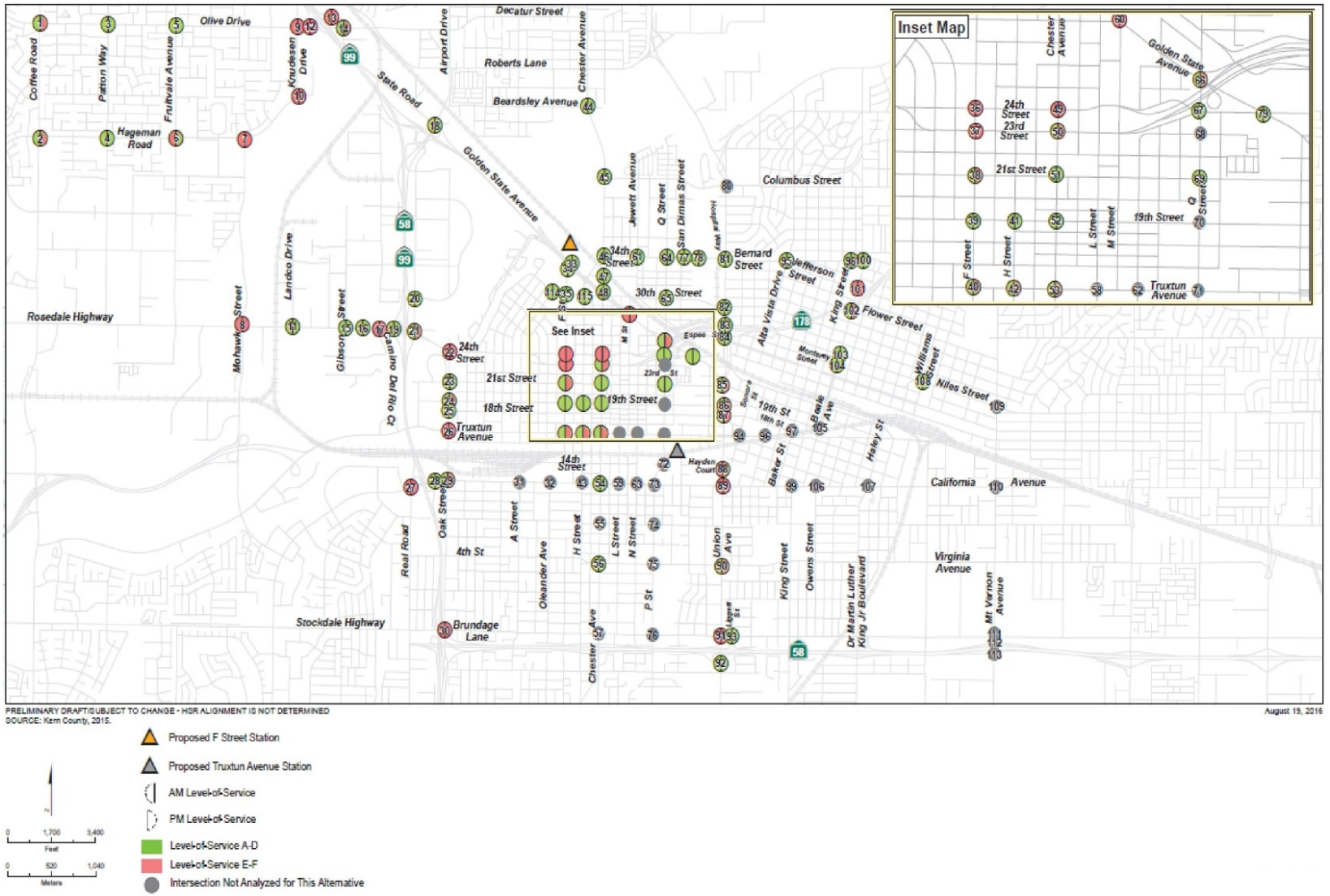


Figure 3.2-20 Future (2035) plus Build Peak Hour Intersection Levels-of-Service for the Bakersfield Station Area

Due to the above listed closures, access restrictions and traffic diversion to adjacent roads three roadway segments will be significantly affected within the study area. The segments impacted are as follows:

- Within the City of Shafter:
  - Central Valley Highway (SR 43), north E Los Angeles Avenue
- Within the City of Bakersfield:
  - F Street, between SR 204 and 30th Street
  - 30th Street, between F Street and H Street

Consistency with Regional Plans and Policies

The Authority would comply with applicable federal and state laws and regulations regarding transportation facilities. The HSR project is generally consistent with the plans and policies as mentioned in Section 3.2.1.3, although proposed HSR routes identified in the plans and policies may vary from what is proposed in this Draft Supplemental EIR/EIS. The HSR project is consistent with the Kern County RTP, which calls for development of an integrated multimodal transportation system and expanded transit service, including further development of passenger rail and HSR service. The Kern County RTP recognizes the HSR as an important state program benefiting the San Joaquin Valley by connecting it to major metropolitan areas.

Construction Period Impacts

This section presents the impacts of the F-B LGA on transportation facilities and conditions. Construction impacts represent temporary effects limited to the construction period of any one portion or segment of the project. Disruptions would be reduced through avoidance and minimization measures and any effects are expected to be short term and temporary.

Potential construction-related impacts on transportation would include temporary road closures and delays; avoidance and minimization measures would reduce these delays. The effect of project construction related to travel delay would not be significant under CEQA. Following is a list of temporary construction related facilities that would be set up along the F-B LGA:

Sites for Precast Operation Yards

Because of the length of viaduct for which large precast sections would be used (approximately 25 miles), the fabrication sites must be chosen carefully. The precasting facilities would require a full range of standard utilities, including communications, power, potable and industrial water, drainage, and sewer. Precast operation yard site selection should minimize interference with pedestrians, bicyclists, and transit (including automobile traffic); however, selected areas would require direct access to arterials from major highways. The load and volume capacities of existing roads and structures must withstand the increased loads and traffic volume from construction operations. If existing roads and structures were to be used to access erection sites or casting yards, an analysis of these structures would need to be undertaken upon further development of site selection. Similarly, site-specific investigations on horizontal and vertical clearances and on existing geometric road conditions, as they pertain to construction equipment mobility and transport, would need to be undertaken. Detailed discussion regarding precast operation yards is included in Section 5.4.11 of the F-B TATR (Authority and FRA 2014c).

Construction Staging Areas

Construction staging areas should be located within the same footprint as the precast operations yards to minimize cost and potential environmental impacts. Detailed discussion regarding construction staging areas is included in Section 5.4.12 of the F-B TATR (Authority and FRA 2014c).

Construction Laydown Areas

The construction laydown areas are different from construction staging areas in that they are required for a short period to construct large steel truss bridges over major highways and

waterways. The selected locations need to be easily accessible to transport the large steel members to their erection sites. Detailed discussion regarding construction laydown areas is included in Section 5.4.13 of the F-B TATR (Authority and FRA 2014c).

Section 3.2.5.3 of the Fresno to Bakersfield Final EIR/EIS includes Impact TR #1 through 9 which are measures that the Authority and FRA would implement during project design and construction. TR #1, 5, 7, 8 and 9 are shown below. TR #2, 3, 4 and 6 are not applicable to this document since they fall outside of the F-B LGA study area.

Impact TR #1: Construction (Not Including Stations) 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 as 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. Overall, because additional trips resulting from construction of the project, and temporary road/lane modifications necessary during construction, would be short term and temporary, and would not substantially increase hazards, safety risks, or incompatible uses, or result in lack of emergency access, Impact TR #1 effects would be less than significant under CEQA.

Impact TR #5: Impacts on Circulation from Bakersfield Station Alternatives Construction

Impacts on Circulation from the F-B LGA's Proposed F Street Station Construction

It is projected that approximately 170 peak-hour trips would be added to the transportation infrastructure during construction of the F-B LGA. Based on the construction schedule and description of affected areas, following are major roadway closures that are planned during peak hours of traffic operation:

- F Street between SR 204 and 30th Street, Bakersfield, Kern County: Closure to be conducted in stages. Detailed staging information is included in Appendix AB: F-B LGA Construction Scenario Output of the Supplemental Draft Transportation Analysis Technical Report.
- Chester Avenue, Bakersfield, Kern County: Closure to be conducted in stages. Detailed staging information is included in Appendix AB: F-B LGA Construction Scenario Output of the Supplemental Draft Transportation Analysis Technical Report.
- Sumner Street between Haley Street and Inyo Street, Bakersfield, Kern County: Shut down two blocks at a time.
- Edison Highway between Mount Vernon Avenue and Oswell Street: Shut down in two stages, first between Mount Vernon Avenue and Quantico Avenue and then between Quantico Avenue and Oswell Street.

The following study intersections in the city of Bakersfield are projected to be affected due to construction activity from the F-B LGA:

- F Street/SR 204: Stage 3, F Street Closure, p.m. peak hour
- Chester Avenue/30th Street-SR 204 South Frontage Road: Stage 1, F Street Closure, a.m. and p.m. peak hours; Stage 2, F Street Closure, p.m. peak hour; Stage 2, Chester Avenue Closure, a.m. and p.m. peak hours; Stage 3, Chester Avenue Closure, p.m. peak hour
- Chester Avenue/34th Street: Stage 2, F Street Closure, a.m. and p.m. peak hours
- M Street/30th Street: Stage 4, Chester Avenue Closure, a.m. and p.m. peak hours

- Jewett Avenue/30th Street: Stage 1, Chester Avenue Closure, p.m. peak hour, and Stage 2, Chester Avenue Closure, a.m. peak hour
- Jewett Avenue/34th Street: Stage 4, Chester Avenue Closure, p.m. peak hour
- Brown Street/Truxtun Avenue: Sumner Avenue Closure, p.m. peak hour
- Quantico Avenue/Edison Highway: Stage 1, Edison Highway Closure, p.m. peak hour; Stage 2, Edison Highway Closure, a.m. and p.m. peak hours
- Oswell Front Street West/Edison Highway: Stage 2, Edison Highway Closure, p.m. peak hour

All other construction activities on major roadways are being planned during non-peak hours of traffic operation and no closures or lane reductions are anticipated. Overall, because additional trips resulting from construction of the project and temporary road/lane modifications necessary during construction would be short term and temporary, and would not substantially increase hazards, safety risks, or incompatible uses, or result in lack of emergency access, Impact TR #5 effects would be less than significant under CEQA. The Project Design Features listed in Section 3.2.6 of the Fresno to Bakersfield Section Final EIR/EIS would further reduce these impacts (Authority and FRA 2014a, page 3.2-68).

Impact TR #7: Impacts on Circulation from Rural Area Construction

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 are viable where traffic volumes on the affected roadway are very low and a detour route is available that does not require an extraordinary amount of additional travel. Traffic volumes on local roads are generally less than 500 vehicles per day. Because detours would be limited in rural areas and would affect few travelers, only small effects to traffic circulation would occur. Moreover, closure and rerouting would not create operational hazards, incompatible uses, or safety risks. Because local traffic would be rerouted during construction, the construction would affect roads with very low traffic volumes, and because road closures and detours would not be permanent and would not create operational hazards, incompatible uses, or safety risks, the effects on circulation would be considered less than significant under CEQA. The project will maintain adequate emergency access by providing timely information to all emergency services about temporary roadway closures and diversions in the rural construction areas. Detours and alternative accesses will be provided in advance so that emergency accesses will not be affected during construction.

Impact TR #8: Regional Transportation Impacts from Contruction Material Hauling

An analysis of construction material hauling was conducted to assess the impacts of moving ballast for construction of the HSR 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 less than significant under CEQA. Most of the trains would be traveling 50 to 100 miles per trip through mostly rural areas. In these rural locations, the road crossings have low traffic volumes, so the number of vehicles affected (by having to wait at a crossing) would be relatively small. The overall average delay increase for all vehicles would be less than one second. The intensity of the impacts of the trains (up to one new train per day at each crossing) is expected to be less than significant under CEQA. Truck trips would cause an increase in traffic volumes on affected highways ranging from 0.05 to 0.5 percent of ADT on regional highways and would be temporary. Neither truck trips nor train trips would require roadway modifications or be of such frequency or type that would create operational hazards, incompatible uses, or safety risks. The project will maintain adequate emergency access by providing timely information to all emergency services during major construction material hauling activities. Detours and alternative accesses will be

provided in advance so that emergency accesses will not be affected during such hauling activities. For these reasons, these impacts would be less than significant under CEQA.

Impact TR #9: Construction (Not Including Stations) Impacts on School Districts

This impact discusses transportation safety for schoolchildren and accessibility to schools during project construction; additional school impacts are discussed in Section 3.11, Safety and Security. A list of educational facilities within 0.25 mile of alignment alternative construction is located in Table 3.11-3 in Section 3.11, Safety and Security; the facilities would be most susceptible to temporary transportation impacts from project construction.

In urban areas, the construction of project-related facilities, including the F Street Station, could interfere with student walking and bicycle routes because of the temporary closure of roadways, sidewalks, transit stops, crosswalks, and paths. Construction-related road closures and the resulting delays of these activities would not interfere with parent/guardian pick-up and drop-off since no school access points would be impacted by the F-B LGA alignment. Additionally, emergency access to schools would also not be affected. Therefore, the project construction activities will not create an increased safety hazard near the vicinity of the schools. Effects would be less than significant under CEQA.

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 and substantial out-of-direction travel times and distances for school buses and emergency access to schools would be maintained. Traffic volumes on local roads are generally less than 500 vehicles per day. Because detours would be limited in rural areas and would affect few travelers, only minor effects to traffic circulation would occur. Existing or planned Safe Routes to Schools would not be impacted by construction activities.

Project-Period Impacts

Potential operations-related cumulative impacts on transportation would include specific local impacts near schools, such as road closures and crossings. At a local level, the project in combination with other past, present, and reasonably foreseeable projects would decrease the LOS on some roadway segments and at intersections in the vicinity of the four sub-areas (City of Shafter, Kern County, City of Bakersfield, and Bakersfield Station Area); however, incorporated project mitigation measures would ensure operating conditions near schools would not decrease below LOS D.

Impact TR #10: Impacts on Regional Transportation System

All HSR alternatives would provide benefits to the regional transportation system by reducing vehicle trips on the freeways through the diversion of intercity 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 HSR alternatives also would divert trips from regional road facilities, thereby improving regional roadway LOS. Likewise, some intrastate commercial air trips would be diverted to HSR. 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 HSR project. Therefore, this would be a beneficial aspect of the project and is consistent with project goals. As such, the project is consistent with KernCOG's Regional Transportation Plan (2014a), and the San Joaquin Corridor Strategic Plan (Caltrans 2013) taking into account all modes of transportation and relevant components of the circulation system. The project would complement existing and planned Amtrak San Joaquin's service. The project design would avoid affecting freight rail customers along UPRR line and avoid impacts to bicycle and pedestrian movement. Additionally, the project would add localized circulation improvements near the station for bicycle/pedestrians as part of the proposed station.

Regional Change to the Aviation System

Chapter 1.0, Project Purpose, Need, and Objectives of the Fresno to Bakersfield Section Final EIR/EIS (Authority and FRA 2012, pages 1-16 through 1-19), describes air travel service at Meadows Field Airport in Bakersfield. Fares for travel from this airport to San Francisco or Los Angeles are relatively high, especially with respect to the cost of travel by automobile. The HSR would divert some trips from air travel. The Statewide High-Speed Rail ridership model projected where trips would be diverted and whether the diversions would be from automobiles or airplane trips; an estimated 23 percent of passengers at the Fresno and Bakersfield airports would be diverted to HSR within the San Joaquin Valley (Authority and FRA 2005). The diversion of air travel would meet the purpose and need of the HSR project. Therefore, this would be a beneficial aspect of the project and is consistent with the goals set forth in the KernCOG's, Regional Transportation Plan (2014a). Thus the project does not conflict with applicable local plans and policies and the impacts the aviation system is less than significant under CEQA.

Changes in Conventional Passenger Rail Service

With the introduction of HSR service, it is expected that Amtrak San Joaquin rail service would likely adjust to function more in the role of a feeder service to the HSR system in the Bakersfield area, providing passengers with the opportunity to connect to cities not served by HSR. Initially, as HSR service becomes available, it would be expected that many San Joaquin riders would shift to HSR service. However as HSR ridership increases, it is likely that Amtrak San Joaquin rail service would improve as the San Joaquin line would connect and/or provide direct service to existing markets between HSR stations and/or markets not served by HSR. Also, during Phase 1 of HSR operations, before the extension to Sacramento (Phase 2), the San Joaquin route would provide important connecting service to municipalities north of Merced.

The project is consistent with the goals set forth in the KernCOG's Regional Transportation Plan (2014a). The impacts to commercial rail passenger services and existing facilities are expected to result in less than significant impacts under CEQA.

Changes in Intercity Bus Service

As with the Amtrak San Joaquin service, intercity bus service is likely to change as a result of the introduction of HSR service. Many riders could switch to HSR service, although the bus service pricing might help retain some riders. However, there would also be a potential new market providing feeder service to HSR. The bus service providers (including Greyhound and Amtrak Thruway) are likely to revise their current operations to better address this market. The project is consistent with the goals set forth in the KernCOG's, Regional Transportation Plan (2014a) and does not conflict with applicable local plans and policies. The impact to the intercity bus service is less than significant under CEQA.

Pedestrian and Bicycle Impacts

Regional pedestrian and bicycle usage is largely concentrated in the urban areas along the corridor; impacts in the Bakersfield Station area are discussed in Chapter 3.13, Station Planning, Land Use, and Development, of this Draft Supplemental EIR/EIS. Along some segments, the HSR is proposed to operate on an elevated structure that would not restrict pedestrian and bicycle movement. The HSR 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. The project is consistent with the goals set forth in the KernCOG's Regional Transportation Plan (2014a) for bicycle and pedestrians. Impacts would be less than significant under CEQA.

Altering Freight Rail Transportation

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

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

capacity of the rail corridor. The project is consistent with the goals set forth in the KernCOG's Regional Transportation Plan (2014a). Impacts would be less than significant under CEQA.

Changes in Vehicle Movement on Regional Highway System

Total VMT would be reduced, overall, with the HSR system in operation. This is a net benefit to transportation and traffic operations because a reduction in VMT helps maintain or potentially improve the operating conditions of regional roadways. The reduction of VMT on regional roadways is considered beneficial to the project. Table 3.2-13 in the Fresno to Bakersfield Final EIR/EIS lists traffic conditions represented by total vehicle miles, forecasted to the 2035 study year. The project impacts and mitigation measures are identified based on ridership forecasts that were determined based on HSR ticket price when it is 50 percent of airfare. At this ticket price, the HSR system would achieve optimal ridership, thereby reducing vehicular traffic and associated VMT from the regional roadway system. With HSR fares at 83 percent of airfare, there would be a reduced benefit in terms of VMT reductions.

The statewide travel demand model provided an estimate of 2035 statewide daily VMT for the HSR. The modeled VMT reduction is due to reduced vehicle trips in and out of the Bakersfield region, as those trips divert to the HSR. The VMT attributed toward trips staying within the region is not expected to change. VMT information was provided for the No Project and with project conditions (for 50 percent of airfare and 83 percent of airfare), and the difference was calculated to estimate the VMT savings. Compared to future background conditions, an approximate 10 percent overall reduction in VMT is projected for the four counties for 50 percent of airfare and approximately 7 percent for 83 percent of airfare. As illustrated in Table 3.2-13 in the Fresno to Bakersfield Final EIR/EIS, VMT benefit for 83 percent airfare is lower than the 50 percent airfare VMT.

Impact TR #11: Changes in Vehicle Movements and Flow on Highways and Roadways

The F-B LGA would result in impacts on highways and roadways within the study area. The impacts include crossing over or shifting existing roads, road closures, and freeway operations (please see Chapter 2 of this Draft Supplemental EIR/EIS for a listing of such roadways). These impacts are described in the following subsections. ADT provided below was compiled from data provided within the existing conditions analysis and within the Transportation Demand Model (Authority and FRA 2014c).

Traffic volumes on local roads are generally less than 500 vehicles per day, although some road segments may have larger volumes. Emergency vehicle access will be maintained as road segments that would be permanently closed are typically short (less than 1 mile) and access to properties adjacent to these closed roads would be readily available from other roads. Road crossings in rural areas would occur approximately every 2 miles. Because rerouting would be limited in rural areas and would affect few travelers, only small effects to traffic circulation would occur.

Impacts on Roadway Segments, City of Shafter

Under existing plus F-B LGA conditions (Impact on existing traffic conditions when F-B LGA is added to it) within the city of Shafter, would result in less than significant impacts under CEQA.. Under existing conditions, all roadway segments operate at LOS D or better and continue to operate at satisfactory LOS under existing plus F-B LGA conditions.

Table 3.2-18 presents the results of the roadway segment analysis for future (2035) plus F-B LGA conditions within the city of Shafter and compares these conditions against future (2035) no project conditions. The table lists roadway segments that would operate at LOS E or F. Under Future (2035) no project conditions, three roadway segments operate at LOS E or F. All three roadway segments would continue to operate at LOS E or F under with project conditions. Additionally, the project would have a cumulative impact on Roadway Segment 41 (SR 43, north of E Los Angeles Avenue). Therefore, the identified effects to roadway segments would be significant under CEQA.

Table 3.2-18 Future (2035) Plus F-B LGA Roadway Segment Analysis – City of Shafter

No.	Roadway Segment	Number of Lanes (NE or SW)	Divided/ Undivided[1]	Without Project Conditions			With Project Conditions			
				Daily Volume	V/C[2]	LOS	Daily Volume	V/C[2]	LOS	Change in V/C
41	Central Valley Highway (SR 43), north of E Los Angeles Avenue	1/1	Two-Lane Arterial	28,383	1.42	F	29,861	1.49	F	0.05
42	Central Valley Highway, north of Riverside Street	1/1	Two-Lane Arterial	24,581	1.23	F	23,484	1.17	F	-0.06
43	Central Valley Highway, south of Riverside Street	1/1	Two-Lane Arterial	24,546	1.23	F	23,484	1.17	F	-0.06

Source: Authority and FRA, 2017
[1] The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
BOLD = Significant Project Impact
[2] = 3 northbound lanes and 2 southbound lanes will be provided as a project feature on Central Valley Highway with the development of the F-B LGA.
Note: Capacity based on *Metropolitan Bakersfield's General Plan* (December 2007).On three lane roadway segments, the VV/C is based on a per-lane capacity.
F-B LGA = Fresno to Bakersfield Locally Generated Alternative
LOS = levels-of-service
NE = North/East
SR = State Route
SW = South/West
V/C = volume-to-capacity

Impacts on Roadway Segments, Kern County

Under existing plus F-B LGA conditions within the Kern County study area, effects on roadway segments would be less than significant impacts under CEQA. Under existing conditions, all roadway segments operate at LOS D or better and continue to operate at satisfactory LOS under with project conditions.

Error! Not a valid bookmark self-reference. presents the results of the roadway segment analysis for future (2035) plus F-B LGA conditions within the city of Shafter and compares these conditions against future (2035) no project conditions. The table lists roadway segments that would be operating at LOS E or F. Under future (2035) no project conditions, six roadway segments operate at LOS E or F. Five of the six roadway segments would continue to operate at LOS E or F under with project conditions. The project would improve traffic operation on Roadway Segment 4 (All American City Highway, south of Merle Haggard Drive). Therefore, the identified effects to roadway segments would be less than significant under CEQA.

Table 3.2-19 Future (2035) Plus F-B LGA Roadway Segment Analysis – Kern County

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Without Project Conditions			With Project Conditions			
				Daily Volume	V/C[2]	LOS	Daily Volume	V/C[2]	LOS	Change in V/C
2	Coffee Road, south of 7th Standard Road	1/1	Two-Lane Arterial	22,826	1.14	F	22,826	1.14	F	0.00
4	All America City Highway, south of Merle Haggard Drive	2/2	Four-Lane Arterial	38,073	0.95	E	33,126	0.83	D	-0.12

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Without Project Conditions			With Project Conditions			
				Daily Volume	V/C[2]	LOS	Daily Volume	V/C[2]	LOS	Change in V/C
11	7th Standard Road, between Golden State Highway and Quinn Road	2/2, 3/3*	Four-Lane Arterial, Six-Lane Arterial[2]	51,923	1.30	F	56,160	1.12	F	-0.17
13	Snow Road, between Dole Court and Norris Road	1/1	Two-Lane Arterial	29,421	1.47	F	29,629	1.48	F	0.01
14	Norris Road, east of Knudsen Drive	1/1	Two-Lane Collector	25,580	1.71	F	25,580	1.71	F	0.00
15	Norris Road, east of Pegasus Drive	1/1	Two-Lane Collector	14,760	0.98	E	14,760	0.98	E	0.00

Source: Authority and FRA, 2017
Capacity based on *City of Bakersfield's General Plan* (December 2007). On three lane roadway segments, the V/C is based on a per lane capacity.
[1] The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).
[2] Denotes number of lanes under with project conditions.
LOS = levels-of-service SW = South/West
NE = North/East V/C = volume-to-capacity

Impacts on Roadway Segments, City of Bakersfield

Under existing plus F-B LGA conditions within the city of Bakersfield study area (excluding station area), effects on roadway segments would be less than significant impacts under CEQA.. Under existing conditions, all roadway segments operate at LOS D or better and continue to operate at satisfactory LOS under with project conditions.

Under future (2035) plus F-B LGA conditions within the city of Bakersfield study area (excluding station area), there are no significant impacts on any roadway segments. Under future (2035) no-build conditions, all roadway segments operate at LOS D or better and continue to operate at satisfactory LOS under with project conditions. Therefore, the identified effects to roadway segments would be significant under CEQA.

Impacts on Intersections, City of Shafter

Table 3.2-20 presents the results of the intersection analysis for existing plus F-B LGA conditions within the city of Shafter and compares these conditions against existing conditions. The table lists intersections that would operate at LOS E or F under without or with project conditions and where the project would have a significant impact. Under existing conditions, two intersections operate at LOS E or F. The project improves the LOS to LOS D or better at both intersections due to the implementation of project design features. Therefore, the identified effects to intersections would be less than significant under CEQA.

Table 3.2-20 Intersections Existing Plus Project F-B LGA Levels-of-Service Summary – City of Shafter

No.	Intersection	Control	Without Project				With Project				Increase in Delay	
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
13	SR 43/Tulare Avenue	Two-Way Stop/ Signalized*	27.7	D	37.9	E	32.4	C	24.7	C	4.7	-13.2

No.	Intersection	Control	Without Project				With Project				Increase in Delay	
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
30	SR 43/Los Angeles Avenue	Two-Way Stop/ Signalized*	36.5	E	23.1	C	18.5	B	13.7	B	-18.0	-9.4

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.).)
* Two-Way Stop/Signalized = Intersection Control without project vs. with project

Table 3.2-21 presents the results of the intersection analysis for future (2035) plus F-B LGA conditions within the city of Shafter and compares these conditions against future (2035) no-build conditions. As illustrated in Table 3.2-21, all study intersections are projected to operate at LOS D or better under future plus project conditions with the exception of two intersections. The two intersections where rerouting of traffic resulting from the project would have a significant impact are:

- SR 43 and Los Angeles Avenue (a.m. and p.m. peak hours)
- Beech Avenue and Riverside Street (p.m. peak hour)

Table 3.2-21 Intersections Future (2035) Plus Project Levels-of-Service Summary – City of Shafter

No.	Intersection	Control	Without Project				With Project					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
3	Poplar Avenue/ SR 43	Two-Way Stop	91.9	F	>180	F	*No Conflicting Movement*				-91.9	<-180
10	SR 43/Fresno Avenue	Two-Way Stop/ Signalized*	>180	F	61.6	F	12.9	B	9.9	A	<-180	-51.7
13	SR 43/Tulare Avenue	Two-Way Stop/ Signalized*	81.0	F	>180	F	42.7	D	39.1	D	-38.3	<-180
25	Mannel Avenue/ Lerdo Highway	Two-Way Stop/ Signalized*	37.4	E	65.2	F	22.2	C	22.8	C	-15.2	-42.4
26	SR 43/Ash Avenue	Two-Way Stop	40.6	E	87.6	F	60.0	F	122.2	F	19.4	34.6
30	SR 43/Los Angeles Avenue	Two-Way Stop/ Signalized*	>180	F	>180	F	23.2	C	30.8	C	<-180	<-180
32	Beech Avenue/ Riverside Street	Two-Way Stop	27.2	D	31.8	D	19.0	C	44.6	E	-8.2	12.8

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
BOLD = Significant Project Impact, * Two-Way Stop/Signalized = Intersection Control without project vs. with project
LOS = levels-of-service SR = State Route

Additionally, with implementation of avoidance and minimization measures, discussed in Section 3.2.5 of this Draft Supplemental EIR/EIS, the project will improve traffic operations at multiple intersections within the study area. Following are intersections that are forecast to operate at LOS E or F under without project conditions that the project would improve to LOS D or better:

- Poplar Avenue and SR 43: Intersection would be converted to an overpass, which would eliminate conflicting movements at this intersection.

- SR 43 and Fresno Avenue: LOS F to LOS B and A in the a.m. and p.m. peak hours, respectively
- SR 43 and Tulare Avenue: LOS F to LOS D in both the peak hours
- Mannel Avenue and Lerdo Highway: LOS F to LOS C in both the peak hours
- SR 43 and Los Angeles Avenue: LOS F to LOS C in both the peak hours

Therefore, the identified effects to intersections would be significant under CEQA.

Impacts on Intersections, Kern County

Table 3.2-22 presents the results of the intersection analysis for existing plus F-B LGA conditions within the Kern County study area and compares these conditions against existing conditions. As illustrated in Table 3.2-22, the intersection of Fruitvale Avenue and Snow Road is operating at LOS E under existing conditions and is projected to continue to operate at LOS E under existing plus F-B LGA conditions although the change in delay is less than 4 seconds. Additionally, the route diversion improves traffic operations at the intersection of Industry Parkway Drive and Merle Haggard Drive from LOS D to LOS C in the a.m. peak hour. None of the study intersections is projected to be significantly affected (i.e., an increase in delay of 4 or more seconds) by the F-B LGA within unincorporated County under Existing plus F-B LGA conditions. Therefore, the identified effects to intersections would be less than significant under CEQA.

Table 3.2-22 Intersections Existing Plus Project F-B LGA Levels-of-Service Summary – Kern County

No.	Intersection	Control	Without Project				With Project				Increase in Delay	
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak			
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
8	Industry Parkway Drive/ Merle Haggard Drive	Signalized	36.4	D	31.7	C	31.5	C	28.9	C	-4.9	-2.8
12	Fruitvale Avenue/Snow Road	Two-Way Stop	26.5	D	44.3	E	26.5	D	44.3	E	0.0	0.0

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
LOS = levels-of-service

Table 3.2-23 presents the results of the intersection analysis for future (2035) plus F-B LGA conditions within the Kern County study area and compares these conditions against future (2035) no-build conditions. As illustrated in Table 3.2-23, out of the seven intersections that are forecast to operate below LOS E or F under future No-Build condition, six would continue to operate at a deficient LOS. The project would improve traffic operations at the intersection of Golden State Highway and 7th Standard Road from LOS F to LOS C and D in the a.m. and p.m. peak hour, respectively. Additionally, the project would have significant impact at the following two intersections:

- Dole Court and Snow Road (a.m. peak hour)
- Norris Road and Snow Road (p.m. peak hour)

Therefore, the identified effects to intersections would be significant under CEQA.

Table 3.2-23 Intersections Future (2035) Plus Project Levels-of-Service Summary – Kern County

No.	Intersection	Control	Without Project				With Project					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
5	Coffee Road/7th Standard Road	Signalized	154.1	F	172.2	F	156.5	F	173.2	F	2.4	1.0
6	Golden State Highway/ 7th Standard Road	Signalized	136.5	F	123.7	F	24.6	C	45.4	D	-111.9	-78.3
11	Coffee Road/Snow Road	Signalized	75.9	E	158.0	F	79.1	E	160.7	F	3.2	2.7
12	Fruitvale Avenue/Snow Snow Road	Two-Way Stop	>180	F	48.1	E	>180	F	49.5	E	0.0	1.4
13	Dole Court/Snow Road	Two-Way Stop	>180	F	12.6	B	>180	F	12.7	B	52.5	0.1
14	Norris Road/Snow Road	Two-Way Stop	10.0	A	>180	F	10.0	A	>180	F	0.0	>180
15	Norris Road/Knudsen Road	Two-Way Stop	25.0	C	68.2	F	25.0	C	68.2	F	0.0	0.0

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement).
BOLD = Significant Project Impact
LOS = levels-of-service

Impacts on Intersections, City of Bakersfield

Table 3.2-24 presents the results of the intersection analysis for existing plus F-B LGA conditions within the city of Bakersfield and compares these conditions against existing conditions. As illustrated in Table 3.2-24, all intersections that were operating at LOS D or better continue to operate at a satisfactory LOS with the exception of the intersection of Brown Street and Truxtun Avenue. None of the study intersections is projected to be significantly affected (i.e., an increase in delay of four or more seconds) by the F-B LGA within the city of Bakersfield under existing plus project conditions. Therefore, the identified effects to roadway segments would be less than significant under CEQA.

Table 3.2-24 Intersection Existing Plus Project F-B LGA Levels-of-Service Summary – City of Bakersfield

No.	Intersection	Control	Without Project				With Project Conditions					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
4	Brown Street/ Truxtun Avenue	TWSC	30.1	D	76.1	F	30.3	D	77.0	F	0.2	0.9

Source: Authority and FRA, 2017
[1] Under with project conditions, the eastbound/westbound through lanes are reduced from two lanes to one lane in each direction.
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
LOS = levels-of-service TWSC = two-way stop-controlled

Table 3.2-25 presents the results of the intersection analysis for future (2035) plus F-B LGA conditions within the city of Bakersfield and compares these conditions against future (2035) no-build conditions. As illustrated in Table 3.2-25, all intersections under future plus project conditions operate at satisfactory LOS with the exception of the intersections of Beale Avenue and Sumner Street and Brown Street and Truxtun Avenue. These intersections operate at LOS F under no project conditions and continue to operate at LOS F with the rerouting of traffic due to the project. None of the intersections is projected to be significantly affected by the F-B LGA (i.e., none was forecast to exceed LOS D and have a 4-second increase in delay). Therefore, the identified effects to roadway segments would be less than significant under CEQA.

Table 3.2-25 Intersection Future Plus Project Levels-of-Service Summary – City of Bakersfield

No.	Intersection	Control	Without Project				With Project					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
3	Beale Avenue/ Sumner Street	TWSC	13.9	B	>180	F	13.9	B	>180	F	0.0	-80.5
4	Brown Street/ Truxtun Avenue	TWSC	24.2	C	77.1	F	24.3	C	78.1	F	0.1	1.0

Source: Authority and FRA, 2017
[1] Under with project conditions, the eastbound/westbound through lanes are reduced from two lanes to one lane in each direction.
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
LOS = levels-of-service TWSC = two-way stop-controlled

Impact TR #12: Loss of Property Access as a Result of Road Closures

The F-B LGA would result in impacts on highways and roadways between Shafter and Bakersfield. The impacts include crossing over or shifting existing roads, road closures, and freeway operations. Road closures are listed previously under Impact TR #11.

Property access issues (i.e., potential to result in lack of property access) due to the F-B LGA will be adequately addressed by providing alternative accesses to those properties. Therefore, the road closure effects on the loss of property access are considered to be less than significant under CEQA.

Impact TR #13: Impacts on the Local Roadway Network due to Station Activity

Impacts on Roadway Segments, Bakersfield Station Area

Table 3.2-26 presents the results of the roadway segment analysis for existing plus F-B LGA's proposed F Street Station conditions and compares these conditions against existing conditions. The table lists roadway segments that would operate at LOS E or F under either of the station alternatives. Under existing conditions, 11 roadway segments operate at LOS E or F. All 11 roadway segments would continue to operate at LOS E or F under project conditions. Additionally, the F Street Station would have a direct significant impact on Roadway Segment 64 (30th Street, between F Street and H Street). Therefore, the identified effects to roadway segments would be less than significant under CEQA.

Table 3.2-26 Existing Plus Project F-B LGA Bakersfield Station Area Roadway Segment Analysis

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Without Project Conditions			With F-B LGA Station Alternative			
				Daily Volume	V/C[2]	LOS	Daily Volume	V/C[2]	LOS	Change in V/C
1	Oak Street, between SR 178 and Truxtun Avenue	2/2	Four-Lane Collector	29,642	0.99	E	29,823	0.99	E	0.01

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Without Project Conditions			With F B LGA Station Alternative			
				Daily Volume	V/C[2]	LOS	Daily Volume	V/C[2]	LOS	Change in V/C
33	Olive Drive, between Knudsen Drive and SR 99 Southbound Ramps	3/3	Six-Lane Arterial	56,905	0.95	E	57,267	0.95	E	0.01
39	Rosedale Highway, between Camino Del Rio Court and SR 99 Southbound Ramps	3/3	Six-Lane Arterial	54,340	0.91	E	54,566	0.91	E	0.00
40	SR 178, between Buck Owens Boulevard and Oak Street	3/3	Six-Lane Arterial	54,610	0.91	E	55,424	0.92	E	0.01
41	SR 178, between Oak Street and D Street	2/2	Four-Lane Arterial	64,713	1.62	F	65,708	1.64	F	0.02
42	SR 178, between D Street and Chester Avenue	0/3	One-Way Arterial	30,380	1.01	F	30,380	1.01	F	0.00
43	23rd Street, between D Street and F Street	3/0	One-Way Arterial	28,403	0.95	E	28,901	0.96	E	0.02
44	23rd Street, between F Street and Chester Avenue	3/0	One-Way Arterial	30,190	1.01	F	30,190	1.01	F	0.00
47	Truxtun Avenue, between Bahamas Drive and Oak Street	2/2	Four-Lane Arterial	54,219	1.36	F	54,400	1.36	F	0.00
54	California Avenue, between Real Road and Oak Street	2/3	Five-Lane Arterial	45,493	0.91	E	45,538	0.91	E	0.00
64	30th Street between F Street and H Street	1/1	Two-Lane Collector	7,135	0.48	A	15,304	1.02	F	0.54

Source: *Authority and FRA, 2017*
[1] The functional classification is based on the Metropolitan Bakersfield General Plane roadway segments, the V/C is based on a per-lane capacity.
BOLD = Significant Project Impact
F-B LGA = Fresno to Bakersfield Locally Generated Alternative
LOS = levels-of-service
NE = North/East
SR = State Route
SW = South/West
V/C = volume-to-capacity

Table 3.2-27 presents the results of the roadway segment analysis for future (2035) F Street Station conditions and compares these conditions against future (2035) no project conditions. Under future (2035) no project conditions, 15 roadway segments operate at LOS E or F. All 15 roadway segments would continue to operate at LOS E or F under existing plus F-B LGA conditions. Additionally, the F Street Station would have a cumulative significant impact on Roadway Segment 3 (F Street, between 30th Street and 24th Street) and Roadway Segment 64 (30th Street, between F Street and H Street). Therefore, the identified effects to roadway segments would be significant under CEQA.

Table 3.2-27 Future (2035) Plus Project F-B LGA Bakersfield Station Area Roadway Segment Analysis

No.	Roadway Segment	Number of Lanes (NE or SW)	Functional Classification[1]	Without Project Conditions			With-F B LGA Station Alternative			
				Daily Volume	V/C[2]	LOS	Daily Volume	V/C[2]	LOS	Change in V/C
1	Oak Street, between SR 178 and Truxtun Avenue	2/2	Four-Lane Collector	47,403	1.58	F	47,584	1.59	F	0.01
3	F Street, between 30th Street and 24th Street	2/2	Four-Lane Collector	25,770	0.86	D	27,082	0.90	E	0.04
17	Q Street, between 23rd Street and 21st Street	1/1	Two-Lane Collector	13,844	0.92	E	13,980	0.93	E	0.01
33	Olive Drive, between Knudsen Drive and SR 99 Southbound Ramps	3/3	Six-Lane Arterial	65,067	1.08	F	65,157	1.09	F	0.00
39	Rosedale Highway, between Camino Del Rio Court and SR 99 Southbound Ramps	3/3	Six-Lane Arterial	57,171	0.95	E	57,397	0.96	E	0.00
40	SR 178, between Buck Owens Boulevard and Oak Street	3/3	Six-Lane Arterial	75,473	1.26	F	76,288	1.27	F	0.01
41	SR 178, between Oak Street and D Street	2/2	Four-Lane Arterial	75,464	1.89	F	76,459	1.91	F	0.02
42	SR 178, between D Street and Chester Avenue	0/3	One-Way Arterial	50,772	1.69	F	50,772	1.69	F	0.00
43	23rd Street, between D Street and F Street	3/0	One-Way Arterial	29,260	0.98	E	29,757	0.99	E	0.02
44	23rd Street, between F Street and Chester Avenue	3/0	One-Way Arterial	31,102	1.04	F	31,102	1.04	F	0.00
47	Truxtun Avenue, between Bahamas Drive and Oak Street	2/2	Four-Lane Arterial	58,531	1.46	F	58,712	1.47	F	0.00
48	Truxtun Avenue, between Oak Street and F Street	2/2	Four-Lane Arterial	44,880	1.12	F	44,925	1.12	F	0.00
49	Truxtun Avenue, between F Street and Chester Avenue	2/2	Four-Lane Arterial	44,021	1.10	F	44,156	1.10	F	0.00
54	California Avenue, between Real Road and Oak Street	2/3	Five-Lane Arterial	49,375	0.99	E	49,420	0.99	E	0.00
64	30th Street between F Street and H Street	1/1	Two-Lane Collector	7,404	0.49	A	15,573	1.04	F	0.54

Source: Authority and FRA, 2017

[1] The functional classification is based on the Metropolitan Bakersfield General Plan Circulation Element (December 2007).

[2] Capacity based on City of Bakersfield's General Plan (December 2007). On three-lane roadway segments, the V/C is based on a per-lane capacity.

BOLD = Significant Project Impact

F-B LGA = Fresno to Bakersfield Locally Generated Alternative
LOS = levels-of-service
NE = North/East
SR = State Route
SW = South/West
V/C = volume-to-capacity

Impacts on Intersections, Bakersfield Station Area

Table 3.2-28 presents the results of the intersection analysis for existing plus F-B LGA Station conditions and compares these conditions against existing conditions. The table lists intersections that would operate at LOS E or F under without or with project conditions and where the station would have a significant impact. Under existing conditions, 12 intersections operate at LOS E or F.

All intersections that would operate at LOS E or F under the no project conditions would continue to operate at LOS E or F under F-B LGA Station conditions with the exception of intersection 34, which would operate at LOS D or better due to the construction of the proposed F Street interchange. This scenario would have significant impacts at three intersections (7, 12, and 37). Therefore, the identified effects to roadway segments would be significant under CEQA.

Table 3.2-29 presents the results of the intersection analysis for future (2035) plus F-B LGA Station conditions and compares these conditions against future (2035) no project conditions. The table lists intersections that would operate at LOS E or F under either of the station alternatives and where the either of the stations would have a significant impact. Under No Project conditions, 38 intersections operate at LOS E or F.

Thirty-seven of the 38 intersections that would operate at LOS E or F under the no project conditions would continue to operate at LOS E or F under the F-B LGA Station conditions. Nine intersections (7, 8, 22, 26, 36, 37, 60, 89, and 101) would have impacts under the future (2035) plus F-B LGA Station conditions.

All intersections that would operate at LOS E or F under the no project conditions would continue to operate at LOS E or F under F Street Station conditions, with the exception of intersection 34, which would operate at LOS D or better due to the construction of the proposed F Street interchange.

Project operation would increase traffic congestion at numerous intersections around the Bakersfield F Street Station. Prior to mitigation, effects would be significant under CEQA.

Mitigation measures (see Section 3.2.6 Mitigation specifically TR-MM#3, TR-MM#5, TR-MM#6, TR-MM#7, TR-MM#8, TR-MM#9, and TR-MM#10) for operational impacts include a wide variety of roadway improvements including restriping, installation of signals, modification of signal timing, and roadway widening. Following mitigation, the traffic effects at all intersections and roadway segments within the four sub-areas would be less than significant under CEQA. However, effects on the local circulation would occur in the congested areas of Bakersfield from the extension of the duration of peak periods of congestion. The effect of this increased congestion would be considered less than significant under CEQA.

Impacts on Parking

The currently proposed F-B LGA F Street Station would be located at the intersection of F Street/ SR 204 and would be approximately 46 acres. Out of the total site area, 11.75 acres would be organized into surface and structured parking. Surface parking would be designated on 7 acres with a planned parking capacity of 762 vehicles. Six seven-story parking structures would be located on the station site (on approximately 4.7 acres). The parking structures would include one basement level and a roof deck parking level, and would have total parking capacity for 4,438 vehicles. The total parking capacity (surface parking lots and parking structures) for the station site would accommodate parking for 5,200 vehicles. Therefore, adequate parking will be available on site and the effect on parking would be less than significant impact under CEQA.

Impacts on Transit

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 F-B LGA. The resulting effect would be less than significant under CEQA.

Table 3.2-28 Existing Plus Project F-B LGA Bakersfield Station Area Intersection Analysis

No.	Intersection	Control	Without Project				With F-B LGA Station Alternative					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
6	Fruitvale Avenue/Hageman Road	Signalized	48.9	D	55.4	E	48.9	D	58.7	E	0.0	3.3
7	Mohawk Street/Hageman Road	One-Way Stop	65.9	F	>180	F	70.1	F	>180	F	4.2	57.9
8	Mohawk Street/Rosedale Highway	Signalized	73.0	E	>180	F	75.7	E	>180	F	2.7	2.8
9	Knudsen Drive/Olive Drive	Signalized	128.2	F	127.1	F	131.0	F	128.3	F	2.8	1.2
12	SR 99 Southbound Ramps/Olive Drive	One-Way Stop	56.5	F	>180	F	58.8	F	>180	F	2.3	27.1
13	State Road/SR 99 Northbound Ramps	Two-Way Stop	46.1	E	47.7	E	46.2	E	47.8	E	0.1	0.1
14	State Road/Olive Drive	Signalized	35.6	D	88.2	F	35.6	D	88.2	F	0.0	0.0
22	Oak Street/Rosedale Highway-24th Street	Signalized	115.1	F	68.1	E	0.1	116.8	F	71.2	E	1.7
26	Oak Street/Truxtun Avenue	Signalized	142.5	F	121.7	F	144.0	F	125.1	F	1.5	3.4
27	Real Road-SR 99 Southbound Ramps/California Avenue	Signalized	52.0	D	55.9	E	53.2	D	56.0	E	1.2	0.1
34	F Street/SR 204 Eastbound Ramps	Signalized	44.3	D	66.8	E	20.5	C	27.1	C	-23.8	-39.7
37	F Street/23rd Street	Signalized	70.7	E	71.6	E	88.6	F	80.3	F	17.9	8.7

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop and one-way stop controlled intersections, reported delay is for worst-case movement.)
BOLD = Significant Project Impact
F-B LGA = Fresno to Bakersfield Locally Generated Alternative
LOS = levels-of-service
SR = State Route

Table 3.2-29 Future (2035) Plus Project F-B LGA Bakersfield Station Area Intersection Levels-of-Service

No.	Intersection	Control	Without Project				With F-B LGA Station Alternative					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
1	Coffee Road/Olive Drive	Signalized	47.2	D	63.5	E	48.4	D	64.6	E	1.2	1.1
2	Coffee Road/Hageman Road	Signalized	28.4	C	>180	F	28.6	C	>180	F	0.2	2.0
6	Fruitvale Avenue/Hageman Road	Signalized	66.4	E	52.2	D	66.7	E	53.1	D	0.3	0.9
7	Mohawk Street/Hageman Road	Two-Way Stop	>180	F	>180	F	>180	F	>180	F	112.1	0.0
8	Mohawk Street/Rosedale Highway	Signalized	174.3	F	>180	F	178.5	F	>180	F	4.2	4.0
9	Knudsen Drive/Olive Drive	Signalized	109.5	F	>180	F	110.5	F	>180	F	1.0	1.1
10	Knudsen Drive/Hageman Road	Signalized	87.5	F	151.8	F	88.5	F	153.1	F	1.0	1.3
12	SR 99 Southbound Ramps/Olive Drive	Two-Way Stop	>180	F	>180	F	>180	F	>180	F	0.0	0.0
13	State Road/SR 99 Northbound Ramps	Two-Way Stop	43.1	E	45.7	E	43.2	E	45.6	E	0.1	-0.1
14	State Road/Olive Drive	Signalized	38.9	D	132.4	F	38.9	D	132.4	F	0.0	0.0
17	Camino Del Rio Court/Rosedale Highway	Signalized	177.0	F	84.8	F	177.5	F	85.3	F	0.5	0.5
21	Buck Owens Boulevard-SR 99 Northbound Ramps/ Rosedale Highway	Signalized	42.3	D	82.9	F	50.4	D	84.4	F	8.1	1.5
22	Oak Street/Rosedale Highway-24th Street	Signalized	125.8	F	139.0	F	142.2	F	154.3	F	16.4	15.3
24	Oak Street/19th Street	Signalized	13.7	B	62.0	E	13.8	B	63.5	E	0.1	1.5
26	Oak Street/Truxtun Avenue	Signalized	152.6	F	>180	F	157.2	F	>180	F	4.6	3.8
27	Real Road-SR 99 Southbound Ramps/California Avenue	Signalized	83.8	F	93.0	F	84.3	F	93.2	F	0.5	0.2
29	Oak Street/California Avenue	Signalized	46.5	D	58.9	E	46.9	D	59.3	E	0.4	0.4
34	F Street/SR 204 Eastbound Ramps	Signalized	>180	F	>180	F	19.9	B	26.8	C	-180.8	-218.4
36	F Street/24th Street	Signalized	99.0	F	>180	F	101.0	F	>180	F	2.0	9.6
37	F Street/23rd Street	Signalized	126.4	F	119.6	F	144.4	F	127.9	F	18.0	8.3
38	F Street/21st Street	Signalized	34.5	C	114.4	F	35.6	D	116.7	F	1.1	2.3

No.	Intersection	Control	Without Project				With F-B LGA Station Alternative					
			A.M. Peak		P.M. Peak		A.M. Peak		P.M. Peak		Increase in Delay	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	A.M.	P.M.
40	F Street/Truxtun Avenue	Signalized	33.1	C	>180	F	34.6	C	>180	F	1.5	3.6
42	H Street/Truxtun Avenue	Signalized	43.4	D	90.9	F	43.8	D	93.0	F	0.4	2.1
46	Chester Avenue/34th Street	Signalized	20.6	C	65.1	E	20.4	C	30.8	C	-0.2	-34.3
49	Chester Avenue/24th Street	Signalized	67.2	E	82.0	F	68.3	E	84.6	F	1.1	2.6
50	Chester Avenue/23rd Street	Signalized	36.8	D	80.5	F	38.2	D	81.2	F	1.4	0.7
53	Chester Avenue/Truxtun Avenue	Signalized	32.1	C	93.3	F	33.0	C	95.4	F	0.9	2.1
60	M Street/SR 204/28th Street	Signalized	151.2	F	>180	F	180.0	F	**>180**	F	**28.8**	**118.9**
66	Q Street/SR 204	Signalized	38.7	D	62.7	E	47.8	D	65.9	E	9.1	3.2
85	Union Avenue/SR 204/21st Street	Signalized	37.6	D	103.7	F	38.9	D	104.4	F	1.3	0.7
86	Union Avenue/19th Street	Signalized	46.6	D	124.0	F	47.4	D	124.6	F	0.8	0.6
87	Union Avenue/18th Street	Signalized	27.1	C	56.4	E	27.3	C	56.4	E	0.2	0.0
88	Union Avenue/Hayden Court-Sonora Street	Signalized	61.8	E	21.6	C	64.3	E	21.8	C	2.5	0.2
89	Union Avenue/California Avenue	Signalized	99.7	F	54.6	D	99.9	F	**56.7**	**E**	0.2	2.1
90	Union Avenue/4th Street	Signalized	18.8	B	63.0	E	19.2	B	65.9	E	0.4	2.9
91	Union Avenue-SR 58 Westbound Ramps/Brundage Lane	Signalized	68.3	E	74.8	E	68.6	E	76.9	E	0.3	2.1
101	Beale Avenue/Jefferson Street-SR 178 Westbound Ramps	Two-Way Stop	>180	F	>180	F	121.2	F	**>180**	F	**-108.2**	**9.6**
102	Beale Avenue/Flower Street	Signalized	19.7	B	78.9	E	20.0	B	79.1	E	0.3	0.2

Source: Authority and FRA, 2017
Delay = Average control delay in seconds (For two-way stop controlled intersections, reported delay is for worst-case movement.)
BOLD = Significant Project Impact
F-B LGA = Fresno to Bakersfield Locally Generated Alternative
LOS = levels-of-service
SR = State Route

Impacts on Bike and Pedestrian Access

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 station. An estimated 500 passengers would access the Bakersfield Station on foot or by bicycle each day and bike storage would be provided in the secondary entrance building of the F Street Station and additional bike storage would be accommodated in each of the F Street Station parking structures. 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 1 minute) in the Bakersfield Station area would not substantially affect existing pedestrian and bike facilities. Impacts would be less than significant under CEQA.

Impacts on Freight

The proposed HSR service would operate on an elevated structure through the Bakersfield Station area, so it would not create any conflicts or impacts on UPRR freight operations. Pedestrian structures may cross over the freight rail line to provide access to the HSR station, but the structures would be designed to meet freight height clearances. The resulting effect would be negligible because freight rail service would be grade-separated and therefore would not be interrupted or worsened by the HSR station. Impacts would be less than significant under CEQA.

Impact TR #16: Impacts on School Districts Local Roadway Network

Road closures and modified traffic routing along HSR tracks could result in increased response times for emergency responders to schools and increases in school bus travel distances and times. Existing roads would either remain unchanged where elevated track would cross them or would be modified into overcrossings or undercrossing where at-grade track would conflict with them. Road segments that would be permanently closed are typically short (less than 1 mile). Road crossings in rural areas would occur approximately every 2 miles. Because the project design would include coordination with emergency responders and school districts to incorporate roadway modifications that maintain existing traffic patterns and fulfill response route and access needs, effects on the response times by service providers would be less than significant under CEQA.

3.2.5 Avoidance and Minimization Measures

The Authority and FRA have identified avoidance and minimization measures and mitigation measures, which would be applicable to the Fresno to Bakersfield Section Final EIR/EIS and this *Draft* Supplemental EIR/EIS. Measures considered to be part of the project are summarized in Section 3.2.6 of the Fresno to Bakersfield Section Final EIR/EIS (pages 3.2-121 through 3.2-124). The applicable list is provided in Technical Appendix 2-G, Mitigation Monitoring and Enforcement Plan. Technical Appendix 2-H describes how implementation of these measures reduces adverse effects on air quality. The following Traffic Avoidance and Minimization Measures (TRA-AM #) would be applicable to the May 2014 Project as well as the F-B LGA:

- **TRA-AM #1 Off-Street Parking for Construction-Related Vehicles:** Identifying adequate off-street parking for construction vehicles or providing a shuttle for construction workers.
- **TRA-AM #2 Maintenance of Pedestrian Access:** Preparing construction management plans that address maintenance of pedestrian access.
- **TRA-AM #3 Maintenance of Bicycle Access:** Preparing construction management plans that address maintenance of bicycle access.
- **TRA-AM #4 Restriction on Construction Hours:** Limiting the hours of construction material deliveries and construction worker arrivals and departures.
- **TRA-AM #5 Construction Truck Routes:** Delivering construction-related equipment according to appropriate truck routes.
- **TRA-AM #6 Protection of Public Roadways during Construction:** Repairing public roadways damaged during construction.

- **TRA-AM #7 Maintenance of Public Transit Access and Routes:** Coordinating with the appropriate transit jurisdiction prior to limiting access.
- **TRA-AM #8 Construction Transportation Plan:** Construction traffic and employee shift changes will be limited during peak traffic hours, parking will be either off-street or off-site, with heavy construction vehicles traveling only in identified appropriate routes.
- **TRA-AM #9 Construction during Special Events:** Roadway construction activities will be limited during special public events so as to not interfere.
- **TRA-AM #10 Protection of Freight and Passenger Rail during Construction:** Restoring freight and passenger rail to pre-construction conditions.
- **TRA-AM #11 Additional Features in the Cities of Fresno and Bakersfield:** Alignment of roadways to be grade-separated and freeway overpasses to be reconstructed will be offset from the existing alignment to facilitate staged construction, wherever possible.

During project design and construction, the Authority will work with relevant agencies to implement the measures outlined above to reduce impacts on transportation resources. However, the Authority cannot require implementing agencies to adopt these mitigation measures and it is ultimately the responsibility of the implementing agency to determine and adopt project-specific mitigation.

3.2.6 Mitigation

3.2.6.1 Mitigation Measures from the May 2014 Project and the F-B LGA

The project design features were approved under the Fresno to Bakersfield Section Final EIR/EIS, and detailed descriptions of each feature can be found in the Final EIR/EIS (Authority and FRA 2014a, pages 3.2-121 to 3.2-124).

A Construction Transportation Plan, along with a traffic management plan, will minimize impacts. Construction traffic and HMF employee shift changes will be limited during peak traffic hours, parking will be either off-street or off-site, with heavy construction vehicles traveling only in identified appropriate routes. Public transit, pedestrian access, and bicycle access will be prioritized, and only rerouted if unavoidable, and any roadways, freight, and passenger railways will be restored to pre-construction condition. Roadway alignments that will be grade-separated will be offset to facilitate staged construction. A network of changeable message signs (CMS) will advise motorists of any detours or delays, and detection at signalized intersections will be maintained to prevent fixed signal timing. During special public events, roadway construction activities will be limited so as to not interfere.

Mitigation Measures

The following mitigation measures with the exception of TR-MM#10, in Table 3.2-30 were approved under the *Fresno to Bakersfield Section Mitigation and Monitoring Enforcement Plan* (Authority and FRA 2014b) and are summarized in the following tables. These measures are discussed in further detail in the *Fresno to Bakersfield Section Mitigation and Monitoring Enforcement Plan* (Authority and FRA 2014b). Based on the analysis conducted for the F-B LGA, these measures approved for the 2014 Project provided adequate mitigation for the project as modified in the F-B LGA.

Table 3.2-30 Transportation Measures

Mitigation Measure	Description
TR-MM#2	Modify signal phasing. Modify traffic signal phasing sequence to improve operations at a signalized intersection, in consultation with the appropriate jurisdiction to ensure the peak hour re-timing of the signal.
TR-MM#3	Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.
TR-MM#4	Restripe intersections. Restripe specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.
TR-MM#5	Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.
TR-MM#6	Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation.
TR-MM#7	Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.
TR-MM#8	Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation.
TR-MM#9	Restripe roadway segment. Restripe specific roadway segments in the vicinity of the proposed HSR station locations to improve LOS and roadway segment operation.
TR-MM#10	Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.

Mitigation Measures under Existing Plus Project Conditions

- **TR-MM#3.** Mohawk Street and Hageman Avenue: Install a traffic signal at the intersection.
- **TR-MM#5.** Real Road-SR 99 Southbound Ramps and California Avenue: Re-time the signal in the a.m. and p.m. peak hours.
- **TR-MM#5.** F Street and SR 204: Re-time the signal in the a.m. and p.m. peak hours.
- **TR-MM#3.** SR 99 Southbound Ramps and Olive Drive: Install a traffic signal at the intersection.
- **TR-MM#6, 7, 8.** F Street and 23rd Street: Widen the eastbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane.
- **TR-MM#6, 7, 8.** Union Avenue and Hayden Court-Sonora Street: Widen the southbound approach to provide two exclusive left-turn lanes, three exclusive through lanes, and one exclusive right-turn lane.

Mitigation Measures under Future (2035) Plus Project Conditions

- **TR-MM#8, 9.** SR 43 and Ash Avenue: Add a two-way left-turn lane on SR 43.
- **TR-MM#10.** Beech Avenue and Riverside Street: Convert to all-way stop control.
- **TR-MM#10.** Dole Court and Snow Road: Convert to all-way stop control.
- **TR-MM#3.** Norris Road and Snow Road: Install a traffic signal at the intersection.
- **TR-MM#3.** F Street and 30th Street: Install a traffic signal at the intersection.
- **TR-MM#3.** Beale Avenue and Jefferson Street-SR 178 Westbound Ramps: Install a traffic signal at the intersection.

- **TR-MM#3, 4, 7.** P Street and 8th Street: Install a traffic signal at the intersection. Restripe the eastbound and westbound approaches to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.
- **TR-MM#3.** Tulare Street and Truxtun Avenue: Install a traffic signal at the intersection.
- **TR-MM#3.** Mohawk Street and Hageman Road: Install a traffic signal at the intersection.
- **TR-MM#4.** Mohawk Street and Rosedale Highway: Add a second westbound left-turn lane. This improvement already exists but is currently closed due to construction activity at the intersection.
- **TR-MM#4, 7.** Q Street and 23rd Street: Restripe the eastbound and westbound approaches to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.
- **TR-MM#5.** Oak Street and Truxtun Avenue: Re-time the signal in the a.m. and p.m. peak hours.
- **TR-MM#5.** Union Avenue and California Avenue: Re-time the signal in the p.m. peak hour.
- **TR-MM#5.** F Street and 24th Street: Re-time the signal in the p.m. peak hour.
- **TR-MM#5.** Real Road-SR 99 Southbound Ramps and California Avenue: Re-time the signal in the a.m. and p.m. peak hours.
- **TR-MM#5.** F Street and SR 204: Re-time the signal in the a.m. and p.m. peak hours.
- **TR-MM#2.** F Street and 30th Street: Add overlap phasing for westbound right-turn lane.
- **TR-MM#6, 7, 8.** F Street and 23rd Street: Widen the eastbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane..
- **TR-MM#5, 6, 7, 8.** F Street and 23rd Street: Widen the eastbound approach to provide one exclusive left-turn lane, two exclusive through lanes, and one shared through/right-turn lane. Re-time the signal in the a.m. and p.m. peak hours.
- **TR-MM#6, 7.** Oak Street and Rosedale Highway-24th Street: Widen the eastbound approach to provide one exclusive left-turn lane, three exclusive through lanes, and one exclusive right-turn lane.
- **TR-MM#6, 7.** M Street and SR 204 and 28th Street: Widen the northbound approach to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.
- **TR-MM#4.** Q Street and 23rd Street: Restripe the eastbound and westbound approaches to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.
- **TR-MM#3, 4.** P Street and 8th Street: Install a traffic signal at the intersection. Restripe the eastbound and westbound approaches to provide an exclusive left-turn lane and shared through/right-turn lane at the intersection.
- **TR-MM#6, 7, 8.** Union Avenue and Hayden Court-Sonora Street: Widen the northbound approach to provide one exclusive left-turn lane, three exclusive through lanes, and one exclusive right-turn lane. Widen the southbound approach to provide two exclusive left-turn lanes, three exclusive through lanes, and one exclusive right-turn lane.
- **TR-MM#5.** Union Avenue and California Avenue: Re-time the signal in the p.m. peak hour.
- **TR-MM#3.** Tulare Street and Truxtun Avenue: Install a traffic signal at the intersection.
- **TR-MM#3.** Beale Avenue and Jefferson Street-SR 178 Westbound Ramps: Install a traffic signal at the intersection.
- **TR-MM#9.** F Street between 30th Street and 24th Street: Convert center two-way left-turn lane to a dedicated northbound through lane.

- **TR-MM#9.** 30th Street between F Street and H Street: Eliminate on-street parking to convert 30th Street from 2-lane Collector to 4-Lane Collector.

3.2.6.2 Mitigation Measures Specific to the F-B LGA

The F-B LGA will include engineering design features that would alleviate traffic conditions adjacent to the F Street Station site. Additional information regarding project design features is included in Chapter 2.0 of this Draft Supplemental EIR/EIS.

Specific mitigation measures (or portions of the measures) (TR-MM#3 through TR-MM#9) developed for Transportation in the F-B LGA TATR (Authority and FRA 2017), as listed in Table 3.2-31, are applicable to the F-B LGA. These measures include TR-MM#3 through TR-MM#9. The only new mitigation measure added specifically for the F-B LGA is TR-MM#10. Table 3.2-32 lists the mitigation measures for Transportation developed solely for the F-B LGA.

Table 3.2-31 Transportation Mitigation Measures

Number	Description
TR-MM#2	Modify signal phasing. Modify traffic signal phasing sequence to improve operations at a signalized intersection, in consultation with the appropriate jurisdiction to ensure the peak hour re-timing of the signal.
TR-MM#3	Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.
TR-MM#4	Restripe intersections. Restripe specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation.
TR-MM#5	Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed HSR station locations to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.
TR-MM#6	Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation.
TR-MM#7	Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.
TR-MM#8	Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation.
TR-MM#9	Restripe roadway segment. Restripe specific roadway segments in the vicinity of the proposed HSR station locations to improve LOS and roadway segment operation.
TR-MM#10	Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.

Source: Authority and FRA, 2014b

Table 3.2-32 Mitigation Measures Specifically Applicable to the F-B LGA

Number	Description
TR-MM#3	Add signal to intersection to improve LOS/operation. Add traffic signals to affected non-signalized intersections surrounding the proposed F Street station location to improve LOS and intersection operation.
TR-MM#4	Restripe intersections. Restripe specific intersections surrounding the proposed F Street station location to improve LOS and intersection operation.
TR-MM#5	Revise signal cycle length. Revise signal cycle length at specific intersections surrounding the proposed F Street station location to improve LOS and intersection operation in consultation with the local appropriate jurisdiction.

Number	Description
TR-MM#6	Widen approaches to intersections. Widen approaches to allow for additional turning or through-lanes to improve LOS and intersection operation.
TR-MM#7	Add exclusive turn lanes to intersections. Add exclusive turn lanes at specific intersections to improve LOS and intersection operation.
TR-MM#8	Add new lanes to roadway. Add additional roadway lanes to improve LOS and intersection operation.
TR-MM#9	Restripe roadway segment. Restripe specific roadway segments in the vicinity of the proposed F street station location to improve LOS and roadway segment operation.
TR-MM#10	Convert intersection stop control. Convert intersection stop-control from a two-way stop to an all-way stop.

Source: Authority and FRA, 2017

- **TR-MM#8, 9.** SR 43 and Ash Avenue: Add a two-way left-turn lane on SR 43.
- **TR-MM#10.** Beech Avenue and Riverside Street: Convert to all-way stop control.
- **TR-MM#10.** Dole Court and Snow Road: Convert to all-way stop control.
- **TR-MM#3.** Norris Road and Snow Road: Install a traffic signal at the intersection.
- **TR-MM#3.** Mohawk Street and Hageman Road: Install a traffic signal at the intersection.
- **TR-MM#4.** Mohawk Street and Rosedale Highway: Add a second westbound left-turn lane. This improvement already exists but is currently closed due to construction activity at the intersection.
- **TR-MM#6, 7.** Oak Street and Rosedale Highway-24th Street: Widen the eastbound approach to provide one exclusive left-turn lane, three exclusive through lanes, and one exclusive right-turn lane.
- **TR-MM#3.** SR 99 Southbound Ramps and Olive Drive: Install a traffic signal at the intersection.
- **TR-MM#5.** F Street and 24th Street: Re-time the signal in the p.m. peak hour.
- **TR-MM#9.** F Street between 30th Street and 24th Street: Convert center two-way left-turn lane to a dedicated northbound through lane.
- **TR-MM#9.** 30th Street between F Street and H Street: Eliminate on-street parking to convert 30th Street from 2-lane Collector to 4-Lane Collector.

Construction of the roadway and intersection improvements defined in Mitigation Measures TR-MM#2 through TR-MM#10 has the potential to create secondary environmental impacts associated with air quality, biological resources, cultural resources, noise, and water quality. However, all of the improvements defined in these mitigation measures can be implemented within existing roadway rights-of-way. For this reason, no impact or a less than significant impact to biological and cultural resources would occur. Water quality impacts would be mitigated through implementation of best management practices as dictated by the compensatory nationwide construction permit that each improvement project would need to obtain from the Army Corps of Engineers. Air quality and noise impacts from construction of the improvements would be temporary in nature, and would cease once the roadway or intersection improvement becomes operational. The specific roadway and intersection improvements are relatively small, and for that reason would not generate air pollution emissions that would exceed thresholds of significance. Hours of construction would be scheduled to abide by all local noise regulations, which prohibit construction during nights and morning hours as well as weekends and holidays. Consequently, secondary impacts associated with the future construction of these improvements would be less than significant and additional mitigation is not required.